THE ROLE OF DIALECTAL VARIATION IN THE ACQUISITION OF SPECIFIC ENGLISH AFFRICATE AND FRICATIVE SOUNDS BY SAUDI EFL LEARNERS SPEAKING THE HWAITI AND HIJAZI DIALECTS

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ABSTRACT

Despite the multifarious studies investigating the acquisition of English as a second language (L2) by Arabic-speaking learners, very few have examined the influence of learners' dialects on their pronunciation of English consonants. Therefore, this thesis aims to explore the impact of L2 learners' dialects on their pronunciation of the English affricative and fricative sounds. To achieve this goal, the articulation of the sounds /ʤ /, /θ/, /ð/, and /v/ by 40 female senior undergraduate Saudi learners (20 Hwaiti Bedouins and 20 Hijazi Urbans) at Tabuk University were recorded and then rated by two L1 speakers of English. The main hypotheses were that Hijazi speakers would mispronounce /ʤ/, /θ/, and /ð/ because they are not part of their dialect yet they are part of the Hwaiti Bedouin dialect and that both groups would devoice the phoneme /v/ by pronouncing it as /f/ because /v/ is not in the Arabic sound system. This thesis uses quantitative methods: a demographic information questionnaire, LexTALE English proficiency test, Arabic and English production tasks, along with statistical analyses of the collected data by using RStudio (2021). The errors are classified based on Flege and Bohn's Speech Learning Model (SLM) (2021). The theoretical framework is an amalgamation of milestone theories, mainly Cross-Linguistic Influence (Bild & Swain, 1989; Tati *et al.*, 2015; Odlin, 1989, 2012; De Angelis and Selinker, 2001), Eckman's Markedness Differential Hypothesis (1985), and Flege and Bohn's SLM (2021). Each contributes to the analysis of cross-language interaction, phonological transfer patterns, and L2 phonetic learning. The main finding is that the two groups were affected by their dialect sound systems when producing the selected phonemes.

Interestingly, the two heterogenous groups had similarities in the type (albeit not the frequency) of sound substitutions: they both pronounced /ʤ/ as [g] or [ʒ], /θ/ as [s] or [t], and /ð/ as [z]. Moreover, the most challenging phoneme to pronounce by the Hijazi group was /ʤ/ in the middle position of words, whereas for the Hwaiti Bedouin group, it was /θ/, also, in the middle position. Future researchers can expand upon this study to include other dialects.

Keywords: Affricate, Dialect, First language, Fricative, Second language

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DEDICATION

To my father, Nassir, who was my first teacher. Your soul continues to inspire me every day.

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LIST OF ABBREVAITIONS

The following abbreviations are used throughout this thesis:

CA	CA
CLI	Cross-linguistic influence
H variety	High variety (standard)
L1	First language
L2	Second Language
L variety	Low or vernacular Variety (Dialect)
MDH	Marked Differential Hypothesis
PAM	Perceptual Assimilation Model
SA	Standard Arabic
SLA	Second Language Acquisition
SLM	Speech Learning Model
VSO	Verb, subject, object

CHAPTER 1

INTRODUCTION

1.1 A Brief Overview of Languages and Dialects

A language is a conceptual system of symbols and meanings managed by linguistic rules (Crystal, 2008). Among these linguistic rules is phonology, which deals with the systematic organisation of sounds in languages, and varies between languages (Yule, 2016). The current thesis focuses on Arabic and English to investigate how the phonological differences between these two languages affect sound patterns in SLA. The linguistic system of the Arabic language differs significantly from English since Arabic is a Semitic language[1], whereas English belongs to the West Germanic branch of the Indo-European family of languages[2] (Kaladeh, 2016; Alshalaan, 2020). For instance, the two languages differ in terms of their sound system, with many sounds existing in one language but not in the other. These distinct phonological systems between Arabic and English contribute to the rich diversity of standard and non-standard language forms found in both languages (Crystal, 2003; Ferguson, 2007). Ferguson (2007) used the symbol 'L' (low) to refer to the non-standard or vernacular variety and 'H' (high) to refer to the standard or formal variety of a language. A standard form of language is formal and, therefore, it is used by governments and learning institutions, whereas a non-standard form is informal and changes depending on where it is spoken (Trudgill, 2000). For non-standard variety, Mahmoud (2000) argues that its use has become more popular in oral production, whilst Isleem (2014) and Khalil (2012) claim that it is widely used in written production as well. This widespread use of non-standard variety reflects broader patterns of social variation, as Wolfram and Schilling (2016) state that "language differences are unavoidable in a society composed of

[1] The Semitic languages are a branch of the Afro-asiatic language family. They include Arabic, Amharic, Hebrew, and numerous other ancient and modern languages.

[2] English is a West Germanic language in the Indo-European language family spoken natively in some countries and as a second or additional language in many others, reflecting diverse dialects and cultural contexts.

a variety of social groups" (2016: 22). Thus, people's language use differs in terms of both spoken and written systems because major languages have a standard variety and various dialects associated different social groups.

Dialects are defined as types of languages spoken in particular geographical areas or by a specific group of people, so they are social or regional variations of a language (Budiarsa, 2015). These variations are distinguished by grammar, pronunciation, and/or vocabulary. Linguists define "the term 'dialect' as a neutral label to refer to any variety of a language that is shared by a group of speakers" (Wolfram & Schilling, 2016: 22). Walters (1996) argues that the varieties of a given language can become progressively dissimilar, pointing out that the standard written variety remains stable, whilst spoken variety continue to develop. Also, Freguson (1959) states that there is a degree of variation in Arabic dialects from one country to another. In each Arab country, diglossic situations [3]can be found, particularly in oral contexts (see Section 2.1.4). Walters' and Ferguson's studies reveal that speakers from distant areas within the same country have different dialects.

The Arabian Peninsula comprises CA, the language of the Quran, and many Arabic dialects including Bedouin and Urban. Citizens of the Kingdom of Saudi Arabia speak different dialects called Saudi dialects and they are associated with Bedouin and Urban roots. Among these dialects are Hwaiti Bedouin and Hijazi Urban. Hwaiti is the Bedouin dialect of the Hwaiti tribe, the majority of whom live in Al-bad'a, Haqel, and Tabuk, in the north-western region of Saudi Arabia. Meanwhile, the Hijazi Urban dialect is spoken in Makkah, Jeddah, and Madinah, in the western region of Saudi Arabia (see Figure 1).

[3] In linguistics, diglossia is defined as "two or more varieties of the same language that some speakers use under different conditions" (Ferguson, 1959: 325). Hudson (2002) describes the birth of diglossia as the outcome of the relationship between a linguistic form and its social function in society. It reflects a situation in which two dialects or languages are used by a single language community. Al-Batal (1995) and Jaradat and Alkhwaldeh (2015) argue that diglossia is one of the most prevalent characteristics of the Arabic language. In Arabic communities, the Arabic language has two main varieties: Standard Arabic, which is used in academic positions and formal contexts, and nonstandard Arabic, which is in the form of dialects created as a result of the language change process and is used in everyday life

Figure 1: Hwaiti Tribe in the Northwestern Region and Hijazi Tribe in the Western Region of Saudi Arabia, 2021

Source: Adapted from Einstein, 2006 (cited in Alhazmi, 2021)

As shown above map on the map, the Hwaiti tribe mainly lived in Tabuk in the northwest of Saudi Arabia, and some of the Hwaiti Bedouin people are scattered in different parts of Sinai and South Jordan. The Hwaiti tribes originated from Tawäyha. The primary root settled in Al-bad'a in northwest Saudi Arabia. The Hwaiti tribes also include scattered sub-tribes living in Al-bad'a, such as the Umerät clan (Palva, 2004). As for Most Hijazi inhabitants, they live in three main cities: Makkah, Jeddah, and Madinah. The rest of the other western cities (Yanbu, Rabgh, and Alwajh) includes a low level of Hijazi people and other Bedouin and rural inhabitants (Bokhari, 2020). The Hijazi region stretches along part of the Red Sea in the Arabian Peninsula to the west. While Makkah and Madinah are not located along the coast, Jeddah is one of the most important international ports in the world. The current research focuses on the Hwaiti Bedouin Arabic dialect, and it will be compared with the Hijazi Arabic dialect. These two Saudi dialects

have similarities and differences. At the phonological level, there are notable phonological differences between Hwaiti Bedouin and Hijazi Urban dialects. These differences are reflected in their pronunciation tendencies, and contribute to the unique phonological profiles of each dialect. Additionally, such differences may affect how speakers perceive and produce sounds in an additional language, particularly when the target language includes phonological contrasts that are absent or differently realised in the speakers' dialects (Flege, 1959; Siregar, 2017). More details about the linguistic characteristics of the Hwaiti Bedouin and Hijazi Urban Arabic dialects will be presented in the second chapter.

1.2 The Acquisition of English as a Second Language by Arabic-Speaking Learners

One of the most significant dimensions regarding how native speakers assess L2 learners' proficiency is pronunciation (Levis, 2006). It is viewed as one of the essential aspects of lexical knowledge (Nation, 2013). Studies reveal that L2 learners with better pronunciation are often judged to be more proficient, even in the presence of grammatical errors (Ludwig, 1982). This demonstrates the potential influence that pronunciation can have on perceived proficiency. Previous studies have investigated the acquisition of English as a target language by Arabic-speaking learners. These studies have focused on morphological and phonological aspects in relation to the influence of standard Arabic (SA), with limited attention being paid to the vernacular variety (e.g., Asma, 2010; Ahmed, 2011; Al-Yaari *et al.*, 2012; Alayash, 2012; Abu Humeid, 2013; Jabali & Abuzaid, 2017; Hamza *et al.*, 2020; Abd Elwahab, 2020; Abohajar *et al.*, 2023).

In the Arab world, Arabic-speaking English learners have difficulties articulating certain English consonants, "particularly those not found in the Arabic system" (Altakhaineh *et al.*, 2022: 52). Hence, Arabic speakers may have difficulty pronouncing English affricate and fricative consonants. The pronunciation of English consonants that do not exist in the Arabic language can be affected by how the learner pronounces similar sounds in their L1. According to Corder (1975), cross-linguistic influence (CLI) may lead to either positive transfer from L2

learners' mother tongue or to incorrect forms as a result of negative transfer from the L1 to L2. Corder (1975) states that L2 learners unconsciously rely on their L1 when learning the target language. Furthermore, Gas (1979) points out that L1 is regarded as a foundation of knowledge by L2 learners when producing target items. The influence of L1 on the acquisition of L2 is a prevalent area for research, requiring further investigation to determine whether L1 knowledge supports or interferes with Arab students' acquisition of English as an L2.

This pattern is further illustrated in research concerning other languages, where the influence of the native language variant on English acquisition has also been detected. For instance, Liu (2021) states that Chinese learners of English unconsciously transfer the pronunciation common in their dialect to their pronunciation of English words. However, this migration of pronunciation is negative when the L1 dialect and L2 have different pronunciation rules and sounds because this transference "hinders the learning of English speech" (Liu, 2021: 33). However, Liu indicates that Chinese speakers' L1 dialect can enhance their ability to detect unfamiliar sounds in the target language, enabling them to achieve better pronunciation skills. Liu, consequently, adds that Chinses speakers' awareness of their L1 dialect's phonological system can develop their phonological awareness and the accuracy of their second-language acquisition. Similarly, Siregar (2017) indicates that the diversity of the Indonesian language influences students' pronunciation of English. He illustrates that when Sundanese, Javanese, and Batakanese speakers pronounce some English words, they are influenced by their local dialects. Siregar (2017) points out that these dialects are forms of the same language, but they differ in their linguistic features, including grammar, vocabulary, and pronunciation. Hence, this would affect intelligibility when they communicate in English because they may exhibit phonological transfer patterns from their L1 dialects. Although their speech may be accented and still intelligible, the degree of intelligibility may vary depending on the context as they may exhibit various phonological transfer patterns from their L1 dialects.

Many linguists have explored the production of English sounds by Arabic speakers and

generalised the findings to all Arabic speakers as English language learners, indicating that they all face the same challenges when acquiring English phonemes (c.f., Ahmed, 2011; Jabali and Abuzaid, 2017; Ababneh, 2018; Alzinaidi & Abdel Latif, 2019; Farah & Halahlah, 2020; Hamza *et al.*, 2020). However, Alswayan (2018) states that "not all Arabic speakers will face the same issues when learning a new language" (Alswayan, 2018: 236). She adds that Arabic speakers differ in their dialects in terms of pronunciation and other linguistic features. Therefore, Alswayan suggests that future research should concentrate on Arabic dialects as separate languages when investigating the challenges that Arabic-speaking learners of English as an L2 face when they acquire target English sounds.

The literature review shows that L2 learners, regardless of their mother tongue, experience difficulty with English affricate and fricative sounds (see Chapter 3). Most of these studies discuss the influence of SA on L2 learners' productions of English affricate and fricative sounds (Ahmed, 2011; Jabali and Abuzaid, 2017; Ababneh, 2018; Alzinaidi & Abdel Latif, 2019; Farah & Halahlah, 2020; Hamza et al., 2020). However, the impact of speakers' Arabic dialects on their pronunciation of English consonants, to the best of my knowledge, remains under-researched, with the existing studies lacking empirical data. Only very few studies have explored Arabic learners' productions of English affricate and fricative sounds in relation to L2 learners' Arabic dialects (c.f., Abd Elwahab, 2020; Abohajar et al., 2023) (see Chapter 3). Thus, the current study has chosen two widely-spoken Saudi Arabic dialects (the Bedouin and Urban Saudi dialects) to examine the production of the English affricate sound /ʤ/ and the English fricatives /θ/, /ð/, and /v/ by these two groups. The study seeks to identify the influence of their dialects on their articulation of these English affricate and fricative consonant sounds and whether that dialectal influence results in differences between the two groups' patterns of acquisition.

1.3 Research Problem

A dialect is one of the essential aspects of language and communication (Siregar, 2017). It is

characterised by systematic differences in several linguistic features including grammar, vocabulary, and pronunciation. It reflects the identity of a society (Crystal, 2003). Therefore, pronunciation, as the main focus of the current study, is a structured feature of a speaker's dialect. It is shaped by the dialectal background encoded by specific phonemic inventory and phonological rules. In this context, Crystal (2003) claims that pronunciation can function as a signal of social or regional identity, even among English speakers. Thus, a dialect may have a clear influence on the acquisition of L2 pronunciation. It is among a range of factors, alongside age, exposure, attitude, and motivation that affect pronunciation (Siregar, 2017). Based on this, effective pronunciation is essential for communicative competence, as it directly enhances intelligibility (Gilakjani, 2016). In the current research, 'effective pronunciation' is defined in relation to the institutional variety adopted at Tabuk University, where the experiment was conducted, namely British English. Although English exhibits extensive global variation across both L1 and L2 speakers, this choice reflects the pronunciation norms typically employed for evaluation within academic settings. Hence, in the current study, the mispronunciation of specific English consonants has implications for not only intelligibility, but also how speakers are evaluated in academic contexts where adherence to standard (institutional) pronunciation norms is expected.

Saudi learners of English as an L2 are native speakers of the Arabic language; they use SA in formal communication yet they speak various Arabic national dialects (L variety). These dialects differ from one region to another in Saudi Arabia in terms of their phonological characteristics. In relation to the current study, many researchers have investigated the production of English consonant sounds by Arab learners of English as an L2, focusing on the negative transfer from the SA (H variety), with insufficient investigation having been conducted into the positive or negative influence of other Arabic dialects (L variety) on the pronunciation of English consonant sounds (Ahmed, 2011; Jabali and Abuzaid, 2017; Ababneh, 2018; Alzinaidi & Abdel Latif, 2019; Farah & Halahlah, 2020; Hamza et al., 2020). The present study

focuses on specific English phonemes that are viewed as problematic sounds for Arabic-speaking learners of English (see Section 3.5). These phonemes differ across dialects. To investigate the influence of dialectal variation on the acquisition of the English sounds, two Saudi Arabic dialects, which differ in these phonemes, are chosen: Hijazi Urban and Hwaiti Bedouin dialects.

Whilst the sound /ʤ/ is part of the Hwaiti Bedouin sound system, it does not exist in the Hijazi dialect. Many Arabs do not distinguish between the sounds /ʤ/ and /ʒ/ and they deal with the English sound /ʤ/ as the counterpart of the Arabic sound ج/*jeem*, used in CA and SA and pronounced as /ʒ/ in Saudi Arabia. According to Chouchane (2016), the /ʤ/ sound does not exist in CA or SA as a digraph sound. In SA, the /d/ and /ʒ/ phonemes are two separate sounds and they are articulated separately but not as a single sound as the English sound /ʤ/. Chouchane argues that in other Arabic dialects, the /g/ and /ʒ/ sounds are found as allophones of the Arabic consonant /ج *jeem*. Similarly, Jabali and Abuzaid (2017: 123) state:

"Some other sounds might not be as problematic to some regions as other regions. For example, the affricates /tʃ/ and /ʤ/ do exist in some Arabic spoken-dialects like Saudi and Iraqi but as allophones, not phonemes; therefore, speakers of those dialects are able to pronounce those sounds correctly."

This quote indicates that the sounds /tʃ/ and /ʤ/, which do not exist in the SA sound system, occur in some Saudi dialects as allophones for the sounds /ʃ/ and /ʒ/, respectively. Also, Jabali and Abuzaid (2017) investigate the production of /p/, /tʃ/, /ʤ/, /ɹ/, and /ŋ/. However, they indicate that Palestinian participants experience difficulties when pronouncing the sound /ʤ/ in different positions because this sound does not exist in the Palestinian Arabic dialect, so most Palestinian informants (58%) mispronounce this sound. Jabali and Abuzaid conclude that the sound /ʤ/ is problematic and the difficulty is linked to the position of the phoneme in words. This area requires further research to investigate whether or not the existence of /ʤ/ in the Hwaiti Bedouin dialect affects Hwaiti Bedouin speakers positively when pronouncing its English

counterpart in different positions.

In addition to /ʤ/, /θ/, /ð/, and /v/ are problematic sounds for Arabic-speaking learners. For instance, Alzinaidi and Abdel Latif (2019) examined the difficulties that L2 learners face when producing English consonants (see Subsection 3.5.2). They diagnosed the participants' errors in pronouncing these problematic consonant sounds, finding that the students made more errors in initial positions for /v/ and /θ/ and final positions for / ð/. Alzinaidi and Abdel Latif confirmed that the position has an effect on pronunciation. However, this study, along with other studies (e.g., Ahmed, 2011), reported inconclusive results regarding specifying the impact of the position of each phoneme on the speakers' productions.

The current research aims to fill the gap in the literature and explore whether learners' dialects influence their acquisition of the English Affricate /ʤ/ and fricative /ð/, /θ/, and /v/. There are several reasons for choosing these four English phonemes as the core of the current study. First, based on previous studies, the English phonemes /ʤ/, /ð/, /θ/, and /v/ are problematic for Arabic-speaking English learners and, therefore, the current study focuses on these four phonemes. Second, the English affricate /ʤ/ has no Arabic phoneme counterparts in SA but the diversity of the Arabic language, which includes different vernacular dialects, leads to differences in the linguistic properties of each Arabic version. Therefore, the current research investigates the pronunciation of Hwaiti Bedouin speakers, whose dialect includes the sound /ʤ/ and compares it to the production by Hijazi Urban speakers, whose dialect lacks this sound. Second, the English dental fricatives /θ/ and /ð/ have counterparts in SA but not in all Arabic dialects such as Egyptian, Lebanese, or Moroccan, among others (see Chapter 3). Some Saudi Bedouin dialects, including Hwaiti Bedouin, comprise the phonemes /θ/ and /ð/, whereas the Saudi Urban dialects, including Hijazi Urban, do not feature these phonemes. Hence, the problem lies in the existence of the sounds /ʤ/, /ð/, and /θ/ in Hwaiti Bedouin dialect and the lack of the same phonemes in the Hijazi Urban dialect. What makes the situation more complex is that the sound /v/ does not have an equivalent in either the Hwaiti Bedouin or Hijazi dialects. Thus, the current study examines the production of

the voiced palato-alveolar affricate /dʒ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labiodental fricative /v/ by the Hwaiti Bedouin and Hijazi Urban participants in relation to the dialectal variation influence. The four selected phonemes may may pose systematic phonological challenges to Hwaiti Bedouin and Hijazi Urban speakers and mispronouncing them may reduce intelligibility in communicative contexts where these contrasts are crucial for meaning, particularly in cases where mispronunciation could lead to misunderstanding, such as distinguishing minimal pairs like "thin" vs "fin". The two groups of speakers provide a meaningful point of comparison for investigating dialectal variation influence which could lead to phonemic transfer to English resulting in the emergence of different patterns of acquisition.

The researcher expects that Hwaiti Bedouin students are able, to some extent, to encode the English consonant sounds /dʒ/, /θ/, and /ð/ in initial, middle, and final positions because these sounds exist in the Hwaiti Bedouin dialect, whereas Hijazi informants are envisaged to mispronounce these sounds because they do not all form part of the Hijazi consonant sounds inventory. Therefore, the current study explores empirically the production of certain English consonant sounds by two Saudi groups whose dialects have not previously been studied (Hwaiti Bedouin and Hijazi Urban) to determine the impact of their dialects on their productions of four English consonants.

1.4 Research Aims and Objectives

This study aims to investigate the production of specific English phonemes by two dialect-based heterogeneous groups of speakers. In accordance with the research aim, the study sets out to achieve the following objectives: 1) To compare the productions of Hwaiti Bedouin and Hijazi Urban students' productions of the English consonant sounds /dʒ/, /θ/, /ð/, and /v/; 2) To explore the most problematic linguistic position of the English affricate /dʒ/ and the English fricatives /θ/, /ð/, and /v/ for Hwaiti Bedouin and Hijazi Urban students as a phonological error pattern; and 3) To determine whether the existence of the affricate /dʒ/ and the fricatives /θ/ and /ð/ in

the Hwaiti Bedouin dialect are a positive reference for the Hwaiti Bedouin participants when they produce these sounds in English, while the absence of these sounds in the Hijazi Urban dialect may result in mispronunciations by the speakers, which may hinder intelligibility in communicative situations.

1.5 Research Questions and Hypotheses

This research sets out to answer the following questions:

1- How do Hwaiti Bedouin and Hijazi Urban students produce the English consonant sounds /ʤ/, /θ/, /ð/, and /v/?
2- What is the effect of word position on the learners' productions of the English phonemes /ʤ/, /θ/, /ð/, and /v/?
3- To what extent are the Hwaiti Bedouin and Hijazi Urban speakers' substitutions of the English phonemes /ʤ/, /θ/, /ð/, and /v/ influenced by the consonantal variation in their own dialects?

After formulating the problem and forming the research questions, I developed three empirical hypotheses based on real evidence that is verifiable by observation and examination. The first hypothesis is that Hwaiti Bedouin students are not expected to have difficulty in pronouncing /ʤ/, /θ/, or /ð/ because these phonemes exist in the Hwaiti Bedouin dialect in Saudi Arabia. The Hijazi Urban speakers, in contrast, are expected to find it difficult to pronounce these sounds because they are not part of their native language inventory and, consequently, this may affect intelligibility in communicative contexts. However, it is expected that neither Hwaiti Bedouin nor Hijazi Urban speakers will be able to accurately pronounce /v/ due to the fact that it does not feature in their dialects. The second hypothesis is that L2 learners are expected to encounter greater difficulty in pronouncing the sounds /ʤ/, /θ/, /ð/, and /v/ in the middle and final positions of words than in the initial position. This assumption is supported by previous research concerning the impact of the positions of phonemes in words on L2 learners' productions (e.g.,

Rustiba, 2009; Ahmed, 2011; Bui, 2016; Kurniawan, 2016; Jabali & Abuzaid, 2017; Mulyadi *et al.*, 2018; Hamza *et al.*, 2020). Thus, I anticipate that these positions will also be more difficult for Hijazi Arabic speakers in the current study but that may not be the case for the Hwaiti Bedouin respondents. However, the results of previous studies exhibit conflicting views regarding the difficulties faced by Arabs when producing these phonemes in different word positions; hence, the current study aims to investigate how phoneme position affects the production of /ʤ/, /θ/, /ð/, and /v/ by Hijazi Urban and Hwaiti Bedouin learners of English, highlighting whether some positions are more difficult than others for both Hijazi Urban and Hwaiti Bedouin speakers.

The third hypothesis is that Hwaiti Bedouin students are expected to be significantly positively affected by their mother tongue's inventory consonant system when producing the /ʤ/, /θ/, and /ð/ sounds, whereas the Hijazi speakers are expected to deaffricate the sound /ʤ/ and replace /θ/ and /ð/ with other variants due to the consonantal variation in their dialect. With regards to /v/, it is expected that both groups will devoice the phoneme /v/ by substituting it with /f/ because the latter is used in their own dialects. Overall, the theoretical basis underlying the selection of the target phonemes and the formulation of the study's hypotheses is discussed in detail in Chapter 3.

1.6 Research Variables

This study examines the production of specific English consonant sounds by Saudi Arabic-speaking English learners from two different dialectal backgrounds: Hijazi Urban and Hwaiti Bedouin. In the current study, the dependent variable is the rating scores assigned to the speakers' productions by native English-speaking raters. The fixed effects include the selected English sounds/ʤ/, /θ/, /ð/, and /v/, position of a phoneme (initial, middle, and final; e.g., [jungle], /ʤʌŋgl/; [wager], /weiʤə/; [sage], /seiʤ/), and speakers' dialects (Hijazi Urban and Hwaiti Bedouin dialects), while participants and items are the random effects to account for individual and item-based variation. Chapter 4 provides a detailed methodological account to

examine the effects of dialectal differences, chosen sounds, and phoneme position on the rated productions of the speakers.

1.7 Research Significance

The significance of this study lies in its contribution to the body of knowledge in the fields of linguistics, sociology, education, and languages because applied linguistics is an interdisciplinary field that incorporates ideas from various fields. This thesis is among the first studies to examine dialectal differences in the pronunciation of four sounds (/ʤ/, /θ/, /ð/, and /v/) in two Arab groups (Hijazi Urban and Hwaiti Bedouin speakers), revealing that students' dialects may affect their pronunciation of different English phonemes in different positions. This can take us to a broader area of knowledge and make us think about languages and dialects, especially their roles in people's communication. Therefore, the current study is significant in many respects; first, the findings of this study will provide useful information for L2 learners, so when pronouncing English words, students may pay more attention to the phonological structure of the English phonemes in these words. For instance, the findings may help Hwaiti Bedouin and Hijazi Urban speakers who are learners of English as an L2 to improve their pronunciation of certain phonological structures in the English language.

Another significance of this study is that it will provide important knowledge for English language educators and curriculum committees to improve course syllabi so that they are more appropriate and better match students' needs. The findings of the current study might help L2 teachers to realise that in teaching English as an L2, students require phonological training in how to produce English sounds, specifically the sounds that they lack in their own dialects. In other words, the results of this study will help English language teachers to develop suitable strategies when teaching English as an L2 for two heterogeneous groups who have different Arabic backgrounds. Consequently, instructors will take learners' dialectal phonological systems into consideration because identifying the principles that govern the way sounds are produced in these systems can help teachers to determine the sounds that students find difficult

to articulate and provide them with appropriate activities to eliminate the phonological problems that learners encounter in order to improve their pronunciation. Furthermore, the results of the current study will provide insightful information concerning the challenging phonological positions of the English affricate /ʤ/ and the English fricatives /θ/, /ð/, and /v/ among Hwaiti Bedouin and Hijazi Urban learners of English as an L2.

1.8 Conceptualising Language, Dialect, and Variety

There is no consensus regarding the terminologies relating to language variation in linguistic anthropology and sociolinguistics. It is often the case that terms such as *variety*, *dialect*, and *language* are considered to be neutral linguistic categories, but social, ideological, political, and historical factors frequently influence their use (Wardhaugh & Fuller, 2021; Irvine, 2001). Therefore, it is not possible to rely on structural linguistic distinctions when seeking to understand such concepts. Instead, they are firmly rooted in wider the issues of power, legitimacy, identity, and prestige (Bourdieu, 1991). This matter is especially relevant when considering the English and Arabic languages, which both exhibit significant variation in terms of cultural, social, and geographical contexts (Versteegh, 2014; Mesthrie et al., 2009).

A hierarchy has previously been used to conceptualise language and dialect, whereby the legitimate (standardised) form is language and the subordinate (non-standard) form is dialect (Milroy & Milroy, 2012). It is not usually the case, however, that linguistic criteria alone form the basis of such distinctions. For instance, Weinreich (1945, cited in Chambers & Trudgill, 1998) stated that "a language is a dialect with an army and navy," thereby demonstrating how the distinction between whether a speech form is classified as a dialect or a language is influenced by standardisation, nationalism, institutional recognition, and political authority. In this sense, linguistic legitimacy is not inherently linguistic but rather constructed socially (Bourdieu, 1991).

Notable ideological implications are associated with the distinction between dialect and language. Whilst dialects are frequently stigmatised and regarded as being linguistically inferior,

there is typically an association between standard languages and institutional authority, prestige, literacy, and education (Lippi-Green, 2012). The most recent literature concerning sociolinguistics questions whether such assumptions are valid, making the case that every dialect is a rule-governed, systematic linguistic system (Labov, 1972). Dialectal variation is not limited to phonology and pronunciation because it also includes discourse-level, pragmatic, lexical, and morpho-syntactic features (Chambers & Trudgill, 1998). Therefore, it would be a mistake to consider dialects as simplified or 'incorrect' versions of a standard language because they are in fact linguistic systems that have legitimacy and have been influenced by history and social developments.

The term *dialect* has numerous ideological and hierarchical associations and, therefore, it is often the case that the term *variety* is employed by sociologists as a somewhat neutral category (Holmes & Wilson, 2022). Variety can be used when referring with any identifiable form of language typically associated with a certain communicative context, ethnicity, social group, or geographical region. When discussing linguistic variation, variety offers a greater degree of analytical flexibility by avoiding presupposing distinctions of legitimacy or prestige (Wardhaugh & Fuller, 2021). In the current research, *variety* is employed when referring in a general sense to English and Arabic forms whilst avoiding evaluative hierarchies between standard and non-standard forms being implied.

Such matters are especially relevant when considering English and Arabic because these languages are associated with a considerable degree of internal diversity. Modern Standard Arabic, Classical Arabic and various social and regional varieties of the language collectively present a highly complicated continuum with morpho-syntactical, lexical, and phonological differences (Versteegh, 2014; Holes, 2004). Whilst these varieties all fall into the grouping of 'Arabic,' certain varieties are less mutually intelligible (Bassiouney, 2020). In addition, those who speak Arabic often draw upon distinct diglossic relationships between vernacular and standardised Arabic. Whereas spoken varieties serve the purpose of identity construction and

day-to-day interactions, Modern Standard Arabic is used to express institutional prestige (Ferguson, 1959; Bassiouney, 2020).

In much the same way, English is not a singular homogenous language. The influence of post-colonial, social, and regional contexts has resulted in what the recent literature refers to as multiple 'Englishes' (Kachru, 1992). Systematic differences in these varieties (e.g., British English, American English, African American English, and World Englishes) are evident at the pragmatic, grammatical, lexical, and phonological levels (Mesthrie et al., 2009). It is not merely linguistic superiority that determines which standard forms of English are privileged, but rather wider political and social histories (Milroy & Milroy, 2012).

There is a close relationship between language variation and identity construction. When indexing social positioning, locality, ethnicity, authenticity, solidarity, and belonging, it is often the case that speakers will utilise vernacular and dialectal features (Bucholtz & Hall, 2005). As such, varieties and dialects are more than simply communicative systems because they also serve as the cultural and social resources required to perform and negotiate identities. Such an appreciation is highly relevant when conducting research based on English and Arabic where linguistic decisions are of ideological and cultural significance.

Given that these terms are ideologically and conceptually complex, the current research's approach to terminology is flexible and critical. The category of *variety* is relatively neutral and wide-ranging, including social and regional forms of the two languages. Meanwhile, *dialect* is employed to refer to linguistic systems that are socially or geographically situated, whilst avoiding any implication of being linguistically inferior. The term *language* is only used when a context involves established sociopolitical classification, standardisations, or institutional recognition. By doing so, it is intended that the current research will be terminologically consistent throughout, whilst recognising that linguistic categorisation is inherently socially constructed.

1.9 Research Structure

This thesis comprises six chapters. Following the Introduction, Chapter 2 presents an overview of the Arabic language in the Arabian Peninsula and the English language from a historical and sociolinguistic perspective. First, it first identifies the origins of the Arabic language by introducing its place of origin, speakers, and uses before and during the period of Islam. Furthermore, it also explores the development of Arabic language highlighting its main varieties including CA, SA, and vernacular Arabic. The chapter then moves to discuss the development of the English langue highlighting its pluricentricity and importantly, in addition to its current position as global lingua franca. Chapter 3 includes two main sections. The first section provides a critique of previous studies concerning the English affricates and fricatives and their counterparts in the Arabic language. This section surveys studies regarding the difficulty that English language learners experience in pronouncing English affricate and fricative sounds and other studies concerning the effect of the L1 system on the production of English fricatives and affricates.

The second section in chapter 3 presents the milestone theories that can be applied as a theoretical framework to provide a general view of the research problem and how it is discussed in established theories. Therefore, the chapter reviews the phenomenon of CLI (Bild & Swain, 1989; Tati *et al.*, 2015; Odlin, 1989, 2012; De Angelis and Selinker, 2001), highlighting two main components which explain the L2 acquisition process: Native Language Transfer (Lado, 1957) and Interlanguage (Selinker, 1974). Furthermore, it introduces Eckman's Markedness Differential Hypothesis (MDH) (1985), Flege and Bohn's SLM (2021), and Best and Tyler's Perceptual Assimilation Model (PAM) (2007). These theories broaden the readers' understanding of concepts relevant to the topic of this thesis in order to relate the research to the broader body of knowledge.

Chapter 4 discusses the research methodology. It introduces the methods employed for data collection and data analysis, along with the results of the production tasks conducted at Tabuk University in Saudi Arabia. The chapter introduces the participants engaged in this study,

the raters, and selected phonemes. It notes the ethical considerations and, in order to answer the research questions and provide reliable and valid findings, it implements five quantitative methods. These quantitative methods are a demographic information questionnaire; LexTALE English proficiency test; an Arabic production task; an English production task; and an acoustic analysis of the Hwaiti Bedouins' and Hijazi Urbans' productions of the target phonemes. The data are analysed using RStudio (2021).

Chapter 5 introduces the results of the current study providing a descriptive statistical summary that explains the frequencies and percentages of target-like and non-target-like pronunciations of the selected English phonemes by Hijazi Urban and Hwaiti Bedouin Arabic-speaking students. Chapter 5, then, discusses the results of the current research project in light of the research questions, previous literature, and theories of L2 acquisition of phonology. It discusses the findings and highlights the ways in which Hijazi Urban and Hwaiti Bedouin speakers pronounce the English consonant sounds /ʤ/, /θ/, /ð/, and /v/ according to the rating conducted by the two native speakers. It investigates the effect of the phoneme positions in words on the productions of the selected phonemes by Hijazi Urban and Hwaiti Bedouin speakers. Further, the chapter interprets the results to determine whether the Hwaiti Bedouin and Hijazi Urban speakers' substitutions of these phonemes are affected by the consonant sound diversity in their own dialects.

Chapter 6 is the conclusion. It summarises the key findings resulting from the analysis of the data collected and the discussion, highlighting their significance. Specifically, it presents the answers to the research questions. It also tests the research hypotheses and reflects on how the findings align with the study's objectives. Moreover, it showcases the research's contribution to the fields of Applied Linguistics and SLA. The chapter concludes the study by delineating on its limitations and offering suggestions for future research.

1.10 Summary of the Chapter

The chapter introduced the general framework of the study. Section 1.1 started with a brief

overview of languages and dialects, reflecting the nature of linguistic variation and its relevance to language use. It introduced Arabic and English as the two main areas of focus in the current study. It indicated that the dialects spoken in the Kingdom of Saudi Arabia belong to Bedouin and Urban roots. The chapter referred to two main dialects spoken in the Kingdom of Saudi Arabia that are examined in the current study: Hwaiti Bedouin dialect spoken by the Hwaiti Bedouin tribe in the north-western region and Hijazi Urban dialect spoken by the Hijazi Urban tribe in the western region. The study examines speakers of these dialects in relation to their productions of specific English sounds.

Section 1.2 reviewed the acquisition of English by Arabic-speaking learners, highlighting the research gap that the study seeks to address. It indicated that Arabic-speaking English learners have difficulty pronouncing affricate and fricative English sounds due to cross-linguistic influences and phonological development. However, according to Alswayan (2018), the degree of the difficulties experienced may vary amongst Arabic-speaking English learners due to variations in the context of their native language which lead to divergence in their pronunciation of specific sounds and other linguistic features. Alsawayan's observation points to the need for a systematic examination of how such dialectal divergence can influence the acquisition of specific English sounds by Arabic-speaking English learners. This issue has received only limited attention in the previous research. Hence, the current study aims to explore the influence of such Arabic dialectal variation through two distinct groups of speakers who speak the Hwaiti Bedouin and Hijazi Urban dialects. This investigation focuses on the production of the English affricate sound /ʤ/ and the English fricatives /θ/, /ð/, and /v/.

Section 1.3 introduced the research problem by indicating that, unlike Hijazi Urban dialect, the sounds /ʤ/, /ð/, and /θ/ do exist in the Hwaiti Bedouin dialect, whereas the sound /v/ does not feature in both dialects. Based on this, the study seeks to investigate whether the existence of the sounds /ʤ/, /ð/, and /θ/ in the Hwaiti Bedouin dialect would be a positive reference for Hwaiti Bedouin speakers when pronouncing their English counterparts, while their

absence in the Hijazi Urban dialect would result in mispronunciation and potential misunderstandings.

The chapter then moved to elucidate the research aims and objectives in Section 1.4 and they are addressed in detail in Chapter 6. Section 1.5 presented the research questions and hypotheses. These questions and hypotheses are discussed in and summarised in Chapter 5. Section 1.6 provided insight into the research variables. Furthermore, the chapter pointed to the significance of the research in Section 1.7. In Section 1.8, the chapter presents a critical discussion of language, dialect, and variety as contested sociolinguistic concepts relevant to the present study. It justifies their use throughout the chapters to maintain the essential differences between them. Finally, Section 1.9 introduced the research structure, providing an overview of each chapter.

CHAPTER 2

ARABIC AND ENGLISH: A REVIEW OF DEVELOPMENT

2.1 Introduction

This chapter introduces an overview of the Arabic and English languages from a historical and sociolinguistic perspective, highlighting phonological dimensions and theoretical grounding. Specifically, following the introduction, the Subsection 2.1.1 starts discussing the Arabic language in the Arabian Peninsula. More specifically, it identifies its place of origin, speakers, and uses before and during the period of Islam. Further, it illustrates the effect of the foundation of the Islamic empire on the diffusion of the Arabic language between the seventeenth and eighteenth centuries. Subsection 2.1.2 then explains the Arabic language's standardisation process since the eighth century, led by numerous grammarians. Some of them were Arab grammarians such as Abu Al-Aswad Al-Dua'ali (603-689) and Alfrahidi (718 – 786), whereas others were non-Arab grammarians like Sibawayh (760–796). Subsection 2.1.3 explores the dialectology of the Arabic language, while Subsection 2.1.4 presents the evolution of Arabic dialects. In Subsection 2.1.5, the chapter presents general information about the Arabs' attitudes towards CA, SA, and vernacular Arabic, pointing briefly to some linguists' views towards using the three varieties in some communities. Subsection 2.1.6 explains three main varieties of the Arabic language. It provides information on these varieties, including CA, SA, and vernacular Arabic, highlighting the general features of each form. Subsections 2.1.7 and 2.1.8 present two Arabic dialects that are at the heart of the current study. The subsection 2.1.7 starts with the Hwaiti Bedouin dialect, and it demonstrates the significance of Bedouin Arabic highlighting general characteristics. Then, Subsection 2.1.8 shows the second dialect, 'Hijazi Urban,' and elucidates the factors that led to the urbanisation of Hijazi Arabic. Section 2.1.9 attempts to address the effect of the economic power on the presence of the English language in the Saudi education system from the late-1920s to present. In addition to tracing the historical development and diversification of

Arabic language, in Section 2.1.10 the chapter moves towards concisely discussing the English language from a historical and global perspective. First, it introduces the historical development of English, providing insight into four main periods, namely old English (c.450-1100), Middle English (c. 1100-1500), Early Modern English (c. 1500-1700), and Modern English (1700-present). Additionally, Subsection 2.1.11 outlines the emergence of English as a pluricentric language, highlighting the development of legitimate varieties that undermine the assumed authority of native-speaker norms, whereas Subsection 2.1.12 presents its position as a global lingua franca. Subsection 2.1.13 questions the importance of dialectal background for L2 pronunciation in terms of influence and error interpretation. Finally, Section 2.2 provides a summary of the key issues discussed in this chapter.

2.1.1 The Arabic Language in the Arabian Peninsula: Its Origin

The Arabic language belongs to the Semitic language family, a subgroup of the main family tree of languages. The Semitic language constitutes the Arabic languages spoken in North Africa and the Middle East (Alhuri 2015). The main family tree is Afro-Asiatic languages that also comprise other languages and Arabic languages, such as Hebrew, Ancient Egyptian, Ethiopian, Akkadian, and Eblaite. Akkadian and Eblaite belong to the East Semitic languages, and both are considered dead languages, whereas the West Semitic family includes Ancient Egyptian, Ethiopian, and Hebrew (Watson, 2002). After Prophet Mohammed's death (peace be up on him) and the conquests of Islam, the Arabic language was brought to the world (from Andalus, Spain today, in the West to Northern India in the East). This part of the world had a vague view of the history of the Arabian Peninsula (Versteegh, 1997).

The approximate total of native Arabic speakers worldwide is 420 million (Alqadasi *et al.*, 2023). The majority of Arabic speakers are Muslims, although there are millions of Christians and a few Jews who are native speakers of Arabic. One of the factors that lead to the diffusion of the Arabic language is the foundation of the Islamic Arabic Empire that extended from Spain to Persia between the late seventh century and the beginning of the eighth century

(Comrie, 2008).

The Afro-Asiatic family tree includes more than three hundred languages in which Hebrew and Arabic are regarded as some of the widely spoken living languages in the world (Abu- Absi, 1986). During the pre-Islamic era before the revealing of the sacred book (the Holy Quran), the early documentation of the Arabic language can be found in the form of scripts engraved on stones and rocks, and these scripts were initially derived from the Arabic language that arose in the middle of Syria (Abu-Absi, 1986). By the beginning of the eighth century, which is the period of the diffusion of Islam, Arabic writers had started to document Arabic literature in their records before the eighth century. Before that time, Arabic poetry and literary novels were transmitted orally among poets and novelists (Holes, 2004).

2.1.2 Standardisation of the Arabic Language

Language standardisation is an ideological process associated with power, prestige, and institutional authority (Milory & Milory, 1999). It is described by Haugen (1966: 933) as "the instrument of an authority" that linguistically shapes the formal systems of society. In sociolinguistic research, standardisation implies the selection and codification of specific linguistic forms which then function as the legitimate and authoritative varieties at the expense of other regional dialects which may be marginalised or stigmatised (Haugen, 1966). It is associated with a social group of people who is connected to specific social powers including gender identity, social status, and education (Curzan *et al.*, 2023). This would ultimately promote the ideologies of powerful social communities and disadvantage those who are socially or economically less privileged. For instance, Bourdieu's (1991) concept of "symbolic capital" illustrates how standardised language varieties can accumulate legitimacy in educational settings, whereas other varieties are deemed to be inadequate (Bourdieu, 1991: 62). Bourdieu asserts that the sociology of language is governed by educational institutions which act as authorities defining and evaluating the value of specific linguistic norms (Bourdieu, 1991; Lareau and Weininger, 2003). Hence, besides its role as a medium of instruction in education,

standard language is employed in religious positions and represents a society diplomatically. As a result, it represents the language of the nation in formal and institutional domains. Although the term 'Standard' describes the language as the natural and fitting form which reflects the culture of a society by refining its language and making it different from other varieties (Lippi-Green, 2012), this does not necessarily reflect linguistic superiority. Rather, standardisation is the result of historical, social, and political processes through which specific language forms gain institutional legitimacy (Curzan *et al.*, 2023). Hence, the standardisation process is not neutral; however, but it is shaped by socio-political factors that influence its dominance and codification (Curzan *et al.*, 2023). Concenquently, this contributes to creating a community's unique identity across ethnic, social, regional, and religious domains (Chakrani, 1975; Ramlan, 2018).

In the Arabic speaking world, the standardisation of Arabic has played a critical role in reinforcing a hierarchical distinction between SA and other Arabic dialects. With the expansion of Islamic Empire from Spain to Persia that lasted for 1,000 years in the seventeenth century (Hilgendorf, 2003; Sabbatani *et al.*, 2012), the Arabic language had reached its peak, as it had not become the language of religion only, but also the language of culture, scientific research, and diplomacy (Ryding, 2005). The emergence of many dialects in the Arabian Peninsula contributed to establishing a stnadradised form of Arabic (i.e., SA) that could be widely understood and used for literary, religious, and institutional purposes. It is worth noting that pre-Islamic poetry and the Holy Quran were the primary sources of codification and standardisation of the Arabic language (Versteegh, 1997). Consequently, they had played a remarkable role in developing the Arabic language.

Since Arabic spread across various linguistic communities, variations in usage and pronunciation began to emerge. This divergence between CA and other spoken dialects raised concerns that the language of the Holy Quran might become misunderstood. Consequently, numerous Arab grammarians were entrusted with codifying grammatical rules to preserve the

linguistic integrity of Arabic. For instance, the Grammarian Sibawayh (1988), who is considered as the father of Arabic grammar, suggests the importance of creating specific rules that identify the correct way of using the Arabic language in different contexts. In his famous book *Alkitab*, Sibawayh (760-796) (see, for example, the 1988 version edited by Haroon) explains the grammatical rules derived from the Holy Quran. This contributes to maintaining the form of CA. It also represents the start of the evolution of SA, which is considered a rebirth of CA (Farghaly, 2010). Other Arabic grammarians also paved the way for the Arabic standardisation process. Examples of such grammarians include Ibn Abihi and Abu Al-Aswad Al-Dua'ali (Versteegh, 1997). Abu Al-Aswad Al-Dua'ali (603-689) was one of the pioneers who created a grammatical system that differentiated consonants and vowels using diacritics (altashkil). The use of altashkil, called 'Alharakat,' aims to establish a phonetic guide that implies vocalisation. Alfrahidi (718-786) introduced his book *Kitab Alayn*, in which he sets Arabic prosody rules adopted by Arabic poets when writing poetry.

The initial standardisation of the Arabic language took place in the eighth century and reached its final part at the end of the eighth century (Farghaly, 2010). The language facilitated communication between people, established an agreed orthography, and provided a uniform shape for formal writings. In general, the standardisation process of the Arabic language helps to develop consistent language teaching and learning in the Arab world, reflecting in the establishment of unified linguistic norms.

2.1.3 Arabic Dialectology

The term dialectology is a part of sociolinguistics that aims to explore dialects from a linguistic perspective. More specifically, it aims to study the dialects of a specific language, illustrating their linguistic properties, including phonology, morphology, lexicon, and syntax domains (Behnstedt & Woidich, 2013). Studying different regional dialects does not mean identifying what is right or wrong with them. Instead, the aim is to recognise their phonological, lexical, morphological, or syntactic features. This would help distinguish them from the standard

with which they are associated. Alinei (1980) suggests that dialectology explores the correlation between a single language and its grammar, vocabulary, and accent.

Dialects are the precious source that leads to gaining essential background about a society's culture, reflecting its identity, heritage, and history (Wardhuagh & Fuller, 2015). According to Wardhuagh and Fuller (2015), dialectology describes regional and social variations within a language, highlighting differences in various linguistic areas. In his study, Haugen's (1966) describes 'dialect' as an informal speech initially influenced by a language spoken by lower classes. Haugen states that language is like a tree split into branches. He posits that linguistic diffusion forms dialects that are spread socially among people. Therefore, bundles of isoglosses are created to distinguish between the linguistic items used in different regions. Behnstedt and Woidich (2013) argue that the Arab world has experienced the disappearance of many local dialects due to the regional expansion of other dominant Arabic dialects. Nowadays, the use of social media encourages the spread of Arabic dialects not only in speech settings but also in written contexts. This reflects the evolution of Arabic dialects discussed extensively in the subsection below.

2.1.4 The Evolution of Arabic Dialects

Several sociolinguists introduce a worthy contribution to investigating different Arabic dialects spoken in the Middle East, identifying their origins, phonological and morphological properties, and varied diversities. For example, Woidich (1994) examines the Egyptian dialects used in rural areas, illustrating their geographical distribution. Owens (2003) and Heath (2002) study the spoken Arabic dialects in North Africa, shedding light on their linguistic features. Furthermore, Mohaidat (2017) shows how the rural Palestinian dialect differs from SA morphologically and he presents numerous examples that evidence this difference.

Spoken Arabic dialects are influenced by SA norms, that is the official language. Still, from a linguistic perspective, they are seen as everyday life versions of the Arabic language as they are the medium of everyday communication between the individuals of a society

(Versteegh, 1997). Therefore, SA cannot be one's mother tongue as Arabs need to learn it through schools and academic situations (Farghaly, 2010). On the other hand, vernacular Arabic could be acquired within a community or family.

Several factors have led to the evolution of spoken Arabic dialects. One of these factors is the movement of the populations from one area to another, which takes the form of legal and illegal migrations from the rural regions to cities or one country to another (Behnstedt & Woidich, 2013). Historically, such movements opened the door for traditional dialectology as a framework in which linguists could investigate the history of dialects and their origins, highlighting diglossia, creole and pidgin studies, and other sociolinguistic issues. Another factor is the linguistic and cultural contact between nomadic tribes who live in the Arabian Peninsula (i.e., Saudi Arabia today) with other people who speak different languages during the significant expansion of the Islamic Empire that had extended from the east to the west leading many non-native speakers of Arabic and other groups who speak different Arabic dialects to come across the Arabian Peninsula either for trade or worship as Makkah is located in the west of the Arabian Peninsula where the Holy mosque ' Bait Allah' is. For instance, during the Islamic conquest in 711 CE, progress was made towards India and Arabs settled in Sind in the southeast of the Arabian Peninsula, leading Arabs to come into contact with Indian inhabitants (Zandvakili and Ghasemian, 2021). Such contact resulted in Arab grammarians being influenced by ancient Indian grammarians, particularly in the study of sounds and their articulation (Saraireh, 2011). It has been claimed that the Indians gave the Arabs the alphabet (Haywood, 1960). For instance, the Arab grammarian Alkhaleel grouped the Arabic words in his book *Kitab al-Ayn* based on the point of articulation of the sounds following the Indian phonetic arrangements (Dheef, 1968).

Versteegh (1997) argues that the Arabic language's contact with other languages in the situations mentioned above had a remarkable influence on the Arabic language as a standard form. Hence, this led to the emergence of new versions of the Arabic language in the form of dialects. This influence has typically provided many new words and influenced pronunciation

and word order. Furthermore, such contact encouraged non-native speakers of Arabic and speakers of other Arabic dialects to replace their indigenous languages with the language of the Arabian Peninsula. For instance, many Indian Muslim scholars wrote their books in Arabic (Rahman, 2021). As a result, during the process of language shift, the Arabic language started to gain a diversity of shapes that differed from its original form.

Additionally, the colonilisation of Arabic countries by the British and French contributed to the avoidance of the use of CA and SA, with regional dialects developing and emerging instead. For instance, when Egypt was invaded by the British in the 1900s, several British authors worked on weakening the use of CA, pointing to its rigid nature which would hinder the development of the Egyptians (Shivtiel, 1999; Mentiply, 2009). William Wilcox was one of those who encouraged the Egyptians to borrow new expressions and words from other languages (Shivtiel, 1999). This had the effect of marginalising the use of CA and SA, which were only utilised for religious and formal occasions (Al-Allaq, 2014). In this way, the Egyptian dialect has found a way of developing its own linguistic features. A clear example of this linguistic development is at the phonological level where the dialect-phonemic inventory is reflected. This can be seen in the SA Arabic phoneme /q/ which is pronounced as Hamza in the Egyptian dialect and is demonstrated as [ʔ] (e.g., the SA word /qult/, means 'said' is prounounced as /ʔult/ in the Egyptian dialect) (Al Suwaian, 2018), a substitution that could emerge among Saudi Arabic speakers. Interestingly, Egypt is located to the North West of Saudi Arabia, and population movements between the two regions may facilitate language contact. Consequently, this could lead to the emergence of such nonstandard allophonic realisations among some Saudi populations, particularly in geographically closer regions such as Tabuk in the northwest and Makkah region in the west of Saudi Arabia. These regions are inhabited by the Hwaiti Bedouin and Hijazi Urban speakers, respectively, who constitute the focus of the present study. Overall, this variation reflects the sociolinguistic diversity of Arabic, indicating regional and social identity among speakers.

Furthermore, mass media, including the written press, radio, television stations, and other practical factors, have a unique role in the emergence of Arabic dialects (Ansari, 2012). This is more noticeable in the birth of new political lexicons related to protest movements, civil wars, and other universal issues. For instance, in 1816, 'Iraq Journal' was the first written press established in Baghdad during the era of Dawood Pasha (1767–1831), who ruled Baghdad for an extended period, and he contributed to the development of Iraq, particularly in the cultural and scholarly fields (AL-rawi, 2012). Accordingly, new invented political terms had started to be transmitted through written media, configuring the languages of the Arab world. Terms such as *Dimukratiah* (Democracy) and *Almadania* (modernisation) were added to the Arabic language and became parts of its linguistic structure (AL-rawi, 2012). On the other hand, radio also had a crucial impact on the formulation of Arabic dialects. The transmission of news and programs via radio had reached people in their homes. Therefore, new dialects had to find their way of existence to be brought to the world as any other language.

2.1.5 Attitudes Towards Arabic Dialects

The use of CA (CA) and SA have become limited due to the birth of different Arabic dialects. On the one hand, the emergence of numerous Arabic dialects put CA and SA in a competitive situation where they face the emergence of the vernacular versions that lack the proper structure and are used in informal settings. On the other hand, CA and SA have been become heavily influenced by colonialisation, that opened the door to the arrival of other foreign languages to Arab countries, and this has made native Arabic speakers fluctuate between their Arabic mother tongue and the other foreign languages. For instance, British involvement in the Arabian Peninsula either through trade or political arrangements (Hoskins, 1947), particularly between the nineteenth and early-twentieth centuries contributed to the presence of long-term linguistic consequences that reshaped the linguistic ecology of Arabic dialects in the Gulf region in the Arabian Peninsula. This was clear in several sociolinguistic processes, one of which was the emergence of code-switching practices and the reduction in distinct local dialectal features

(Holes, 2011). Holes (2011) describes the rapid intergenerational linguistic change referring to younger Emarati speakers aged between 15 and 20 years of age who struggled to understand the meaning of 20 vernacular Emarati Arabic words which had been used since 1950s (e.g., ālū 'potato', mēwa 'fruit') (Holes, 2011: 130). On the other hand, a group of Emirati speakers aged over 60 years were unfamiliar with a list of modern words (e.g., dīsh 'satellite dish,' rimūt 'remote control) (Holes, 2011: 130). This shows the erosion of traditional Gulf Arabic, reflecting the emergence of new lexical words across generations as a result of the increased contact with the English language and modernisation.

In such a way, the development process of spoken Arabic dialects finds its way to being the primary interface that reflects the community's social identity and heritage. The advanced technical and scientific domains encourage Arabs to move towards other Arabic versions instead of CA and SA. Accordingly, this strengthens the spoken Arabic dialects to enable them to become widespread linguistic aspects.

The sociolinguistic position of the Arabic language is formed by the correlation between two primary varieties of the same language that are the standard variety, including CA and SA, on the one hand, and the vernacular forms, on the other hand (Benkharafa, 2013). CA serves the spiritual and religious sermons, as it is the language of the Holy Book and the medium of the ancient Arabic literature, which has been conserved in the massive Arabic libraries and museums until today. One can hardly acquire it unless they join academic levels to gain linguistic structure. Unlike CA, linguists describe vernacular Arabic as the first language used in all Arabic-speaking populations because it is acquired natively within groups. More precisely, one can acquire vernacular Arabic easily from their parents at home or friends locally in a region. Hence, one can find it easier than SA to be used in everyday communication. At the national level of each region, there can be found a considerable number of local dialects that are used as a lingua franca locally.

Benkharafa (2013) proves that the diversity of Arabic dialects does not occur only in

individual countries, but also even a single province can comprise other subdialects shaped from one regional dialect. These subdialects also have linguistic features shaped according to social and geographical boundaries.

Along with the fact that vernacular Arabic has dropped most of the linguistic features[4] of CA and SA, it has become the favourite choice by most native Arabic speakers because they find it more accessible than the standard norm (Zughoul, 1985 & Bichani, 2015). At this point, it can be imagined how a vernacular norm violates the systematic structure of CA and SA, built based on standard rules that govern their practical use in different contexts. It is proposed that even Arabic teachers use vernacular Arabic to explain chosen parts from the textbooks or introduce a part of a lecture (Fasold, 1984). The use of vernacular Arabic in such academic situations may refer to the low skilful level of learners, which makes them unable to follow up with a teacher. Then they find that the use of vernacular Arabic is better as it is more straightforward than CA and SA concerning phonology, lexicon, syntax, and semantic aspects. For instance, the dual grammatical structure is rarely used in vernacular Arabic. The plural structure *alawlad* (the boys) is used as a vernacular variety instead of the classical and standard item of *alwaladan* (the two boys) to refer to both the dual and plural constructions instead of using two different forms. Moreover, many lexical borrowings are included in vernacular Arabic, such as '*darabzeen* (stair handle). The word 'darabzeen' is Turkish, and vernacular Arabic borrows it due to the Ottoman Empire's conquest of some Arabic regions during the eighteenth century (Lafi, 2015).

It is not only native Arabic speakers that use Arabic varieties. According to Lesmana (2019), in Indonesia, vernacular Arabic is seen as distorted form of CA and used only by rural

[4] Vernacular Arabic has recently been more dominant than CA and SA; it is considered as the affirmation of the identity of Arabic societies; it includes different vocabularies, and different stylistic, syntactic, and phonological structures (Biadsy, Hirschberg and Habash, 2009:55, cited in Bichani, 2015). Also, Hamdan and Alhawamdeh (2020) refers to the process of "linguistic distinctiveness" that is occurred through "accent divergence" illustrating how this process identifies speakers' identity distinguishing them from other Arabic speakers. They, further, analysed this process by explaining the re-introduce of the standard emphatic sound /dˤ/ in other Arabic varieties.

or illiterate speakers. This view is suggested by Amara and Mari (2002), who investigate the status of Arabic in Israel compared to Hebrew, indicating that vernacular Arabic is considered inferior to the standard norm. Lesmana (2019) states that Indonesians, particularly Indonesian Muslims, generally use CA for religious purposes only. In contrast, SA is taught and used within the boundaries of schools and universities as additional courses to understand Arabic phonology, nahw (syntax), and saraf (morphology).

Conversely, most Indonesian workers who work in Arabic countries easily acquire the spoken Arabic varieties such as Levantine Arabic variety (e.g., Lebanon, Jordanian) and Gulf Arabic variety (e.g., Kuwaiti, and Saudi) (Lesmana, 2019: 73). This shows how Indonesian workers in different Arabic countries are more affected by such vernacular Arabic varieties than the standard norm (Lesmana, 2019). In general, the impact of vernacular Arabic on Arabic speakers is evident from the insights expressed in the literature.

2.1.6 Varieties of Arabic

2.1.6.1 CA: Status and General Features

CA has its own religious and historical position as it is the language of the Quran, the sacred Book for Muslims, and it is the language of *Ahadith*, the sayings of prophet Mohammed, the messenger of God (Shamsuddin *et al.*, 2018). Therefore, Muslims sanctify it among all the other Arabic varieties (Shamsuddin *et al.*, 2018). Although Arabic speakers no longer use it, it has preserved its linguistic features (van Putten, 2022). In other words, Arabs use it only when they read the Holy Quran as a part of their worship for religious purposes (Abdelhadi, 2018). They do not use it as their native language, and instead they are more affected by SA because it is currently the recognised formal variety in the Arab world (Bichani, 2015).

Some Muslims in the Arab world read the language of the Holy Quran differently as they are affected by SA and the dialects spoken in their society (Bichani, 2015). During the period of the spread of Islam, the Nomadic tribes who lived in the Arabian Peninsula used to speak CA, and they were regarded as the first tribes who spoke it (Khrisat & Al-Harthi, 2015). In their study,

Khrisat and Al-Harthi (2015) indicate that SA and other Arabic varieties are initially rooted in CA. Later, these Arabic varieties underwent linguistic changes attributed to geographical, political, and social factors (Khrisat & Al-Harthi, 2015).

CA was the language of the Quraish tribe, who was one of the famous tribes that lived in the Arabian Peninsula, particularly in the Western part, where Prophet Mohammed (peace be upon him) lived (Shamsuddin *et al.*, 2018). The tribe had strengthened its relations with other tribes through marriage, trade, and cultural and religious ceremonies (Shamsuddin *et al.*, 2018; Atlas & Qadir, 2024). The tribe held a distinctive position in social, religious, and commercial spheres (Shamsuddin *et al.*, 2018). Therefore, it influenced other tribes, such as Bedouins, who adopted the language of Quraish, CA, to communicate with others (Khrisat & Al-Harthi, 2015). Prophet Mohammed belongs to this well-known tribe, and hence, his variety was chosen by God to be the Language of the Holy Quran. Thus, the message of Islam has been conveyed to all people in CA variety (Shamsuddin *et al.*, 2018). This fact is proved in the Holy Quran, where God says in 'Surah Ash-Shuara': ''Verily this is a Revelation from the Lord of the Worlds (192) With it came down the spirit of Faith and Truth (193) Upon your heart, [O Muhammad] - that you may be of the warners (194) In the perspicuous Arabic tongue (195)'' (Quran, 42: 192-195). Thus, CA existed in the pre-Islamic era, and it was the medium of Arabic literature, poetry, and worshipping for Muslims (Shamsuddin & Ahmad, 2017).

CA extended from the pre-Islamic period to the end of the Abbasid era (785 AD). It includes many lexical items found in the Holy Book but which are no longer used in the other Arabic varieties. In CA, most of the words end with long vowels that are not written but are only articulated. However, the other varieties of Arabic have dropped out of these endings. For example, the word *ʾinnā* quoted from the second verse in 'Surah Yusuf': ''innāʾanzalnāhu qurʾānan ʿarabiyyan laʿallakum taʿqilūn'' (Quran, 12: 2), ends with long vowel [a]. Instead, such a word ends with short vowels in SA and other Arabic dialects.

The long vowel endings in CA are used for emphasis, and it is apparent in the language

of the Quran and initial Arabic literature. Many ancient Arab poets had recorded their poetry in CA, where archaic vocabulary is depicted and other linguistic features, as in this verse quoted from a poem written by Imru' al-Qais (501-565): 'kajulmwd sakhr hatah alsayl min eali'; the word '' kajulmwd'' is an archaic term that means '' the hard stone'', and it belongs to CA.

During the Prophet Mohammed's lifetime, CA was the language of Makkah, which is the center of Islam located in the western part of the Arabian Peninsula. In contrast, the other Arabic dialects spoken mainly in the eastern part were considered the most prestigious forms in that period, although they descended from CA (Versteegh, 2014). Therefore, CA has been altered to follow the phonological structure of other Arabic dialects, creating SA (Versteegh, 2014). Initial Arab grammarians such as Abu Al-Aswad Al- Dua'ali and Sibawayh classify the Arabic language as the 'language of the dˤād' (Lughat Al- ddad). According to Hamdan and Alhawamdeh (2020), CA is exclusively characterised by using the letter 'dˤ ad,' which is pronounced as an emphatic stop /dˤ/ that is also used in SA, and it is not located in any other language rather than Arabic. However, the scholars state that this sound is altered to be articulated as [d] in some Urban speech communities, such as Jordan and as[ðˤ] in Bedouin; in contrast, it is realized as [dˤ] in other Urban Arabic dialects, such as Levantine Arabic (Albdairat, 2021).

The emphatic stop sound /dˤ/ differs from its allophone dental sound [d] that lacks the pharyngealization as a linguistic feature (Hamdan & Alhawamdeh, 2020). For instance, in CA and SA, the word *ard* 'fog' is pronounced as / dˤaba:b/ (Albdairat, 2021); incontrast, it is pronounced as /daba:b/ in some Urban speech societies such as the Urban speech community in Jordan (Albdairat, 2021). Furthermore, the most prominent linguistic feature of the language of the Holy Book, 'The Quran,' is the widespread use of the two long approximants, /w/ and /j/, which is reduced in SA. For example, in the phrase '*jaiuha annas* (o, mankind) (Quran, 2: 21), the word '*jaiuha* is pronounced with the long sound /j/. However, the reduction of the sound /j/ has occurred in SA and almost all Arabic dialects and has become a short sound.

In the same way, the reduction of the diphthongs /aw/ and /aj/ are altered with the monophthongs /o:/ and/e:/. In CA, some consonants' pronunciation contrasts with those found in other Arabic dialects. For instance, the consonant sound /k/ has included other allophones that are /ts/, /tʃ/, and /ʃ/ which are used in different Arabic countries (Elsalman, 2016; Albdairat, 2021). Algamdi (2018) investigates the classical consonant sounds, pointing out the new allophones that have become used instead, as in the word 'katf ' (shoulder), where the sound /k/ is pronounced in both CA and SA. Still, it is articulated as /tʃ/ or /ʃ/ in some regions located in the Gulf region. Algamdi (2018) argues that consonantal phonemes have varied and increased based on the articulation produced by people who live in the Gulf region. Although CA is the language of the Quran, it has been influenced by other Arabic vernaculars spoken in the Arabian Peninsula. Thus, it has been articulated differently from one region to another.

2.1.6.2 Standard Arabic: Status and General Features

Towards the western area of the Arabian Peninsula and particularly in Makkah city, which is the centre of the evolution of Arabic as a language and Islam as a religion, there was a Quraish tribe who gained their independence as a strong tribe in the middle of the fifth century, and were the first speakers of CA since the pre-Islamic era (Ghaem *et al.*, 2013). However, this Classical form grew up and developed creating the form of SA (Shamsuddin *et al.*, 2018). The prestigious varities spoken in the east had influenced the evolution of SA due to population movements (Versteegh, 2014), but the roots of SA are tied to CA (Hafeedh, 2023). Due to the significant position of Makkah as the homeland of the holy mosque where pilgrims come from all over the world to worship, SA has been spread across the Arab world. It has become the language of education and diplomatic relations between the destinations of the Arab world. Moreover, Makkah has gained its strategic status as it was the pathway of commercial trips and goods transportation. In addition to the previous factors, the expansion of the Islamic empire motivates non-Arabs and other Arabs who speak various Arabic dialects to interact with Arabs in the Arabian Peninsula, and this leads to the process of language change that creates

divergences between CA, SA, and other Arabic dialects (Versteegh, 1997).

Hence, SA can be seen as a modified form of the CA, language of the Holy Book. SA has become the official language in education, formal relations, and media (Farghaly, 2010). Unlike spoken Arabic dialects that can be acquired through contact with Arabs, SA is taught at an academic level to be learned extensively. Thus, the linguistic features of SA differ from the spoken Arabic dialects (Bhatia & Richie, 2004). Unlike other regional Arabic dialects, it retains complex grammatical cases including syntactic and morphological features, vocabulary differences, and neutral prounuciation (Alnosairee and Sartini, 2021; Al-Rubaat, 2022). The following example reflects the phonological variations between SA and the Najdi Arabic dialect in the east of Saudi Arabia:

i. “They” [English Translation]

ii. “haula” /hau:la:/ [SA]

iii. “hathwli” /haðwli/ [Najdi Arabic Dialect] (Alrashidi, 2022: 4)

The example above shows how SA differs from the Najdi Arabic dialect in terms of pronunciation. The word is pronounced differently in the Najdi Arabic dialect reflecting specific dialectal features.

The literary Renaissance that started in the nineteenth century resulted in the presence of what can be called the’ Arabisation movement’ that originated many new terms to be involved in a developed form of CA, that is SA (Shamsuddin *et al.*, 2018). Later on, colonialism, Arabic presses, and the industrial revolution played a remarkable role in the development of SA, giving it more unique characteristics that distinguish it from CA.

SA is the most prestigious form of Arabic language compared with other spoken Arabic dialects. It can be viewed as ‘a lingua franca’ among educated Arabic interlocutors, specifically when they communicate with speakers of other Arabic dialects who may not be able to understand their own spoken Arabic dialect as the Arabic language includes various

dialects that differ from one area to another (Jaradat & Al-Khawaldeh, 2015). SA maintains a lot

of the linguistic structure of CA, although it has dropped many archaic words used in CA. For instance, the word 'hardship' in the verse below is quoted from the Holy Quran, where God says in 'Surah Taha':

i) "Waman a'rada 'an dhikri fa'iina lahu ma'ishatan dankan wanahshuru yawm alqiamati a'maa" (Quran, 20: 124) [CA]

ii) "But whosoever turns away from My Reminder (i.e., neither believes in this Qur'ān nor acts on its teachings.) verily, for him is a life of hardship, and We shall raise him up blind on the Day of Resurrection." (Hilali & Khan, 2020: 547) [Literal Translation]

iii) "But whoever turns away from it will have a life of great hardship. We shall bring him blind to the Assembly on the Day of Resurrection." (Haleem, 2016: 201) [Communicative Translation]

In the above verse, the word 'hardship' is used for the word 'dhanka', which is replaced with the word 'dhaiyqatun' in SA as in 'hardship life' [hayatun dhaiyqatan]. Another example is found in the following Arabic verse quoted from the Quran 'Surah At-Tawbah' followed by the English translation:

iv) 'walaw 'aradul khuruja, la'adu lahu 'udatan walakin karihal lahum bi'thahum; fathabatahum, waqilaq udu ma'al qa'idiin (Quran, 9: 46) [CA]

v) "And if they had intended to march out, certainly, they would have made some preparation for it; but Allāh was averse to their being sent forth, so He made them lag behind, and it was said (to them), "Sit you among those who sit (at home)." (Hilali & Khan, 2020: 324) [Literal Translation]

"If they had really wanted to go out [to battle] with you, they would have made preparations, but God was loath to let them rise up and made them hold back. It was said, 'Stay with those who stay behind.'" (Haleem, 2016: 120) [Communicative Translation]

In example iv, the word 'fathbatahum' (lag behind) is no longer used in SA, and instead, the word 'akhrahum' (make them late) is applied. For instance, in SA, it can be said: He made

them lag behind [akhrahum an almaued]. As can be seen, the two lexicons ‘dhanka ‘and ‘fathbatahum’ are ancient forms used in the sacred book’s language: CA.

By the beginning of the nineteenth century, new lexical items were being used in SA, especially in scientific and scholarly domains, further differentiating it from CA (Versteegh, 1997). SA has become a sign of unity as it has been used as the medium of formal communication among all Arab countries. It can be posited that it has unified the Arab world in terms of formal language.

2.1.6.3 Vernacular Arabic

Vernacular Arabic is a label applied to nonstandard variety of Arabic language. Unlike SA, Vernacular Arabic can be acquired easily with no need to be taught in schools or specialized institutions. It is seen as the mother tongue of all Arab speakers (Alhuri, 2015). It includes different spoken Arabic dialects according to the regional distribution, ethnicity, social and religious classes, gender, age, literacy, deserts, and rural and rural-urban areas (Alhuri, 2015). In general, Arabic speakers use such regional dialects for everyday communication. It differs from SA which relies more on CA, whereas the vernacular variety is a developed version of these norms. Vernacular variety includes various dialects, each of which has its syntactic, semantic, lexical and phonological linguistic features.

Ibrahim (1986) states that each Arabic spoken dialect differs in its phonological system from that of SA, although it is influenced by the standard form. Dakwar *et al.* (2011) point out that SA has experienced an extensive process of simplification that is apparent in the spoken Arabic dialects concerning the morphosyntactic, pragmatic, and phonological domains.

Al-Rubaat (2022) refers to the diversity of dialects in his study examining the Sakakan dialect spoken in Sakaka, located in the Al-Jouf region of Saudi Arabia. He argues that within the Arabian Peninsula, many spoken dialects differ from one region to another, such as northern dialects, central dialects, and southern dialects. There are also other subdialects among these dialects. This is an example of triglossia or multiglossia, where more than two varieties are used within a certain country.

Khawaldeh and Jaradat (2015) state that each Arabic spoken dialect refers to the region's name where it is used. For instance, the Moroccan dialect refers to Morocco as a country. The same authors declare that each Arabic dialect represents an individual identity, and they stand as a mirror of the culture of every part of a country. Watson (2011) introduces an overview of the spoken Arabic dialects used in the Levant (e.g., Syrian), Mesopotamia (e.g., Iraqi), North Africa (e.g., Moroccan), and Arabian Peninsula (e.g., Yemeni). She refers to the substantial diversity of the Arabic language describing it as one of the languages that have strong contact with other different languages due to several factors. First of all, she refers to the Arabian Peninsula, the homeland of the Arabic language, as the source of the power of the Arabic language because of its religious status referring to Makkah, to which pilgrims move to perform their pilgrimage/ Hajj. Furthermore, trade movements allow the Arabs of the Peninsula to contact other Arabs from different Arabic regions and foreign traders and migrants. Hence, all such factors have played a remarkable role in the diversity of the Arabic language resulting in the existence of many spoken Arabic dialects, not only in the Arabian Peninsula but also all over the Arab world.

Alwer and Horesh (2019) indicate that the Arab world has experienced what can be called 'a vernacularisation process', which appeared clearly in the late twentieth century, where electronic social media has contributed to the birth of different Arabic spoken dialects. In other words, Arabs since that time have widely started to be exposed to different Arabic versions such as Syrian Arabic, Egyptian Arabic, Lebanese Arabic, Gulf Arabic, and other Arabic dialects (Alwer & Horesh, 2019). This linguistic revolution has led Arabs to read and write in different Arabic dialects as they consider such dialects as the best medium of the communication with others instead of SA, which might be challenging to be used as a medium of communication on social media with other Arabic speakers (Alwer & Horesh, 2019). Bitchani (2015: 64) states that Arabic regional dialects have become used in different domains instead of SA, and have become the mother tongues that are named according to their geographical origins. Hence, the linguistic structure of the vernacular variety, as a form created in groups, is shaped according to these

groups' culture and identity (Versteegh, 2004). The next section introduces two spoken Arabic dialects, that are the main core of the current study, indicating their geographical boundaries and social features in general.

2.1.7 Hwaiti Bedouin Arabic: Significance and General Characteristics

Although the Bedouin tribes have scattered in different parts of the Arabian Peninsula, they still retain more of the linguistic features of their Bedouin (Badawi) Arabic dialect. Regardless of where the Bedouins settled, they share similar linguistic features. Elsaman (2016) refers to the Bedouin tribes who live in South Jordan and their peers. The latter live in Saudi Arabia, and their speech retains phonological features from the old Bedouin Arabic dialect. Unlike the Bedouin Arabic dialects, the other Arabic dialects spoken by other tribes in Saudi Arabia have gone through linguistic changes over the years. For instance, rural people are affected by the dialect of the area where they live (Elsalman, 2016). In other words, rural Arabic speakers who live in different villages take the name of the place they live in as their surname and stick to the spoken variety featured in the place they settle in. A good example is presented in Elsalman's (2016) study that refers to the rural people who live in 'Malka' in Jordan and are known as ' Malkawis.' Similarly, in the southern region of the kingdom of Saudi Arabia, people who live in the 'Assir region' are called ' Assaira.'

All Arabic dialects are classified as modern descendent forms of CA, the language of the sacred Book (Newman, 2002: 63). However, non of these dialects follow the complete linguistic structure of that Classical form. On the other hand, the Bedouin Arabic dialect has preserved many historical linguistic features (Elsalman, 2016). Lesmana (2019) states: ''City dialects were a mixture of CA and foreign influences, while the Bedouin dialects were isolated from foreign influences; hence, they could withstand the drastic linguistic evolution and maintain the characteristics of CA'' (Lesmana, 2019: 72). Therefore, many linguists regard it as one of the conservative dialects that retain more of the linguistic characteristics of CA.

Elsalman (2016) investigates the language of groups of people who live in Jordan and

Saudi Arabia in light of social network theory following the Labovian paradigm by conducting semi-structured interviews with the participants. He observes that the Bedouin informants living in different parts of Saudi Arabia and Jordan use the /ts/ variant to represent the sound /k/, despite living in neighbouring countries. Elsalman (2016) attributes the use of the same linguistic features among Bedouins as the fact that those Bedouins belong to one tribe, with strong ties.

Elsalman (2016) argues ‘‘being classified as rural or urban does not help to predict the dialect used by you without knowing the region to which you belong’’ (Elsalman, 2016: 23). This supports the fact that it would be possible to identify a spoken Bedouin dialect by a group of people as they belong to a specific Bedouin tribe. Wherever they are scattered, they adhere to the linguistic aspects of their dialect. In Elsalman’s study (2016), it is found that:

‘‘Bedouins who live in Jordan and those who live in Saudi Arabia use the /ts/ variant of the (K) variable…. Bedouins belong to tribes and this explains why the variants used by Bedouins are the same regardless of the place where they live. Belonging to the Bedouin group is reflected in the use of some variants which are known to be peculiar to the Bedouin people but not to the rural people’’ (Elsalaman, 2016:24).

Unlike Bedouins, it would be difficult to recognise the spoken dialect of urban or rural people as it is influenced by a mixture of other vernacular Arabic forms. Elsalman (2016) contends that ‘‘some rural people who belong to the same clan but live in different areas, use the variants of the areas where they live. Different variants of the same variable appear in their speech’’ (Elsalman, 2016:24). In short, such linguistic aspects clarify the view of the social power and the significant status of the Bedouin tribes that is manifested not only in the stability of the Bedouin dialect as a linguistic characteristic, but also in the strong social ties that connect the Bedouin individuals.

2.1.8 Hijazi Urban Arabic: Factors of Urbanisation

Urbanisation is the most prominent feature distinguishing Hijazi Urban Arabic from the Hwaiti Bedouin Arabic. There are social and economic factors that led to the urbanistaion of Hijazi

Arabic. For the social factors, as mentioned above, the Hajj was like a gate opened for all Muslims who lived inside and outside the Arabian Peninsula. A Muslim has to perform the Hajj once in their lifetime, and they are exempted in the case of having physical or economic incapacitation (Peters, 1994). It is a critical pillar as it is mentioned in the Holy Quran, where God says, ‘‘And proclaim the Pilgrimage among men: they will come to thee on foot and (mounted) on every kind of camel, lean on account of journeys through deep and distant mountain highways’’ (Al-Hajj, 22:28). It can be argued that the Makkah region had attracted Arabs and non-Arabs, not only for religious purposes but also for financial and living benefits. The internal and external migrants found the Makkah region to be the best place in the Arabian Peninsula for work and living (Alahmadi, 2015).

A large number of people meet each other in this region; they come from different parts of the world including Arabs, Hindus, Turks, and others from Asia and Africa. During Hajj, these migrants discuss social, economic, and religious issues. There is a space for establishing strong relations with the indigenous Hijazi inhabitants, who have effectively impacted by internal and external migrants' languages and rituals (Al-Ken, 1995; Alhazmi, 2018). They would have heard various languages and dialects due to the contact with the pilgrims. Arabs and non-Arab pilgrims had to communicate with the Hijazi people who worked as custodians of the Holy Mosque in Makkah and directed pilgrims to the area's entrances. Therefore, foreigners and visitors were urged to contact these custodians in their dialect They learned the Arabic spoken in the region, (i.e. Hijazi Arabic) (Al-Ken, 1995). Thus, there was a linguistic contact between Hijazi inhabitants and foreigner pilgrims, and this interaction used to happen seasonally every year.

Alhazmi (2018) indicates that intermarriage was a common phenomenon that connected the indigenous Hijazi inhabitants and external migrants who came from various countries. This explains the resemblance of some speech sounds between the Hijazi dialect and other Arabic dialects spoken in the Levant, Egypt, Yemen, Morocco, and other areas (Ingham, 1971). For

instance, in Egyptian dialect, the SA sound /ð/is perceived as [d], and its voiceless counterpart is pronounced as [t] or [s] (As-Sammer,2010), and similarly, this is found in Hijazi Arabic. Consequently, for Saudi citizens, it would be easy for one to identify the Hijazi Saudi inhabitant. Strong social relationships were created between the Hijazi families and foreign migrants, reflecting linguistically on how Hijazi Saudi inhabitants had begun to speak in a specific dialect. This phenomenon plays a significant role in the urbanization of the Hijazi dialect (Alhazmi, 2018 & Al-Essa, 2022).

The religious status of the Hijazi region led to a merging between Hijazi Arabic and other Arabic and non-Arabic cultures, such as African, Egyptian, Turkish, Persian, and Levantine cultures. Many loan words are used in the Hijazi region, such as the Persian word 'Tashat' /təʃa/ meaning [bucket], which is pronounced by Hijazi Urban speakers with some phonological change as [tˤoʃt] 'tosht,' and the Turkish word ' pantalon'/ pantalɔn/, which means ' trouser' and is pronounced as [bantˤalo:n] in Hijazi Urban Arabic (Alahmadi, 2015: 39). The media also contributes to the widespread use of the Hijazi dialect in Saudi homes. Hijazi Urban dialect is used widely in the Saudi media, such as TV programs and YouTube videos. This makes it one of the most understandable dialects in the middle Gulf (Omar, 1975).

The Saudi Arabian citizenship system, which the Saudi government approved in the 1950s, allowed all the Arab and non-Arab residents who stayed or worked in Saudi Arabia for an extended period to obtain the Saudi nationality, even if they were not born in the kingdom of Saudi Arabia (Ministry of Interior Affairs, 1953). The citizenship process allowed the foreigners to be strongly involved in the Saudi society in general and the Hijazi community in particular. However, the Saudi Arabian citizenship system was later, in April 2005, updated to be more restrictive by imposing specific regulations that have managed the citizenship system to regulate the flow of the external migrants (Aljumeiah, 2005).

As for the economic factors, some of the external pilgrims chose to stay in Makkah for worship and employment in the local labour market as some of them suffered from bad economic

conditions in their home countries. Hence, they were forced by circumstances to work and live in Makkah (Ochsenwald, 1984). Poverty was one of the social problems that some Arabic and non-Arabic regions faced. Accordingly, some of those pilgrims from such countries might think more about ensuring a good life for their families instead of returning to their home countries. What is interesting is that those heritage pilgrims formed their surname from the crafts that they worked in. For instance, migrants who used to work as carpenters gave themselves the family name 'Alnajar,' translated in English as a carpenter. Also, other settlers' family names were shaped according to their occupations, as shown in table 1:

Family Name	Arabic Translation	**English Translation**
Alatar	العطار	A person who sells perfumes
Alhadad	الحداد	A metal smith who creates objects from iron or steel
Alsaygh	الصائغ	A jeweller is a craftsman who designs accessories using gold and other metals.
Alfraan	الفران او الخباز	A baker who bakes bread made of flour and sells it.

Table 1: Family Names of Settlers in Makkah Based on their Occupations

Between the seventeenth and eighteenth centuries (AD), most of the settlers stayed in the region of Hijaz (i.e., the Makkah region). This period predates the discovery of oil in Saudi Arabia in 1938 (Muhammed, 2013). This means that internal and external migrants were attracted to live in the Hijaz region for its sacred status in the Arabic and Islamic world and its economic benefits. It was a place for dealing in trade with Hijazi inhabitants and other pilgrims. Many job opportunities were abundant for them.

After the discovery of oil in 1938, Saudi Arabia and the Hijaz region, in particular, have witnessed rapid social and urbanization changes (Almtairi, 1985). De Bel-Air (2018: 4) states that "Labour immigration to the Kingdom dates to the late 1930s." Rural people who lived around the Makkah region moved towards the cities in Hijaz for work and living. They became

urban people as they were affected by the new lifestyle and the indigenous Hijazi inhabitants. In the late 1970s, the demographic growth of the Saudi population started to increase at around 4% annually, accompanying the country's economic strength, as the labour immigration was attracted by this economic prosperity (De Bel-Air, 2018: 4). In the 1970s, foreign workers from different parts of the world entered Saudi Arabia. They centered in two major cities: Jeddah in the west and Jubail in the east (Alrashidi & Phan, 2015). Arabian American Oil Company (ARAMCO) has been established in Saudi Arabia in the late 1930s, and it is called as 'Saudi Aramco', which has two main branches: one in Jeddah and the other branch in Jubail (Alankari, 2004). As the factories of oil centred in the western region, this also played a role in the Urbanization of the Hijazi community.

The kingdom of Saudi Arabia attracts Arabs from neighbouring countries and other parts of the world. Accordingly, the country has gained colossal wealth and spent large sums developing other sectors, such as transportation, healthcare, education, and architecture. This enormous growth allows the country to invite skilled experts from Asia, Africa, and the Middle East countries to come and contribute to the development of the infrastructure of Saudi Arabia (Alrashidi & Phan, 2015). It can be seen that this massive wealth in itself played a significant role in the formation of new settlements in Saudi Arabia in general and in the Hijaz, Makkah region in particular.

The mixed groups in the Hijaz region formulated a more mutual, common, and distinctive dialect that characterizes their identity. Hence, the diversity of the demographic backgrounds had a salient effect on the population growth in the Hijaz region and the formation of the Urban Hijazi dialect.

2.1.9 The Growth of English Language Teaching in Saudi Arabia

The development of economic power has not only influenced the growth of the social structure of Saudi Arabia, as mentioned in section (2.1.8), but also the educational systems of the country. This was observed when the English language was first taught in the Kingdom of Saudi Arabia

in the late 1920s. It received significant attention from the Saudi government, which included it in the curriculum taught in Saudi schools and universities (Alshahrani, 2016). Alshahrani (2016) argues that in the late 1920s, the English educational system in Saudi Arabia was not strong enough due to the rarity of English language instructors; hence, the Saudi government managed to prepare scholarships for Saudis to travel abroad and acquire the language. The discovery of oil was one of the most significant factors that led to the English language being more linked to industrial, commercial and economic domains. In their study, Mahboob and Elyas (2014) show that the Arabian American Oil Company (Aramco), which was established in Saudi Arabia in 1933, primarily motivated the progress of learning and teaching the English Language due to the need for the interaction with American staff including managers and workers.

Early in 1943, the Kingdom of Saudi Arabia decided to introduce the English language as a compulsory course starting from the first grade of the intermediate level in schools for twelve years (Al-Ghamdi & Al-Sadat, 2002). However, at that time, the public-school education system differed from private schools in that private schools taught English early, from the first grade of the primary stage (Faruk, 2013). Since then, the English educational system has gradually developed. English started to be taught earlier in public-school education system, from the fourth grade of the intermediate stage in 2012 (The Ministry of Education 2011, cited in Faruk, 2014). In Saudi Arabia, English language courses are taught four times weekly for 45 minutes at primary, intermediate, and secondary school levels (Alshahrani, 2016).

Al-Abed Al-Haq and Smadi (1996) demonstrate that all Saudi universities were founded in the 1970s, including English language departments and other departments that offer other optional languages such as French and Chinese, which, unlike English, are not compulsory languages. Such Saudi universities include King Saud University in Riyadh, King Abdulaziz University in Jeddah, and King Faisal University in Alhafouf. Faruk (2013) adds that today English has become the medium of instruction in all scientific fields, including engineering and medical departments. Rahman and Alhaisoni (2013) argue that the English language is no longer

seen as a designed course that must be passed through examinations. Instead, Saudi students regard the English as a global language. Saudi students believe that the English language does not end at the level of education, but it has become the language of trade, business, technology, and science (Alshahrani, 2016).

All universities in Saudi Arabia provide a year-long English language program taught alongside other general prerequisite courses as a requirement of entry before joining the undergraduate level. The Saudi vision 2030 aims to prepare Saudi students to face the challenges of global changes. The Ministry of Education in Saudi Arabia has been working on producing specific plans and strategies that guarantee the appropriate use of English as a foreign language among Saudi learners of English as a foreign language (EFL) (Alhawsawi, 2016).

Hence, the scientific and economic development in the area had a remarkable impact on creating new insights and trends toward English as a medium of instruction. In Saudi Arabia, EFL learners compete to enhance their English language level by joining schools and universities. Furthermore, most of them join other institutions that provide extensive training courses covering reading, listening, speaking, and writing skills. One of these pioneer institutions is the British Council, located in Jeddah, Damam, and Riyadh.

The Kingdom of Saudi Arabia's Vision 2030 guides the development process of learning and teaching English as a global language by supporting the needs of the Saudis to achieve their ambitions so that they can engage in the labour market confidently. Saudi Arabia is one of the pioneer countries that make an effort to enhance the process of English language learning at different levels.

Having discussed the historical development of the Arabic language, its linguistic features, and dialectal variation, the discussion below proceeds to English, the target language of the current study. Unlike the Arabic language, whose function in this study is to contextualise the phonological background of learners' L1, English needs to be analysed not only as a linguistic system, but also as a global, pluricentric language affected by ideological and

sociopolitical influences. This discussion will help to better understand how the speakers' phonological variation can be assessed and interpreted within the lens of this study.

2.1.10 The English Language: An overview of the Development of English

The historical development of English can be traced back to the fifth century with the invasion of Britain by the Anglo-Saxons (Barber, 1993). Its roots evolved from proto-Indo-European origins (Qizi, 2024). In the early historical period (1000-1 BC), Germanic tribes, including the Angles, Saxons, and Jutes, shaped their own phonological and grammatical system of their Proto-Germanic language (Crystal, 2003). This was distinguished from other Indo-European languages by various linguistic developments such as the change of the proto-Indo-European sounds p to f and t to θ, as explained by Grimm's law. Later, this Proto-Germanic language split into three groups: 1) East Germanic; 2) North Germanic; and 3) West Germanic. West Germanic later became the language spoken by Angles, Saxons, and Jutes. Consequently, during the Anglo-Saxon invasion, a cluster of West Germanic dialects were brought into Britain and built the linguistic foundation of what evolved into Old English which thereafter experienced further changes as a result of historical, social, and political forces (Rahmani and Karimi, 2025). The subsections below briefly introduce the Old English form and then move to the other developed forms.

2.1.10.1 Old English (c.450-1100 AD)

In this period, as mentioned above, West Germanic dialects were brought by the Germanic tribes, namely, the Angles, Saxons, and Jutes, to Britain during the fifth century AD. They laid the basis for Old English. At this stage, English was characterised by a synthetic grammatical system marked by inflected grammatical structure, grammatical gender, and distinct verb patterns (Baugh & Cable, 2002). From the late eighth to the eleventh centuries, Old English speakers were brought into contact with Old Norse (a North Germanic language spoken by the Danes and Norwegians) as a result of the Viking invasion at this time (Crystal, 2003). The contact between English people and Vikings in the Danelaw region established by the Vikings

in northern and eastern England had a significant influence on Old English. This was apparent in the adoption of many Norse loan words, a large number of which are still widely used today (e.g., knife, egg, and window) (Crystal, 2003).

The prolonged contact between English people and Vikings contributed to a more systematic change in Old English. Old Norse influenced Old English grammar and syntax, reflecting deep structural borrowing rather than mere lexical influence (e.g., the replacement of hie, him, and hira with they, them, their) (Millward & Hayes, 2012). Such influence implied the establishment of a simple analytical grammatical structure, with Old English and Old Norse being closely related Germanic languages. This included dropping complex word endings and relying on a fixed word order (Baugh & Cable, 2002).

2.1.10.2 Middle English (c. 1100-1500 AD)

In the late-eleventh century, the English language witnessed linguistic changes that shaped Middle English following the Norman conquest in 1066 AD (Crystal, 2004). The Norman Conquest introduced Norman French as the official language (Freeborn, 2006). It became the language of power and institutions, while English continued as the language of the common population (Crystal, 2004; Timofeeva, 2018). At this stage, a considerable change to English was underway, manifesting in the borrowing of thousands of French words, many of which are still used today, particularly in the domains of culture, religion, food, and governance (Barber, 2003). Furthermore, the change extended to alterations in English spelling and grammar. It lost many of its inflectional endings and developed a more analytic structure which relied on new suffixes (e.g., -tion, -ment) and a fixed word order (Baugh & Cable, 2002).

This period permanently introduced English as a mixed language, drawing upon its dual linguistic characteristics of both Germanic and French features. This dual structure continues in forming Modern English, which is discussed in the following subsection.

2.1.10.3 Early Modern English (c. 1500-1700)

Early Modern English was marked by increasing standardisation and vocabulary enrichment

(Barber, 2003). In the late-fifteenth and early-sixteenth centuries, William Caxton (1476), one of the first pioneers of printing in Britain, introduced the printing press which played a crucial rule in the development of English (Mckitterick, 2003; Embark, 2020). The innovation of the printing press profoundly contributed to distinguishing English from continental languages (Blake, 1991). Furthermore, it promoted an increase in literacy levels among the British public. Numerous English texts (e.g., novels and grammar books) were published, with the London dialect being widely adopted for printed materials (Jespersen, 1972; Fisher, 1996). For instance, John Wallis (1653), one of the Renaissance scholars, published his first book concerning the systematic grammar of English, entitled *Grammatical Linguae Anglicanae*. Additionally, Caxton published his first book *Geoffery Chaucers Canterbury Tales* (Blake, 1991; Embark, 2020). Such publications enabled the stabilisation of orthographic conventions and the codification of vocabulary, syntax, and style, gradually laying the foundations of the standardisation process of English which became the national language of England (Crystal, 1985).

Additionally, between the fourteenth and seventeenth centuries, the Renaissance remarkably shaped Early Modern English. It enriched English vocabulary with extensive lexical borrowing from Latin and Greek (Yule, 2016). Furthermore, it worked towards the standardisation of Early Modern English. Many classical words (e.g., philosophy) and derivational morphemes (e.g., -ology) became permanent features in Modern English (Millward & Hayes, 2012; Yule, 2016). Hence, printing and the Renaissance were factors that played a notable role in the development of the English language. They prepared English to function as a language of academia and science.

2.1.10.4 Modern English (c. 1700-Present)

This stage is characterised by an increase in the regulation, uniformity, and clarity of the language. The demand for codified norms and correct usage increased by the eighteenth century as a result of the expansion of printed materials and literacy (Crystal, 1992). For instance, before

dictionaries, the spelling in various parts of the country was influenced by local accents, thereby resulting is marked differences. The invention of dictionaries made people more aware of the language. This helped them to develop a wider range of words which consequently made them more capable of expressing themselves. Samuel Johnson introduced his famous dictionaries in 1755 and 1791 and they were viewed as a model for modern English dictionaries (Embark, 2020).

Hence, given that English had already introduced itself as the national language of Britain, there was a need to make it more standardised. This was accomplished by the invention of dictionaries which sought to regulate spelling, meaning, and acceptable language. The foundations established in the Early Modern English period continued to shape Modern English, enabling it to completely supplant Latin and become the dominant language of education, science, and communication in Britain (Crystal, 1985, 2003).

2.1.11 English as a Pluricentric Language

British colonialism between the sixteenth and twentieth centuries gradually influenced the historical development of English from being the national language of England to a global language (Algeo, 1992; Crystal, 1985, 2003). More specifically, English shows considerable internal heterogeneity within native-speaking contexts, particularly between British and American English. This division followed the British settlement in North America, the Caribbean, and parts of Oceania in the seventeenth century and it represented the first dispersal of English as a pluricentric language (Strevens, 1980; Bilal *et al.*, 2023). Furthermore, this division marked the spread of English into the new world. Although British and American primarily derived from Early Modern English, both varieties exhibited linguistic differences in terms of grammar, spelling, pronunciation, and vocabulary. This notable contrast was attributed to geographical separation which, in turn, facilitated the influence of other factors such as language reform initiatives and socio-political changes (Milroy, 2000; Djurayeva, 2014). Key efforts to distinguish American English from British norms were made by Noah Webster (Litto,

1984). In 1828, he introduced his famous dictionary titled *American Dictionary of the English Language* which contributed to the standardisation of American spelling and vocabulary (e.g., 'color' instead of 'colour' and 'elevator' instead of 'lift,' respectively) (Litto, 1984; Crystal, 2003). Additionally, differences between American and British English also emerged in terms of pronunciation, with American English maintaining rohtic pronunciation in most American English dialects except for Boston and New York City, unlike the British English dialects (Gomez, 2009).

In addition to variation across native contexts, British colonialism enforced English to become the institutional language in non-native colonised regions such as South Africa, India, and Nigeria (Baugh and Cable, 2002). For instance, Lal Basu (2013) indicated that even scholars and writers of the colonised areas used English in their writings, rather than their mother tongues. This explains the effects of colonialism in shaping power, education, language, and identity. However, due to the prolonged contact between English and other local languages of such colonised areas, localised English varieties emerged, displaying distinct phonological, syntactic, and lexical features (e.g., South African English, Indian English, and Nigerian English) (Crystal, 2003; Coupland, 2010). Such varieties illustrated that indigenous inhabitants of the colonised regions shaped their identities under the influence of British colonialism (Phillipson, 1992, 1996, 1999).

British colonialism profoundly contributed to the development of the world English paradigm. The current state of English implies that it exists in multiple legitimate forms rather than a single standard norm which challenged the continued supremacy of native norms. This reflects the position of English as a pluricentric language whose global spread is associated with its empowerment and linguistic diversity.

2.1.12 English as a Global Lingua Franca

The global spread of English and its dominance over other world languages and local varieties have been investigated by numerous scholars including Phillipson (1992). The rapid growth of

English continued to third world countries with British and American agencies to maintain dominance and secure economic benefits (Lal Basu, 2013; Jenkins, 2003). Phillipson (1992) described the expansion of English across the world as "linguistic imperialism," stating that "Linguistic imperialism is the process by which the dominance of English is asserted and maintained by the establishment and continuous reconstitution of structural and cultural inequalities between English and other languages" (Phillipson, 1992: 47). Lal Basu (2013) explicates Phillipson's definition of "linguistic imperialism." He pointed to the two terms "structural" and "cultural" by stating that the word "structural" entails material factors such as institutional frameworks, whereas the use of the word "cultural" was to denote ideological dimensions such as pedagogic practices or beliefs (Lal Basu, 2013). Hence, according to this definition, the global spread of English around the world implies both material "structural" and ideological "cultural" domination.

The idea of English as an international language serves as a "lingua franca" (Lee Macky, 2011). It does not belong to a single nation; however, it functions as a common communication tool among people from different linguistic backgrounds and, consequently, it develops new "supranational features" that are not based on the norms of a specific nation or country (Seidlhofer, 2010). Additionally, the concept "lingua franca" reshapes English language teaching by placing it at the centre of this process. Phillipson's concept of "linguistic imperialism" clearly highlights the relationship between English as a lingua franca and teaching English as a foreign language. The main concern of EFL teaching was based on using English as a tool of communication across nations; nevertheless, this notion was justified through institutional support and ideological assumptions which contribute to the spread of English as a lingua franca and the structural and cultural inequalities between English and other languages. Phillipson (1992) elucidates that educational planning in third world countries has anglicised curricula and peripheralised local languages. This situation was described by Phillipson as "linguicism" whereby language is used to maintain unequal access to structural and cultural

resources. This represents a neo-colonial phase of the expansion of English around the world (Phillipson, 1992, 1996, 1999; Lal Basu,2013). For example, India has numerous families in which two generations have been exclusively educated in English-medium instruction, with no literacy development in their mother tongue (Phillipson, 1992). This provides a clear example of how the dominance of English undermines the natural development of multilingualism in the country.

2.1.13 Why Dialectal Background Matters for L2 Pronunciation: Influence and Assessment Criterion

Dialects matter for pronunciation because each dialect has its own phonological rules which may affect how speakers categorise and produce the phonetic segments of a second language. Hijazi Urban and Hwaiti Bedouin speakers provide a meaningful comparison because their dialects vary in terms of the realisation of specific affricate and fricative sounds (see Chapter 4) which may affect their productions of the target English affricate and fricative phonemes investigated in the current study. Furthermore, the preceding discussion of the linguistic variation in Arabic and English sets the stage for how the English pronunciation of Hijazi Urban and Hwaiti Bedouin participants would be assessed. Although research on English as a lingua franca places greater emphasis on mutual intelligibility than adherence to native speaker pronunciation, the current study conforms to British English phonology because it is consistent with the official English pronunciation model recommended by the institution in the Kingdom of Saudi Arabia where the current study is conducted. Hence, the selection of British English as a reference model is context-based rather than ideological, taking into account current institutional evaluation procedures.

In relation to the current study, previous research has classified specific English sounds as challenging phonetic categories for many English leaners, such as the fricative sounds /θ/ and /ð/ which are frequently realised due to L1 influence as [t] and [d], respectively (Dalton & Seidlhofer, 1994; Flege, 1995). Nevertheless, such substitutions are “acceptable L2 variants,”

not errors, because they occur in several established English varieties such as Hiberno-English (Jenkins, 2000: 90). Hence, according to Bourdieu's notion of "symbolic capital" (see Section 2.1.2), which conceptualises language not only as a means of communication, but also as a form of social power (Bourdieu, 1991: 72), deviations from British English (as the institutional target norm for assessment in the current study) will be treated as errors and, consequently, will require remedial attention, not because they necessarily hinder intelligibility in all contexts, but because they lack institutional legitimacy in educational contexts (Topper, 2001; Holt, 2012; Darvin and Norton, 2015).

However, in the current study, the issue of mispronunciation, which may result in misunderstanding, is context-based. While the speakers' productions in some contexts may result in misunderstanding, they may not do so in others. Overall, despite the fact that learners' productions may reflect systematic influence from their native dialects (Hijazi Urban and Hwaiti Bedouin) rather than random error, the speakers' productions will be categorised as 'target-like' and 'non-target-like,' terms that were adopted by Jenkins (2000) to avoid labelling deviations from a pronunciation model as inherent errors or deficiencies, emphasising their relation to a chosen instructional model and their impact on comprehension (Jenkins, 2000). Furthermore, the speakers' non-target like production 'errors' will be analysed and discussed in light of specific theoretical perspectives in the second language acquisition of phonology (see Chapter 5) and this may help to inform pedagogical implications and expectations (Jenkins, 2000).

By introducing the historical development and variation of Arabic language, this will establish the linguistic background of the speakers involved in the current study. Furthermore, outlining the historical development of English and its position within pluricentric and global lingua franca contexts helps to inform the analytical framework adopted in the current study. The focus now shifts to the phonological systems of the two languages. Specifically, the subsection below describes the affricates and fricative consonant sounds examined in the present study in both Arabic and English. This phonological comparison provides an essential

foundation for understanding how the differences between the sound systems of the two languages may influence learners' acquisition of the affricate and fricative sounds in English as an L2 in the light of previous studies. Hence, the following chapter discusses Arabic (L1) phonological transfer into English when producing specific affricate and fricative sounds highlighting dialectal phoneme variation. First, it starts with a discussion on Arabic and English phonological systems. It mainly focuses on the description of affricate and fricative sounds in English and SA.

2.2 Summary of the Chapter

This chapter outlined the linguistic landscape that frames the current study by introducing both Arabic and English languages from a historical and sociolinguistic perspective. It started with an overview of the history of the Arabic language, investigating its origins on the Arabian Peninsula. It then discussed the standardisation process of the Arabic language, providing insight into the efforts of famous Arabic grammarians to unify its linguistic characteristics to function as an instrument of authority. The chapter then moved on to discuss the diversity within Arabic language, pointing to the development of numerous Arabic dialects that have found their way into use due to several factors including the movement of the population from one area to another which led to linguistic and cultural contact between the nomadic tribes in the Arabian Peninsula and people from other linguistic backgrounds during the expansion of the Islamic empire. These Arabic dialects have their own linguistic features that distinguish them from each other and they are scattered across the Arab world. The chapter then discussed the contextual use of Arabic language varieties, indicating the general attitudes of Arabic speakers towards Arabic language varieties, particularly CA, SA, and vernacular Arabic. It was emphasised that vernacular Arabic has been more dominant than CA and SA which are used for religious purposes for the former and for formal and academic contexts for the latter. The chapter also provided an overview of the linguistic features of each of these Arabic varieties, indicating how the SA variety has dropped many archaic words used in CA, although it retains most of its linguistic structure. As for the vernacular Arabic variety, which encompasses various dialects,

the current study focuses on two main Arabic dialects: the Hwaiti Bedouin and Hijazi Urban dialects. Each dialects represents one of several Bedouin or Urban Arabic dialects used in the Kingdom of Saudi Arabia, with Hwaiti representing the Saudi Bedouin Arabic dialect and Hijazi representing the Saudi Urban Arabic dialect. The chapter then provided a detailed description of each of these spoken dialects. It explained the significance of the Bedouin Arabic dialects, pointing to the stability of the linguistic features of the Bedouin dialects because they were isolated from foreign influences and maintained most of the linguistic features of CA (Lesmana, 2019). Elsamlan (2016) argues that Bedouin tribes often share similar linguistic features, despite being scattered across different parts of the Arabian Peninsula. This indicates the steadiness of Bedouin Arabic dialects in most of their linguistic features. On the other hand, Urban Arabic dialects represented by the Hijazi dialect show divergence in their linguistic structure that differs from CA in its phonological, lexical, and semantic features. The Hijazi Urban dialect was influenced by social and economic factors that led to its formation as a distinctive Urban variety used in the west of the Peninsula. The social factors imply the movement of populations from around the world to Makkah, either for trade or worship. This led to the merging of the Hijazi dialect with a range of other Arabic dialects including Egyptian Arabic and Levantine Arabic, in addition to other languages such as African and Turkish. Economic factors, on the other hand, refer to labour immigration to the west of Saudi Arabia which dates to the late-1930s. This immigration involved individuals from different parts of the world, in addition to rural inhabitants who were living around the Makkah region. Such religious and socioeconomic factors contributed to the linguistic and so social formation of the Hijazi community.

Additionally, the chapter discussed the growth of English language teaching in the Kingdom of Saudi Arabia from the late-1920s. Later on, the evolution of industrial, commercial, and economic domains motivated the progress of learning and teaching English. In 1943, English language was introduced as a compulsory subject for intermediate education in schools (Al-Ghamdi & Al-Sadat, 2002). Then, in 2012, it started to be taught from the first grade of elementary education (The Ministry of Education 2011, cited in Faruk, 2014). Furthermore, in addition to the teaching of other elective

languages, such as Chinese, German, and French, English serves the medium of instruction in most scientific disciplines in Saudi universities (Faruk, 2013). Overall, English language in the Kingdom of Saudi Arabia has become the language used in scientific and technological fields, as well as in global business.

The chapter then turned to introduce a brief historical and sociolinguistic overview on the English language. First, it described the development of English, starting from its Germanic roots in the fifth century as a result of the Anglo-Saxon invasion and this has evolved it through Old, Middle, Early Modern, and Modern English. Old English was a highly inflected language characterised by its complex grammar. However, between the late-eighth and eleventh centuries, after contact between English people and Old Norse, particularly through Viking settlements, Old English exhibited a more systematic change reflected in a simpler analytical grammatical structure with complex word endings being reduced and a fixed word order becoming established (Baugh & Cable, 2002). Following the Norman conquest in 1066 AD, English continued to change forming Middle English (Crystal, 2003). Norman French was introduced as the language of official and institutional language, while English remained the language of common English people in Britain. Extensive contact between French and English led to considerable lexical borrowings from French and a notable simplification of its grammatical inflections (Barber, 2003; Baugh & Cable, 2002). The dual structure of English, with both Germanic and French features, proceeds its change forming Early Modern English between 1476-1700 AD. During this period, English witnessed significant lexical expansion and increased standardisation as the outcome of the invention of printing as well as the Renaissance (Millward & Hayes, 2012; Yule, 2016). Both played a remarkable role in preparing English to function in different domains including literature and science. The expansion of printed materials and literacy by the eighteenth century contributed to the stability of English grammar and ongoing lexical enrichment, characteristics that increased its uniformity and clarity (Crystal, 1992). The invention of dictionaries, for instance, is a clear example of how printed materials

accounted for regulating spelling and meaning, establishing English as the dominant language in Britain (Crystal, 1985, 2003). The chapter then discussed the emergence of English as a pluricentric global language with multiple legitimate varieties. These varieties were shaped by historical, social, and cultural contexts. American English and British English are examples of these legitimate varieties across native contexts. This division represented the first diffusion of English as a pluricentric language, following the British settlement of North America, the Caribbean, and parts of Oceania in the seventeenth century (Strevens, 1980; Bilal *et al.*, 2023). Both varieties exhibited differences in several linguistic features including pronunciation and vocabulary (Milroy, 2000; Djurayeva, 2014).

Despite variation in native varieties, English became the institutional language in non-native colonised regions, including South Africa, India, and Nigeria as a result of British colonialism between late-eighteenth century and the early-to-mid-twentieth century (Crystal, 2003; Phillipson, 1992; Schneider, 2007). The sustained contact of English with the local languages, led to the emergence of distinct postcolonial varieties of English that have been shaped by local sociolinguistic ecologies (e.g., Indian English and Nigerian English) (Coupland, 2010). Such world Englishes reflect stable varieties structured by identifiable linguistic features, thereby challenging the continued supremacy of native-speaker norms (Phillipson, 1992; Lal Basu, 2013; Jenkins, 2003). Additionally, the chapter further analysed the current role of English as a global lingua franca across multiple domains. It functions globally as a communication tool, but this conception was justified by its association with institutional and cultural domination, a domination that challenged the continued supremacy of native-speaker norms (Phillipson, 1992; Lal Basu , 2013; Jenkins, 2003). Finally, the chapter illustrated how dialectal background affects the pronunciation of an L2 in terms of influence and assessment.

CHAPTER 3

PHONOLOGOCAL DIMENSIONS, AND THEORETICAL PERSPECTIVES ON L1 INFLUENCE

3.1 Introduction

This chapter comprises of two main sections. The first section provides a description of affricate and fricative sounds in English and SA. More specifically, Section 3.2 discusses the affricate and fricative sounds in English and SA inventories. Section 3.3 explains how sounds function within a language's sound system, providing a classification of the allophones associated with a phoneme. Section 3.4 provides a description of each of the target sounds (i.e., /dʒ/, /θ/, /ð/, and /v/) in the SA and other Arabic dialects, mainly Bedouin and Urban Arabic dialects. Section 3.5 illustrates L1 phonological influence on the production of specific English affricate and fricative sounds by L2 learners indicating the findings of the previous studies concerning the production of each of these sounds by both Arabic and non-Arabic English learners. In particular, Section 3.5.1 focuses on the sound /dʒ/, Section 3.5.2 describes the sounds / θ / and / ð /, while Section 3.5.3 discusses the sound /v/. Then, Section 3.6 discusses phoneme position effects on the acquisition of each of the previous sounds. Section 3.7 highlights previous studies on Arabic dialects and English Pronunciation, while Section 3.8 synthesises previous literature indicating how the present study builds on and extends this body of work.

The chapter then moves on to the second part in which it discusses key theoretical approaches in L2 phonological acquisition to understand the role of L1 in the production of English sounds. Subsection 3.9.1 discusses the Cross-linguistic Influence (CLI) focusing on the impacts of language transfer and interlanguage. Subsection 3.9.2 introduces the Markedness Differential Hypothesis (MDH), suggesting that unmarked features, which are

more common across languages, are easier to acquire than marked features, which are less common. Subsection 3.9.3 introduces the Speech Learning Model (SLM) (Flege & Bohn, 2021), which focuses on the processes of the perception and production of L2 segments by experienced learners (Saalfeld, 2009). Subsection 3.9.4 analyses the Perceptual Assimilation Model (PAM), which suggests that learners initially categories L2 sounds based on their similarity to sounds in their L1. In Subsection 3.10, the study introduces the conceptual framework up on which the current study is based. Finally, Section 3.11 provides a summary of the key issues discussed in this chapter.

3.2 Description of Affricate and Fricative Sounds in English and Standard Arabic

This section describes the consonantal system of the English and Arabic languages, highlighting the affricate and fricative sounds (see Table 2). It compares the two languages through these types of consonant sounds, illustrating ways in which they are similar and also where they differ. It provides a description of these sounds in English, followed by their description in SA.

Place→ ↓Manner	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b	f v		t d (tˤ dˤ)			k g	q		ʔ
Nasal	m			n			ŋ			
Tap/flap				ɾ						
Fricative			θ ð (ðˤ)	s z (sˤ)	ʃ ʒ			χ ʁ	ħ ʕ	h
Lateral				l						
Approximant	w			ɹ		j	w			
Affricates					ʧ ʤ					

Table 2: IPA Chart of English and Arabic Consonant Sounds (Sounds in Parntheses Exist Only in Arabic, While Highlited Ones Are Only Present in English). The Circled Sounds are the

Target Sounds of the Current Study.
Source: Kaladeh (2016: 396)

English is an Indo-European language which belongs to the West-Germanic group (Shariq, 2015) and is spoken widely in the United Kingdom, Ireland, Canada, the USA, New Zealand, South Africa, and Australia (Crystal, 2003). Graddol (2003) states that the language has dispersed to the rest of the world and the number of L2 learners has exceeded 1.5 billion (British Council, 2025). It is read and written from left to right and its phonetic inventory differs from that of Arabic. The current study focuses on consonant sounds, which can be defined as speech sounds produced by a partial or complete obstruction of airflow (Sabir and Alsaeed, 2014). The English consonant inventory includes 24 consonant sounds. English consonants are classified based on their manner of articulation (the way in which the airflow is modified), the place of articulation (the area along the vocal tracts where a sound is produced), and voicing (the activity of the vocal cords during phonation).

Table 2 presents the consonant sounds used in English. The voiceless consonants are displayed on the left, with the voiced consonants appearing on the right. The English language includes affricate sounds: the voiceless affricate /tʃ/ and the voiced affricate /dʒ/ (Alshalaan, 2020). These two sounds consist of a stop followed by a fricative sound and are articulated at the same point of articulation. Furthermore, the English language includes a combination of voiceless and voiced fricative sounds (e.g., /s/- /z/, /θ/-/ð/, and /f/-/v/). The next section provides insight into the differences between SA and English in terms of these linguistic features.

As with the English language, Arabic contains a combination of consonants and vowels. SA consists of 28 consonants, as shown in Table 2. Similar to English consonants, there are various categories of Arabic consonants. They are fundamentally classified according to the manner, place of articulation, and voicing (Shomali, 1983). Most of these Arabic consonants have counterparts in the English language (e.g., /θ/, /ð/, /s/, /z/, etc.). However, some Arabic

consonants differ in their manner and place of articulation from those of English consonants (e.g., /dʒ/, /v/). Hence, the current study explores this difference amongst Arabic dialects in comparison to English.

Table 2 presents the consonant sounds of SA which are used in the Quran (the Holy book for Muslims) and taught in educational establishments (e.g., schools, universities, etc.). Some of these consonants vary amongst other Arabic dialects (Alhazmi, 2018; Al-Essa, 2022) (cf. Chapter 3 of the current thesis). Table 2 shows that SA includes the fricative sounds /θ/, /ð/, /s/, and /z/. However, Alshalaan (2020) and Shomali (1983) state that, unlike the English language, the SA inventory does not have affricate phonemes (i.e., /dʒ/ or /tʃ/). For instance, Alshalaan (2020: 5) indicates that in SA, /dʒ/ is a combination of /d/ and /ʒ/ and "they are pronounced separately but never pronounced together." This can be seen in the Arabic word 'دجاج' 'hen' which is pronounced /daʒaʒa/ in SA. Further details are provided in Section 3.4.1. Thus, as seen in Table 2, the voiceless affricate /tʃ/, voiced affricate/dʒ/, and voiced labiodental fricative /v/ do not exist.

The current research focuses on the production of the voiced postalveolar affricate /dʒ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labiodental fricative /v/ by Hwaiti Bedouin and Hijazi Urban Saudi learners of English from. Furthermore, it investigates how Hwaiti Bedouin and Hijazi Urban learners of English realise these phonemes in different contexts. They may use other allophones to represent the target sound. For instance, Arabic language speakers may realise the English sound /dʒ/ as /ʒ/ due to the fact that it does not feature in their native language. This prompts a brief description of the various ways in which the allophones of a phoneme can be categorised, which I offer in the following section.

3.3 Allophones of a Phoneme

An allophone is defined as "a speech segment with a distinct acoustic realisation that can be context dependent and position specific but not necessarily so" (Mitterer *et al.*, 2018: 80). Therefore, allophones are phonetic variations of a single phoneme. In English, a useful example

of allophones is the aspirated [pʰ], as in the word ‘pin’ and the unaspirated [p] in the word ‘spin.’ Both are allophones of the English phoneme /p/. Similarly, in Arabic, the pharyngealised [sˤ] as in the word /sala:h/ (prayer) and non-pharyngealised [s], as in the word /sa.mak/ (fish), are allophones of the Arabic phoneme /sˤ/ (Aljabouri, 2019). The following subsections briefly present the classification of phoneme variations.

3.3.1 Free Variation

Free variation refers to the use of two or more variants of a certain phoneme in a given word without changing the meaning of the word (Mompean, 2008). The two sounds can be used in the same context by the same speaker. For example, British English speakers pronounce ‘often’ as /ˈɒfn/, removing the variant /t/ although /ˈɒftən/ is also used. The absence or presence of /t/ in the word ‘often’ does not change the meaning of the word (Mompean, 2008).

3.3.2 Complementary Distribution Variation

Complementary distribution refers to two sounds that are realisations of the same phonemic unit (Berg, 1993). In other words, the occurrence of an allophone of a phoneme in an environment, and not in another allophone, is determined by the surrounding sounds (Kempton & Moore, 2014). For instance, the Arabic phoneme /r/ comprises two variants: emphatic [rˤ] before or after /a, a:, u, u:/, as in the word ‘faras’ /faras/ (pony), and non-emphatic [r] before or after /I, i/, as in the word ‘ribh’ /ribħ/ (profit) (Al-Jarf, 2015). The phoneme /r/ appears in two different words and it accommodates the vowel that appears in its environment (i.e., retracted as it is followed by the back vowel /a/ in /farˤas/ and fronted as it is followed by the front vowel /i/ in /ribħ/).

3.3.3 Dialectal Variation

Dialectal variation refers to the diversity in language use that occurs among speakers from different geographical locations, socioeconomic classes, and/or cultural backgrounds (Abu Shareah *et al.*, 2015). This diversity can include changes in pronunciation (accent) (Seppgnen, 1999). For instance, the pronunciation of the [r] sound differs between rhotic dialects (e.g., General American English) and non-rhotic dialects (e.g., some British English accents). A rhotic

English speaker may pronounce the word ‘hard’ as /hɑːrd/, whereas a non-rhotic speaker deletes the [r] sound and articulates it as /hɑːd/ (Costa and Serra, 2022). With regards to SLA, L2 learners may be exposed to multiple dialects in language learning situations. This exposure could be through conversation, the media or even the classroom. Consequently, this will affect their acquisition of the target language because they may have to adjust to various pronunciations. Additionally, this variation in a dialect may present challenges for L2 learners. An L2 learner who has only learned one dialect may encounter difficulty comprehending a speaker of another dialect.

Having reviewed phonemic variation as a linguistic concept, it becomes clear that the categorisation of allophones reveals how some of them occur in the same context without changing the meaning of a word (free variation), whereas others depend on their phonetic environment (complementary distribution), and others arise from various geographical regions, social classes, and cultural backgrounds (social and dialectal variation). The crosslinguistic differences in allophonic variation can affect L2 acquisition. Consequently, L2 learners may substitute the target phoneme with other non-target allophones due to allophonic variation differences. This allophonic variation can cause communication difficulties among speakers of different languages, even if this is a natural and expected part of the language learning process (Burrows *et al.*, 2019; Reinisch *et al.*, 2020; Di Dona *et al.*, 2022; Dailey, 2023). Recognising these classifications of allophones and understanding the ways in which learners are influenced by L1 variations and how they produce different allophones in the target language can be useful for language teachers in terms of providing targeted feedback and helping learners to achieve intelligible pronunciation that ensures effective communication, an aim that this thesis contributes towards.

The following section reviews the previous studies that describe the dialectal phoneme variation of the target sounds: the voiced postalveolar affricate /dʒ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labiodental fricative /v/ in SA and other Arabic

dialects including Bedouin and UrbanArabic dialects. It outlines the allophonic variations of Arabic phonemes as a foundation for understanding how this may influence the acquisition of L2 sounds by Arabic speakers. It then surveys studies concerning L1's influence on the acquisition of these sounds in English.

3.4 Dialectal Phoneme Variation

3.4.1 L1 Dialectal Phoneme Variation of the Voiced Palato-alveolar Affricate Phoneme /dʒ/

The voiced post-alveolar affricate /dʒ/ is pronounced by placing the tip and blade of the tongue against the area just behind the alveolar ridge so that the air is obstructed completely. The air is then partially released after moving the tongue downwards (Lagana, 2014).

This phoneme does not exist as an independent phoneme in the phonological system of SA. Several research studies have examined /dʒ/ as the target equivalent of the SA letter ج/*Jeem* (As-Summer, 2010; Al-Yaqoobi *et al.*, 2016; Ababneh, 2018; Alzinaidi & Abdul Latif, 2019). However, other studies confirm that in SA, the Arabic consonant letter ج/*Jeem* represents the phoneme /ʒ/ and not /dʒ/ (Elmahdi & Khan, 2015; Hamza *et al.*, 2020). Similarly, Alfehaid (2015) argues that "In Arabic there are no /tʃ/ and /dʒ/ sounds, /tʃ/ is voiceless and /dʒ/ is voiced; both have an affricate manner and take the palatal place of articulation. The problem is that Arabic does not have affricate sounds" (Alfehaid, 2015: 582). Furthermore, Chouchane (2016) states that in Arabic, the /dʒ/ sound is a cluster of the /d/ sound and /ʒ/ sound and they are never pronounced as one diagraph [a sound made of two sounds], as in English.

Similarly, /dʒ/ is absent in Urban Arabic dialects. Al Suwaiyan (2018) argued that Urban Arabic dialects in the Gulf region (i.e., Saudi Arabia) lack this phoneme in their speech sound system. She also indicated that Hijazi Urban people in the Gulf region pronounce /dʒ/ as [ʒ]. Furthermore, some Urban Arabic dialects include other allophones which represent the Arabic consonant sound /ʒ/ (As-Sammer, 2010; Chouchane, 2016). In the Egyptian Urban Arabic variety, it can be produced as /g/, which is considered to be an allophone of the Arabic consonant

letter ج/*Jeem* (Chouchane, 2016). Moreover, As-Sammer (2010) added that /ʒ/ is pronounced as /j/ in the Iraqi Urban Arabic variety and provided the example of the word دجاجة

, meaning 'hen,' noting that it is pronounced */daʒæʒa/* in SA, whereas it is uttered as /dagæga/ in the Egyptian Arabic dialect and /dijæja/ in the Iraqi Arabic dialect. As-Sammer and Chouchane's studies confirm the assumption that some other Urban Arabic dialects (e.g., Egyptian and Iraqi) lack the sound /dʒ/ and instead /ʒ/ is used, representing different allophones (i.e., /g/ or /j/) depending on the variety in which it is used.

Meanwhile, other studies have indicated that Bedouin Arabic dialects have the voiced post-alveolar affricate /dʒ/. For instance, Elsalman (2016) argued that the Arabic consonant letter ج/*Jeem* is perceived as /dʒ/ amongst Bedouins in Jordan and Saudi Arabia. Additionally, Elsalman found that Saudi and Jordanian Bedouins pronounce the sound /q/ as [dʒ], suggesting that [dʒ] is used as an allophone even for other sounds. This shows that [dʒ] is a peculiar linguistic feature amongst Bedouins. Furthermore, Al Suwaiyan (2018) indicated that Bedouins living in the Sinai and Najd regions of Saudi Arabia pronounce the letter ج/Jeem as [dʒ]. Al Suwaiyan's finding regarding Bedouins' articulation of the sound /dʒ/ aligns with Elsalman's (2016) observation that Bedouins in Jordan and Saudi Arabia utter the sound /dʒ/. However, the data provided by Al Suwaiyn (2018) and Elsalman (2016) are largely based on their personal observations and, therefore, further examination is warranted.

This section has provided a description of the post-alveolar affricate /dʒ/ in the SA and other Arabic dialects including Bedouin and Urban Arabic dialects. This general description has shown that when the voiced palatal-alveolar sound /ʒ/ (/ج/ in SA) is pronounced by Arabs, it comprises four allophones: voiced post- alveolar fricative [dʒ], voiced palatal-alveolar fricative /ʒ/, voiced velar stop [g], and voiced palatal approximant [j] (see Table 3).

Target Sound	**SA Phoneme**	**Allophones of the voiced affricate /dʒ/**

		Bedouin Arabic	Urban Arabic	Egyptian Arabic	Iraqi Arabic
/dʒ/	/ʒ/	[ʤ]	[ʒ]	[g]	[j]

Table 3: The Allophones of the Voiced Affricate /dʒ/

Table 3 presents the four possible allophones of the voiced fricative /ʒ/ in Arabic, as described in this section. It shows that the voiced affricate /dʒ/ is produced as /ʒ/ in SA (Alfehaid, 2015; Chouchane, 2016), which itself is realised as [ʤ] by Bedouin speakers (Elsalman, 2016; Al Suwaiyan, 2018), [ʒ] by Urban speakers (Al Suwaiyan, 2018), [g] by Egyptian speakers (Chouchane, 2016), and [j] by Iraqi speakers (As-Sammer, 2010).

Given the dialectal differences attested for the voiced fricative /ʒ/ across Saudi Arabian dialects, the current study examines the acquisition of the sound /dʒ/, which is not a distinct phoneme in SA but is treated as an allophone of the SA phoneme /ʒ/. To date, no studies have described this phoneme in the Bedouin and Urban Saudi Arabic dialects. However, based on the observations reported in the previous literature, it is expected that Arabic Bedouin Saudi speakers will use the /dʒ/ sound, whereas Urban Saudi speakers will use the /ʒ/ sound for the Arabic letter ج/Jeem. Consequently, the production of the English phoneme /dʒ/ by Saudi Arabic-speaking English language learners must be explored, taking into account the dialect of the speakers. Therefore, the current study explores how the English phoneme /dʒ/ is pronounced by Bedouin and Urban Saudi Arabic speakers, with the Hwaiti tribe representing Bedouin speakers and the Hijazi tribe representing Urban speakers. The next section reviews the previous literature concerning the acquisition of this phoneme in English by L2 learners.

3.4.2 L1 Dialectal Phoneme Variation of the Voiceless /θ/ and Voiced /ð/ Dental Fricative Phonemes

The voiceless dental fricative /θ/ (/ث/ in SA) is pronounced when the tip of the tongue touches the back part of the upper teeth, enabling the airstream to escape past the tongue and out of the mouth (Al-Hattami, 2010). The vocal cords do not vibrate when producing this phoneme. The

voiceless dental fricative /θ/ exists in SA and it is one of the sounds that are classified as being similar to those of English sounds (Jones, 1998). Elsalman (2016) gave the example of the SA word مثل/mithl/ meaning 'same' which is transcribed as /mIθl/.

Similarly, the voiceless dental fricative /θ/ sound is found in Bedouin Arabic dialects. Elsalman (2016) added that Bedouin Arabic speakers pronounce the voiceless dental fricative /θ/ in a way that is similar to that of SA and this is attributed to the fact that Bedouin Arabic dialects maintain many of the linguistic features of SA (Elsalman, 2016). Furthermore, Albdairat (2021) noted that [θ] is still preserved by the Duruz and Fellahin groups who are considered to be Bedouins in Lebanon. Therefore, this study examines the claim that specific sounds are exclusively used by Bedouin Arabic speakers.

On the other hand, the voiceless dental fricative phoneme /θ/ has variants which are articulated differently in Urban Arabic dialects. For instance, Almadani (2021), who conducted interviews with focus groups of Hijazi speakers, confirmed that the sound /θ/ can be perceived as [t] and [s] by Hijazi Urban speakers. Likewise, Albdairat (2021) found that Jordanian Urban speakers in Al-Karak city in Jordan tended to replace /θ/ with [t] and [s]. Albdairat indicated that the change of the sound /θ/ to [t] was due to the Aramic influence between the 9th and 10th centuries. However, Albdairat (2021) found that most Urban Arabic Jordanians tended to replace /θ/ with [t] rather than [s], which appeared only once in his study. Despite the rare occurrence of the variant [s] in his study, Albdairat (2021) did not exclude it in order to confirm the Turkish influence between the 16th and 18th centuries, a period in which the sound /θ/ was merged into [s]. Additionally, he argued that [f] can be one of the allophones of the sound /θ/ but it is rarely used in the Jordanian Urban Arabic dialect and he added that this allophone is used by Bahraini Urban speakers (Mustafawi, 2019; cited in Albdairat, 2021).

Based on the surveyed studies on the Arabic voiceless dental fricative sound /θ/ (/ث/in SA), it can be assumed that this phoneme includes four variants or allophones when it is pronounced by Arabic speakers. These allophones are: the voiceless dental fricative [θ]

(Elsalamn, 2016); the voiceless dental stop [t] (Almadani, 2021; Albdairat, 2021); the voiceless alveolar fricative [s] (Almadani, 2021; Albdairat, 2021); and the voiceless labiodental fricative [f] (Mustafawi, 2019; cited in Albdairat, 2021) (see Table 4).

Target Sound	**SA Phoneme**	**Allophones of the Voiceless Dental Fricative /θ/**		
		Bedouin Arabic	**Urban Arabic**	**Bahraini Arabic**
/θ/	[θ]	[θ]	[t] or [s]	[f]

Table 4: The Allophones of the Voiceless Dental Fricative /θ/

Table 4 indicates that the SA phoneme /θ/ is produced as [θ] by Bedouin speakers, [t] or [s] by Urban speakers, and [f] by Bahraini speakers.

Having explored the voiceless dental fricative /θ/, attention now turns to its voiced counterpart, the voiced dental fricative sound /ð/ (/ذ/ in SA). To produce this sound, the tip of the tongue touches the back of the upper teeth; the tongue moves sharply downwards and allows the air to flow out of the mouth while the vocal cords vibrate (Yayush, 2003). The voiced dental fricative /ð/ and its voiceless counterpart /θ/ have an identical manner and place of articulation but the difference is that the /ð/ sound is produced using vocal fold vibration, thereby making it voiced. The /ð/ sound is one of the consonant sounds that are pronounced in SA similar to their English equivalents (Jones, 1998) (see Table 4). Sabir and Alsaeed (2014) offered the example of 'Methyaa,' 'Radio' /məðyæʕ/ (Alsaeed, 2014:187) as an example of a SA word that includes the sound /ð/.

Likewise, the voiced dental fricative /ð/ sound is present in the phonological consonant system of Bedouin Arabic (Abdairat, 2021). Albdairat investigated the speech of Bedouin and Urban Jordanian speakers, focusing on several linguistic variables including /ð/. He indicated that Jordanian Bedouins who live in cities preserve the realisation of this sound as a voiced dental fricative sound. However, the early Arabic literature demonstrated a substitution of the sound /ð/ with /θ/, manifesting in the writings of the old Bedouin Arab poets in the Arabian Peninsula

and in Khuzestan Province, Iran (Ibn Al-sakit, 1903; Rasool, 2010). For instance, Ibn Al-sakit (1903) indicated in his book, *alqalb wal'iibdal* (Transposition and substitution), that Arabic poets such as Al-Lahyani used to utter the word ‘,’جذوة/ʒaðaut/, *ember*, as ’جثوة/ʒaθaut/.

However, this substitution was not explained in previous studies which discussed the acquisition of English consonants by Arabic speakers. Despite Elsalman's (2016) argument that Bedouin, regardless of the geographical area, is consistent in using most of the Arabic consonant sounds and thereby preserving their standard linguistic characteristics, there is variation in the use of the /ð/ sound by old Bedouin Arabic poets. Due to this variation, it is necessary to consider changes in Arabic sounds when examining the production of the sound /ð/ by Arabic-English language learners, particularly Bedouin speakers.

Almadani (2021) described the Arabic speech sound of Hijazi Urban speakers who live in Makkah, Taif, Jeddah, and Almadinah. She indicated that unlike Bedouins, Urban Hijazi speakers replace /ð/ with [d] or [z] in their speech. Amadani's findings align with those of Albdairat (2021), who stated that Urban Arabic speakers in Jordan replace the target phoneme /ð/ with other allophones (e.g., /d/; /z/). For instance, Albdairat found that Urban Arabic speakers in Jordan pronounced the word ذهب/*ðahab* meaning ‘gold’ as dahab and إذا/iða, meaning ‘if’ as /iza/. Furthermore, Albdairat argued that /ð/ was not interchanged with /d/ or /z/ when Urban Jordanian Arabic speakers produced SA items, such as in their pronunciation of نافذة/*na:fiðah/* meaning ‘window’ (Albdairat, 2021:95). Albdairat stated that Urban Jordanian Arabic speakers do not use this standard form in their everyday speech because they interchange the sound /ð/ with /d/, particularly when pronouncing demonstrative pronouns such as هذا,/*ha:ða:/* meaning ‘this’ as */ha:da/*. Albiderat added that Urban speakers in Jordan pronounce /ð/ as [z] when uttering the word ذوق,*/ðawq/* meaning ‘tact’ as */zawq/*. He confirmed that, unlike Jordanian Arabic speakers, Urban Egyptian Arabic speakers frequently use the variant [z] instead of /ð/.

Hence, Kaladeh (2016), Albdairat (2021), Rasool (2020), Ibn Al-sakit (1903), and Almadani (2021) demonstrated that the Arabic voiced dental fricative sound /ð/ (ذ//in SA) has

four variants or allophones: the voiced dental fricative [ð], the voiceless dental fricative [θ], the voiced alveolar stop [d], and the voiced alveolar fricative [z] (see Table 5).

Target Sound	**SA Phoneme**	**Allophones of the Voiced Dental Fricative /ð/**	
		Bedouin Arabic	**Urban Arabic**
/ð/	[ð]	[ð] or[θ]	[d] or [z]

Table 5: The Allophones of the Voiced Dental Fricative /ð/

Table 5 shows that the SA phoneme /ð/ is produced as [ð] or [θ] by Bedouin speakers (Albdairat, 2021; Ibn Al-sakit, 1903; Rasool, 2010) and [d] or [z] by Urban speakers (Almadani, 2021; Albdairat, 2021).

3.4.3 L1 Dialectal Phoneme Variation of the Voiced Labiodental Fricative Phoneme /v/

The Arabic language sound system lacks the voiced labiodental fricative sound /v/, although it can occur in the pronunciation of certain loan words or the corresponding sound in any variety of Arabic and, therefore, some Arabic speakers tend to pronounce English words containing the /v/ sound (e.g., value) with /f/, which is a constituent of the Arabic consonantal phonological system (see Table 3) (Aljarf, 1994; Ahmed, 2011). Hassan (2014) compared the consonantal system of the Sudanese Arabic dialect to English and illustrated that the voiced sound /v/ does not exist in the other Arabic dialects, including the Bedouin and Urban dialects, thereby presenting problems with the pronunciation of this sound by Arabic-speaking English language learners.

Based on the research of Ahmed (2011), Hassan (2014), Awaida (2015), and Rajab (2006), the English voiced labiodental fricative /v/ may not be produced correctly by Arabic-speaking English language learners. For the current study, it is unknown whether the sound /v/ is uttered by Hwaiti Bedouin and Hijazi Urban speakers without examining their speech. According to the previous research, it can be understood that the voiceless labiodental fricative

sound /v/ has only one allophone in all varieties of Arabic (i.e., the voiceless labiodental fricative sound [f]) (see Table 6).

Target Sound	**Allophones of the Voiced Labiodental Fricative /v/**
	All Arabic Varieties
/ v /	[f]

Table 6: The Allophones of the Voiced Labiodental Fricative /v/

Table 6 indicates that the voiced labiodental fricative phoneme /v/ is produced as [f] by the speakers of most Arabic dialects (e.g., Sudanese) (Rajab, 2006; Ahmed, 2011; Hassan, 2014).

Overall, the description of phonological variation in the sounds /dʒ/, /θ/, /ð/, and /v/ in Arabic is essential in the study of L2 phonological acquisition, as it helps to identify the different patterns that may be transferred when learning the target language. Furthermore, examining the different Arabic dialectal realizations of these sounds addresses a gap in the literature regarding the role of L1 dialect in the acquisition of English phonology. The following section focuses on investigating L1 phonological Influence on the acquisition of the English sounds the sounds /dʒ/, /θ/, /ð/, and /v/ by L2 learners.

3.5 L1 Phonological Influence on the Production of Specific English Affricate and Fricative Sounds by L2 Learners

3.5.1 The Production of the English Voiced Affricate /dʒ/

Previous research indicates that Arabic L1 English learners experience difficulties pronouncing English affricate (Hamza *et al.*, 2020; Elmahdi & Khan, 2015) and fricative consonants (Amadani, 2021; Albiderat, 2021). The current study expands upon this research by examining the production of the English sounds /dʒ/, /θ/, /ð/, and /v/ as challenging phonemes for Saudi L2 learners who speak different Saudi Arabic dialects. It aims to establish the influence of the learners' dialects on their articulation of these phonemes.

A small number of studies have examined the acquisition of the phoneme /dʒ/ in English

by speakers of different languages (e.g., Arabic, Indonesian and Turkish) (Rustiba, 2009; Ababneh, 2018; Hamza *et al.*, 2020; Demirezen, 2021). Overall, these studies indicate that learners have difficulty acquiring it. This difficulty can be partly attributed to its voiced nature. Previous research has shown that Arab learners of English, in particular, experience difficulties when producing the sound /dʒ/, which does not exist in SA. For instance, Hamza *et al.* (2020) explored the production of the English affricates /tʃ/ and /dʒ/ by two male Yemeni intermediate English L2 learners who had grown up in Yemen and who had not previously visited an English-speaking country. They were asked to read a randomised list of 36 words containing the two phonemes. The recorded productions were phonemically transcribed by the researchers and rated by four individuals on a five-point Likert scale regarding how target-like they sounded. The raters were non-native English-speaking postgraduate students. The responses of the four raters were consistent, thereby indicating that the two students were better at producing /tʃ/ than the voiced affricate /dʒ/. The students tended to de-affricate this phoneme because it was replaced by its fricative counterpart [ʒ]. Similarly, it was found that Palestinian undergraduate English major students de-affricate /dʒ/ in the three selected stimuli words 'Germany,' 'plagiarism' and 'judge,' which were the only /dʒ/-containing items used in the study (Jabali and Abuzaid, 2017: 131). The researchers, English instructors and MA students at An-Najah National University, analysed the speakers' productions. The results indicated that the sound /dʒ/ was one of most problematic sounds for the learners who de-affricated this phoneme and replaced it with its fricative counterpart [ʒ].

Similarly, Ababneh (2018) applied qualitative and quantitative approaches to examine the pronunciation of the phoneme /dʒ/ by 50 undergraduate Saudi students at Tabuk University who were chosen at random. The participants were formed into two groups (English majors and Arabic majors), each with different levels of English proficiency. They were given a list of written words that contain the target phoneme in two items only: 'village' and 'courage' (Ababneh, 2018: 254). Ababneh identified the common English pronunciation errors made by

the two groups of students. She found that in the first group, approximately 9 English major students out of 25 pronounced /dʒ/ as the voiced velar stop /g/ in the word 'village,' whereas no mistakes were made when pronouncing the word 'courage.' On the other hand, in the second group, 16 Arabic major students replaced /dʒ/ with /g/ and five students could not give any responses for this word. Unlike the English major students in the first group, eight Arabic major students pronounced the word 'courage' as /ˈkærg/, whereas 17 students did not offer any productions of this word. The errors made by the speakers can be attributed to the absence of the sound /dʒ/ in SA and some Saudi Arabic dialects (see Section 3.4.1). Ababneh found that the error frequencies made by English major students were lower than those of the Arabic major pupils and this is naturally due to the different major being studied by the two groups because Arabic major students had only completed basic English skills when they were in the first preparatory year.

Other studies have shown that English learners from other language backgrounds experience difficulties in their production of the sound /dʒ/. Rustiba (2009) investigated the production of the English affricates /tʃ/ and /dʒ/ by distributing 42 items containing these two phonemes (21 stimuli on each target sound) to 20 Javanese and Indonesian speakers. Rustiba found that the Javanese and Indonesian speakers pronounced the sound /tʃ/ correctly 202 times, compared to only 120 correct productions of the English voiced post-affricate sound /dʒ/. This result confirms that the voiceless affricate sound /tʃ/ was easier for the participants to pronounce than /dʒ/, despite neither of them being found in the Javanese or Indonesian languages.

Comparable results were reported by Demirezen (2021) who examined the pronunciation of the English voiced post affricate /dʒ/ by Turkish-speaking English language learners. This sound exists in the Turkish consonant inventory system. The participants were English major undergraduate students in their first year. A total of 12 females and 30 males were asked to read a list of words and three inter-raters transcribed and evaluated the informants' pronunciations according to a unit of articulatory production measurement that included four levels (extreme

difficulty, difficulty, minor difficulty, and no difficulty). Due to the fact that the voiced post affricate /dʒ/ features in the Turkish consonant inventory system, it was thought that this may help Turkish-English learners to acquire this phoneme in English. However, the results indicated that the participants tended to devoice this sound, substituting it with [ʧ]. Overall, the findings of Rustiba (2009), Hamza *et al.* (2020), and Demirezen (2021) align with Hecht and Mulford's (1982) generalisation that speakers acquire voiceless sounds before voiced sounds.

With regards to the level of proficiency, previous research seemingly indicates that there is no effect because difficulties persist even at higher levels of proficiency (Kilinc and Yildirim, 2020; Fabra, 2022). However, other studies do find evidence of a clear effect in terms of pronunciation accuracy (Irwan *et al.*, 2023). For example, Demirezen (2021) reported that the level of proficiency was not a significant factor because the participants' pronunciation ranged between extreme difficulty and minor difficulty, suggesting little to no improvement, despite higher proficiency levels. Furthermore, other studies (e.g., Jabali and Abuzaid, 2017) revealed that even English major students with differing levels of proficiency experienced challenges with the task. In contrast, Ababneh (2018) found that English major students outperformed Arabic major students, thereby indicating that proficiency and academic background may influence the speakers' error rates. In general, this inconsistency may be due to differences in research design, such as the stimuli used or how proficiency was assessed. These conflicting results highlight the complexity of the relationship between pronunciation and proficiency and they suggest that continued investigation is required using more standardised methods.

3.5.2 The Production of the English Voiceless Fricative /θ/ and Voiced Fricative /ð/

Previous studies have examined the production of English fricative sounds by foreign leaners of English (Rustiba, 2009; Bui, 2016; Kurniawan, 2016; Mulyadi *et al.*, 2018; Alzinaidi and Abdul Latif, 2019). In Section 3.5.1, several works supported the generalisation that voiceless sounds are acquired earlier than voiced sounds, revealing specific challenges experienced by L2 learners when producing /dʒ/, along with the limited effect of their English proficiency on their

acquisition. The current section reviews studies concerning the acquisition of the sounds /θ/ and /ð/ by English language learners, highlighting how factors such as proficiency level and phoneme position influence L2 learners' production. A consistent finding across these studies is that English learners from various L1 backgrounds are more likely to struggle to accurately produce /ð/ than /θ/ and they often replace both of these with more familiar sounds from their L1 phonological systems (e.g., Rustiba, 2009; Bui, 2016; Kurniawan, 2016; Mulyadi et al., 2018; Alzinaidi and Abdul Latif, 2019). These studies include a range of L1 speakers such as Arabic, Vietnamese, Pattani Malay, Indonesian, and Javanese. In contrast, the findings of Irianto *et al.* (2018) indicated that error frequencies made by Indonesian speakers were not significantly different when producing the English fricatives /ð/ and /θ/. Most of these studies used controlled production tasks such as short texts, reading lists of words or sentences, and quantitative or qualitative analysis procedures relying on phonetic transcription data and rater evaluations.

However, the specific substitutions that speakers make vary depending on their native language, suggesting that cross-linguistic influence plays an essential role in shaping L2 phonological patterns. For example, Indonesian, Vietnamese, Pattani Malay, and Javanese speakers commonly replace /θ/with /s/ or /t/ (e.g., Rustiba, 2009; Bui, 2016; Kurniawan, 2016; Irianto *et al.*, 2018; Mulyadi *et al.*, 2018; Alzinaidi and Abdul Latif, 2019). Other studies have indicated that Indonesian and Patani Malay speakers also use [d] or [ð] as a substitution for /θ/ (Kurniawan, 2016; Mulyadi *et al.*, 2018). Furthermore, it was found that Vietnamese speakers also substituted /θ/ with /t^h/, probably due to the orthographic influence of their native language, where the letters 'th' are the written form of the Vietnamese consonant aspirated stop /t^h/ (Bui, 2016). They also substituted /θ/ with /z/, possibly due to confusion between this sound and the phoneme /ð/ (Bui, 2016). Nevertheless, the substitution of /θ/ with /t^h/ and /z/ only appeared in isolated cases and was not a common pattern among speakers (Bui, 2016). The first language also influences the sounds that English learners use to substitute the dental fricative sound /ð/. Several studies reported that Indonesian, Pattani Malay, and Javanese speakers commonly

produce [s], [t] or [d] in place of /ð/ (e.g., Rustiba, 2009; Kurniawan, 2016; Irianto *et al.*, 2018; Mulyadi *et al.*, 2018). Other attested substitutions are: [z] for /ð/ among Vietnamese speakers (e.g., Bui, 2016) and [nd] for /ð/ among Javanese speakers (Rustiba, 2009). In addition to these frequently attested substitutions, unusual substitutions appeared on a less regular basis in a few studies. For instance, the use of /dʒ/ in place of /ð/ was attested once in the speech of a Vietnamese speaker (Bui, 2016) and this was attributed to the local variety of the speaker, whilst the use of /tʰ/ twice was attributed to the orthographic influence of the speaker's native language. A task effect has also been observed in the previous literature. Generally, it was observed that most participants frequently used substitutions at the discourse level (i.e., the passage) (e.g., Bui, 2016), while being able to maintain more accurate pronunciation when reading the stimuli in isolation.

3.5.3 The Production of the English Voiced Labiodental Fricative Sound /v/

Previous research indicates the difficulties that foreign learners of English encounter when producing the sound /v/ (e.g., Ahmed, 2011; Alzinaidi and Abdul Latif, 2019). As explained in Section 3.5.2, some fricative sounds such as /θ/ and /ð/ are absent from the phonological systems of other languages. This subsection introduces the English voiced consonant /v/ because it comes under the umbrella of fricative sounds that do not exist in other languages (e.g., Arabic and Bahasa Indonesian) (Ahmed, 2011; Amalia *et al.*, 2023) and is instead realised as a voiceless labiodental fricative /f/ (e.g., Kharma & Hajjaj, 1989, Altaha, 1995; Tushyeh, 1996; Sabir and Alsaeed, 2014; Kalaldeh 2016; Ababneh 2018). However, this voiced consonant phoneme /v/ may only be used in loan words such as 'virus' and 'video' but it could also be pronounced as [f] in such loan words due to the adaptation to the phonological system of the L1 (Aljarf, 1994; Rajab, 2006; Awaida, 2015). Therefore, the different phoneme systems between English and any language lacking /v/ would create obstacles that hinder English learners from appropriately mastering the target sound in different linguistic positions.

Ahmed (2011) identified /v/ as one of the most problematic consonant sounds for eight

undergraduate Saudi-speaking English learners who were rated by an English native speaker on their pronunciation of four isolated words in all three positions: initial, middle, and final. Most of the students replaced this phoneme with its voiceless counterpart /f/. Similar results were reported in Saudi Arabia (Alzinaidi and Abdul Latif, 2019) and Palestine (Farah and Halahlah, 2020). Farah and Halahlah (2020) carried out a large-scale (100 participant) survey in which the participants reported on the most difficult sounds, with a selection of participants also having their pronunciations recorded and analysed. Interestingly, they did not identify /v/ as a difficult sound yet 75% of the speakers replaced /v/ with /f/ in the word 'of' and 20% in the word 'oven.'

3.6 Phoneme Position Effect on the Acquisition of the Phonemes /dʒ/, /θ/, /ð/, and /v/

After exploring the challenges that L2 learners encounter in the acquisition of the English voiced post-alveolar affricate /dʒ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labiodental fricative /v/, it is essential to understand how the phonetic context in which /dʒ/, /θ/, /ð/, and /v/ appear affects its acquisition by L2 learners. Considering the phoneme's position within a word may reveal specific difficulties and patterns that can assist or impede its acquisition.

Previous research has examined the effect of phoneme position on the difficulty that Arab learners experience when acquiring a phoneme (e.g., Jabali and Abuzaid, 2017; Hamza *et al.*, 2020). As previously discussed, Hamza *et al.* (2020) examined the production of the English affricates /tʃ/ and /dʒ/ by Yemini speakers. Beyond this, their study also considered the effect of phoneme position on pronunciation accuracy, revealing that the two participants had varying degrees of success in the production of the /tʃ/ sound in different word positions. With regards to the English voiced affricate /dʒ/, the results indicated that the first informant recorded the lowest rating in producing this sound in the word-middle position. This result aligns with the findings of Jabali and Abuzaid (2017) who indicated that the highest percentage of non-target-like utterances was in word-middle position, reaching 85%. However, the second informant in Hamzah *et al.*'s (2020) study received the lowest rating in the word-final position. Across the

three positions, the non-target like productions revealed instances of deaffrication and palatalisation of this target sound, particularly in the case of the second speaker who exhibited deaffrication and palatalisation in the word-final positions. Generally, these contrasting results suggest that the position of the /dʒ/ sound within words plays a role in pronunciation accuracy and should be considered in future research. Additionally, despite the significant findings of Jabali and Abuzaid (2017) and Hamza *et al.* (2020), in the interest of accuracy, the current research further expands upon these studies by examining a greater number of words and using English native raters.

Additionally, other studies involving non-Arab English learners have also explored the effect of the phoneme position on sound production (e.g., Umantari *et al.*, 2016; Demirezen, 2021). Demirezen (2021) introduced a stimulus set of nine items containing /dʒ/ in the word-final position (e.g., changed). He stated that voiced consonants are not positioned at the end of standard Turkish items. As a result, it was found that the progressive affricate devoicing assimilation strategy was dominant in all speakers' L2 productions. The participants were devoicing the target phoneme in a way that assimilated the [ʧ] sound that was located in the onset position of each word. For instance, it was found that the speakers pronounced the verb 'changed' /tʃeɪndʒd/ as [tʃeɪnʧt] (Demirezen, 2021: 152). They substituted /dʒ/ with /ʧ/ in the final position when pronouncing the given items. Similar results were reported in Umantari *et al.*'s (2016) study in which they described the production of English voiced post-affricate/dʒ/ by 20 native Indonesian senior high school students. The findings revealed that the speakers often devoiced it as the /tʃ/ sound in the final position, as illustrated in 'Fudge'→ /fʌtʃ/ (Umantari *et al.*, 2016: 231). On the other hand, they palatalised the target phoneme /dʒ/ and pronounced it as /j/ when it came in the middle position, as seen in 'Bludgeon'→ /'blʌjən/ (Umantari *et al.*, 2016: 231). Interestingly, this result supports the observation of Hamza *et al.* (2020) when the informants palatalised this target phoneme in the word middle and final positions. A notable drawback with Umantari *et al.*'s study is the lack of items that include /dʒ/ in the onset positions

which limits the ability to observe possible variations in the students' productions. Having word-initial positions may offer a more thorough comprehension of how Indonesian L2 learners acquire this phoneme.

Previous research has also examined how the position of a phoneme in a word can affect the acquisition of the English voiced fricative /ð/ and the voiceless fricative /θ/ but the results remain inconclusive. Moreover, despite growing interest in L2 pronunciation, few studies have examined the effect of the position of these phonemes on Arabic L1 English learners. For instance, previous research has indicated that Saudi students experienced greater difficulty when producing /ð/ than /θ/, particularly in the word-final position. However, to some extent, they mispronounced /θ/ more obviously at the onset position than at the middle or final positions (Alzinaidi and Abdul Latif, 2019).

More research has been conducted into the pronunciation of these phonemes among English learners from other L1 backgrounds, including Vietnamese and Indonesian speakers. For the phoneme /θ/, it was reported that the word-initial and final positions were difficult for Vietnamese informants when producing /θ/ (Bui, 2016), as in 'teeth' and 'bath.' The study revealed that in the final position, the Vietnamese participants tried to combine the substitution of [t] and the vowel that precedes it in a way that confuses the listener with the phenomena of deletion. Bui reported that "it was not the habit of Vietnamese people to release coda consonants" (2016: 129). This is supported by the findings of Thao (2007) who identified how five L2 Vietnamese learners produce English coda consonants. In Thao's study, the participants tended to either delete the English unaspirated consonants (p, t, and k) or articulate them in a way that is similar to that of semi-vowels, particularly when these final consonants are preceded by /i/ or /u/. It can be perceived that the Vietnamese language allows a limited number of coda consonants that are never released and never pronounced as fricatives; it includes only six consonants and two semi vowels that can occur in final positions (Thao, 2007; Bui, 2016). This is evidence of the strong influence of Vietnamese as a mother tongue which led some L2 learners to make the

stimuli sound very short when the target sound comes at the end.

For the phoneme /ð/, Bui (2016) revealed that initial and middle /ð/ were the most problematic positions for Vietnamese speakers, particularly at the passage level. Similarly, for Indonesian speakers, the word-final position of the phoneme /θ/ and word-middle position of the phoneme /ð/ were difficult (Irianto *et al.*, 2018). However, Irianto *et al.* (2018) and Kurniawan (2016) reported difficulties in the word-middle position of /θ/, and word-final position of /ð/ for Indonesian speakers, indicating partial consistency with the findings of Bui (2016).

Unlike Bui (2016), who reported difficulty with the initial positions of /θ/ and /ð/ among Vietnamese speakers, it was observed that the Indonesian participants were better at producing those two target phonemes when they were placed in the onset position (Irianto *et al.*, 2018; Irianto *et al.* (2018) concluded that the total percentage of errors for the two target sounds that were made by all of the participants in the middle and final positions was approximately 75% and this percentage was classified as a high error according to the categorisation of errors presented in the study of Depdikbud (1994, cited in Irianto *et al.*, 2018).

As for the last phoneme, some previous studies investigated how the word-position of a phoneme affects the speakers' production when pronouncing /v/. These studies differ when seeking to identify the difficulties that Arabs experience when producing this sound in different word positions. One of the studies showed that pronunciation difficulties were greater when producing /v/ in the middle and final positions than in the initial positions, as was the case in Ahmed's (2011) study. Conversely, Arabs experienced difficulties when /v/ came in the initial position, as shown by Alzinaidi and Abdul Latif (2019).

Overall, these results regarding the effect of phoneme position on the production of the English voiced post-alveolar affricate /dʒ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labiodental fricative /v/ either support or contradict the findings of the present study, providing more conclusive evidence than that reported in previous studies.

3.7 Previous Research Concerning Arabic Dialects and English Pronunciation

Arabic-speaking learners of English as an L2 typically exhibit some difficulty with certain English sounds (Mahmoud, 2000). Previous research has discussed the influence of Arabic dialects on English pronunciation (e.g., Abd Elwahab, 2020; Abohajar *et al.*, 2023). However, such studies have not provided empirical evidence based on a systematic investigation of the speakers' productions. Abd Elwahab (2020) discussed the effect of Arabic dialects on the acquisition of English pronunciation from a descriptive perspective, pointing to general areas of difficulties due to dialectal differences. For instance, Abd Elwahab suggested that spoken variations of Egyptian Arabic do not include the sounds /dʒ/ and /ð/ and, therefore, Egyptian speakers would switch the English sounds /dʒ/ and /ð/ with /ʒ/, as in "job" /ʤɒb/-[ʒɒb], and [d], as in "though"/ðəʊ /-[dəʊ], respectively (Abd Elwahab, 2020:496). Additionally, the absence of the sounds /θ/, /ð/, and /p/ in the Sudanese Arabic dialect would affect Sudanese speakers' English productions by substituting these sounds with [s] as in "bath"/ bɑːθ/-[bɑːs], [z] as in "the" /ðə/-[zə], and [b] as in "pupil" /pjuːpəl/-[bjuːbl], respectively (Abd Elwahab, 2020: 496).

Similarly, Abohajar et.al. (2023) explored the Arabic dialectal impact on English pronunciation amongst 30 EFL students with diverse Arabic dialects, including Libyan, Iraqi, Moroccan, and Egyptian, at Alasmarya Islamic University in Libya. Using a questionnaire, the researchers gathered the students' perspectives regarding the impact of Arabic dialect variations on learning English pronunciation. The results of the study indicated that the majority of the students recognised differences in dialect and their effect on English pronunciation learning. Furthermore, the participants agreed that exposure to native language speech would enhance their pronunciation development. Additionally, they believed that without proper pronunciation, they would be unable to communicate effectively.

However, due to the scarcity of empirical research concerning the impact of dialectal differences in the L1 on L2 pronunciation acquisition (SLA), it presents an interesting area of research to address this gap with a more comprehensive empirical examination. Overall, the

literature motivates the current study to focus on production-based analysis of targeted English sounds produced by two groups of speakers with different Arabic dialects. This will help to demonstrate the role of L1 variation in the acquisition of non-native sounds. Providing insight into the linguistic backgrounds of L2 learners may help to identify specific advantages or challenges that L2 learners encounter during the language acquisition process.

However, this issue is further complicated as a result of the dialectal variation in Arabic not being taken into account when teaching English. For instance, Arabic fricative sounds are pronounced differently in certain Arabic dialects. Furthermore, some Arabic dialects only include fricative sounds (e.g., Urban Arabic dialects), whereas others include both fricative and affricate sounds (e.g., Bedouin Arabic dialects). Therefore, the current research investigates the production of specific English affricate and fricative sounds articulated by L2 Saudi Arabic-speaking learners of two Arabic dialects that differ in these sounds: Hwaiti Bedouin and Hijazi Urban dialects. Interestingly, no studies have previously explored the differences between such types of Saudi dialects in relation to the acquisition of certain affricate and fricative sounds of English.

Hence, the results of the current research may identify how Arabic speakers are influenced by their native Arabic dialects when pronouncing English fricative and affricate sounds in different positions of a word. This can provide valuable perspectives into the needs of diverse L2 learners which can help to better understand their language acquisition processes.

3.8 The Acquisition of L2 /dʒ/, /θ/, /ð/, and /v/: Highlights From Previous Studies and Extension

The reviewed literature indicated that the phonemes /dʒ/, /θ/, /ð/, and /v/ are problematic for both Arabs and non-Arabs, demonstrating that this significantly affects intelligibility and leads to communication failure (e.g., Ababneh, 2018; Mulyadi *et al.*, 2018; Hamza *et al.*, 2020). Additionally, it was observed that /θ/ was easier to pronounce than /ð/ for both Arabs as well as learners from other L1 backgrounds (e.g., Bui, 2016; Rustiba, 2009; Mulyadi *et al.* 2018;

Kurniawan, 2016; Alzinaidi & Abdul Latif, 2019). The previous studies indicate the importance of selecting these phonemes and provide a motive for analysing them as problematic sounds in the conceptual framework of the current study. Furthermore, this supports the first hypothesis which predicts greater difficulty in producing the sounds /dʒ/, /θ/, /ð/, particularly for Hijazi Urban speakers, whilst /v/ would present difficulty for both Hijazi Urban and Hwaiti Bedouin speakers. However, in addition to the effects on intelligibility, the current research also aims to analyse the speakers' errors in terms of their adherence to a target standardised norm (i.e., British English Variety).

Regarding the effect of phoneme position, the phonemes /dʒ/, /θ/, and /ð/ were generally mispronounced by non-Arabs when they came in the middle and final positions. As for /v/, the findings of the previous research indicated that /v/ was problematic for Arabs in the middle and final positions (Ahmed, 2011), while other studies indicated that the initial position of /v/ is more difficult for Arabs than the middle and final positions (Alzinaidi & Abdul Latif, 2019). Additionally, other studies have investigated the production of these phonemes by Arabs generally, without reference to their positions in a word (e.g., Hassan, 2014). Overall, the results of the previous research for Arabic-speaking learners regarding the effect of phoneme position on sound production remain inconclusive and, therefore, the current research seeks to explore this issue further. However, the construction of the second hypothesis, which predicts greater difficulty pronouncing the sounds /dʒ/, /θ/, /ð/, and /v/, particularly for Hijazi Urban speakers in middle and final positions, is based on the common problematic positions for both Arab and non-Arab English learners, as demonstrated in the literature review.

Furthermore, very limited production-based research has investigated Arabic dialect phonology effects on English pronunciation. For instance, Abd Elwahab (2020) and Abohajar *et al.* (2023) address the influence of Arabic dialect on English pronunciation from a descriptive and perceptual perspective, with no empirical research based on the systematic analysis of learners' actual production. Therefore, the current study aims to extend these studies by

examining how Arabic dialects show systematic differences, particularly between Hijazi Urban and Hwaiti Bedouin dialects manifested in the presence of the phonemes /dʒ/, /θ/, and /ð/ in the Hwaiti Bedouin dialect only and the absence of the phoneme /v/ in both dialects, and how this would affect the English production. This literature supports the first and third hypotheses, predicting dialect-dependent difficulty and substitution patterns, respectively.

Additionally, this section draws attention to a potential extension of the previous literature which left theoretical and methodological gaps unaddressed. This includes a lack of a comprehensive theoretical framework, inconsistencies in findings regarding the relationship between learners' proficiency level and their pronunciation accuracy, limitations in sample size, differences in gender representation, the narrowness of the stimuli range, as well as the absence of robust statistical methods and detailed reporting on rater consistency.

First, the previous studies lacked a clear theoretical foundation, which limited the interpretation of the findings. However, the proposed hypotheses of the current study link directly to specific theoretical predictions based on a range of SLA phonology theories (see Section 3.9). These theories collectively address the role of cross-linguistic influence in shaping learners' productions of L2 sounds, the impact of phoneme markedness on L2 sound learning, and the mechanisms through which learners' L1 affects their perception and production of L2 sounds. This will provide a broader understanding of the various productions of the phonemes /dʒ/, /θ/, /ð/, and /v/ by Saudi speakers of the Hijazi Urban and Hwaiti Bedouin dialects in the current research.

Additionally, based on the findings of Demirezen (2021) and Ababneh (2018) which indicated conflicting evidence concerning the connection between learners' proficiency levels and the accuracy of their pronunciation, the current study aims to conduct an English proficiency test to identify the impact of proficiency on sound production. This would help to establish a standardised way to assess L2 learners' English proficiency level which, in turn, may explain the factors that contribute to learners' achievements. Sample size and gender representation

present another problem because some studies relied on small samples (e.g., Hamza *et al.*, 2020) and did not include a similar number of each gender, as was the case in Bui's (2016) study. Furthermore, the limited number of stimuli in the previous studies (e.g., Bui, 2016; Umantari *et al.*, 2016; Jabali and Abuzaid, 2017) were insufficient to identify the most problematic sounds and positions of sounds for speakers.

Therefore, further research is required to recruit equal numbers of male and female participants and include a large sample, with more stimuli to help investigate the possible substitutions made by the participants. For instance, the voiceless alveolar fricative /s/ is among the Vietnamese consonants, although it was not featured in Bui's (2016) study. There is a possibility that Vietnamese speakers would replace the sound [s] for /θ/ if the sample was larger and there were more stimuli, either in the form of words or discourse sentences. Also, the new kinds of mistakes made by the participants in the previous studies (e.g., Bui. 2016) need to be confirmed using a larger sample in order to introduce a clear linguistic background for the L2 learners who encounter problems with fricative sounds.

Additionally, some studies in the previous literature employed a descriptive qualitative approach (e.g., Umantari *et al.*, 2016; Abd Elwahab, 2020; Abohajar *et al.*, 2023), so statistical procedures were not used for more accurate quantification. To enhance the reliability of the findings, future research should make use of quantitative methods which can address the existing qualitative research gap and provide more representative results and significant outcomes. Additionally, quantitative methods can facilitate comparisons between groups or conditions with clear numerical evidence. Furthermore, numerical data would enable replication and validation of the findings reported by other researchers. While mixed methods may offer comprehensive insights, the aim is to provide a statistically significant perspective. Combining methods can be beneficial, but the selection often depends on the research goals and practical limitations.

Also, among the studies reviewed, some did not explain either the degree of consistency between the raters who listened to the speakers' audio tapes or the criteria used to identify the

speakers' mistakes (e.g., Bui, 2016; Hamza *et al.*, 2020; Demirezen, 2021). Therefore, to provide a more structured approach, the current research aims to consider the degree of consistency between the raters involved in the study and define a specific criterion for analysing speakers' errors. Thus, in spite of the advances made by the previous literature, this thesis aims to address several of these gaps.

This chapter explained the target sounds: the voiced affricate /dʒ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labiodental fricative /v/ in different Arabic varieties. Furthermore, it described how L2 learners acquire them in English, highlighting the obstacles they face when producing them. For a clearer understanding, Table 7 summarises these sounds in each given language. As can be seen, the literature review has presented the four sounds, showing their contrasts in SA, Bedouin, and Urban Arabic.

Target Phoneme	**SA Phoneme**	**Bedouin Arabic Phoneme**	**Urban Arabic Phoneme**
/dʒ/	/ʒ/	/dʒ/	/ʒ/
/θ/	/θ/	/θ/	/t/ or /s/
/ð/	/ð/	/ð/or / θ/	/z/ or /d/
/v/	/f/	/f/	/f/

Table 7: The Description of /dʒ/, /θ/, /ð/, and /v/ in SA, Bedouin, and Urban Arabic

The literature review also presented other productions of these sounds in other Arabic dialects (e.g., Bahraini, Iraqi) but the current study only addresses the description of these sounds in SA, Bedouin, and Urban Arabic.

Despite extensive research on L1 transfer, fewer studies have highlighted dialectal variation and phoneme positional effects within a specific theoretical framework, a gap which the current study seeks to address. The preceding discussion indicates that L1 phonological transfer plays an essential role in forming the learners' productions of the English sounds /dʒ/, /θ/, /ð/, and /v/. However, L1 transfer alone can not explain the variation observed in the speakers' productions, as factors such as L1 dialect and phoneme position appear to affect the

production of the target sounds. To account for the role of these influences in the acquisition of English sounds, key theoretical approaches in L2 phonological acquisition is necessary to consider to provide a comprehensive framework for interpreting the patterns investigated in the present study. The section below reviews relevant theories, models, and hypotheses which examine different influences on the process of acquiring the phonology of a second language to provide a broader understanding of its complexity and a reliable framework for the thesis.

3.9 Theories of Second Language Acquisition of Phonology

Second language acquisition (SLA), as a subfield of linguistics, is characterised by its complexity and multidisciplinary nature (Larsen- Freeman, 2000). It encompasses several factors including social, cognitive and linguistic elements (Carroll, 1953). One of the key areas of SLA research is the acquisition of phonology, which refers to the sound system of a language. This topic has been thoroughly studied in the literature (Edwards & Zampini, 2008). Investigating how L2 learners acquire a second language's (L2) phonological system is crucial because it can provide insight into the entire language learning process. Theories regarding the acquisition of the phonology of an L2 focus on how people who already know one language acquire the sound system of an L2 (Slinker, 1974; Eckman 1977; Oldin, 1989; Best, 1994; Flege, 1995; Broselow & Kang, 2013). The current thesis dicusses a range of SLA theories of phonology, one of which is Cross-linguistic Influence (CLI), the Markedness Differential Hypothesis (MDH), the Speech Learning Model (SLM) (Flege & Bohn, 2021), and the Perceptual Assimilation Model (PAM).

3.9.1 Cross-linguistic Influence (CLI)

Cross-linguistic influence (CLI), or the influence of the knowledge of one language on the acquisition and use of a new language (Bild & Swain, 1989; Tati *et al.*, 2015), has a key role in L2 acquisition research, a role which has received extant attention (Odlin, 1989, 2012; De Angelis and Selinker, 2001). In fact, Major (2008) defends that most research on L2 phonological acquisition examines the degree of the native language influence or 'transfer' on

shaping L2 sound segments for learners. Transfer occurs at all levels of language, including phonology, morphology, syntax, and semantics (Lado, 1957). Nonetheless, phonological transfer is regarded as the most remarkable type of CLI (Celce-Murcia, 1991; Ortega, 2008). As reported by Ortega (2008), most L2 learners, including those at high levels, are able to maintain a foreign accent that is often L1-based.

Phonological transfer can have both positive and negative effects on SLA. Positive transfer refers to the beneficial effects of a learner's prior knowledge, skills or experiences on the acquisition of an L2. If a learner's L1 shares similar phonological rules with the target language (L2), the learner may find it easier to understand and apply the phonological rules of the L2. Nonetheless, it is important to note that positive transfer is not generally ensured, and the degree of positive transfer can differ depending upon different variables such as the learner's prior knowledge, skills, experiences and the degree of similarity between the L1 and L2 (Nami, 2019). The second effect is negative transfer which may occur when significant differences occur between the two languages. Negative transfer (also known as interference) (Bhela, 1999; Grubešić & Aljović, 2017; Qiao, 2020) arises when a learner's prior knowledge or experience in their L1 interferes with the acquisition of an L2 (Lado, 1957; Shen, 2023). If a learner's L1 has sounds that do not exist in the L2 or vice versa, the learner may struggle to accurately produce or distinguish between the sounds in the L2. For example, if a learner's L1 does not have a distinction between the /l/ and /r/ sounds, they may have difficulty distinguishing between these sounds in the L2, which can result in mispronunciation and communication difficulties (Kakar & Sarwari, 2022). Negative transfer can be a natural part of the language learning process as learners acquire the L2 rules. However, if negative transfer persists or leads to a breakdown in communication, it can hinder progress being made with language learning and cause frustration (Shah *et al.*, 2023). Thus, negative transfer can make it more difficult for the person to learn the L2 and use it accurately (Wang, 2022; Shah *et al.*, 2023). Hence, transfer is seen in L2 acquisition as a key component of CLI and it has been studied in SLA since the 1940s

(Carpenter, 1945; Odlin, 1989, 2012; De Angelis and Selinker, 2001; Minasyan, 2007; Bergman & Engstorm, 2023).

Another fundamental component in CLI is interlanguage (Oldin, 1989, 2012; De Angelis and Selinker, 2001), as introduced by Selinker (1972; 1974) to describe the learners' unique linguistic system which is independent of both their native language and the target language but shares characteristics of both. It is defined by Yule (1985:289) as "An interim system of L2 learners, which has some features of the L1 and L2 plus some that are independent of the L1 and L2". Figure 2 presents the interlanguage dynamic system:

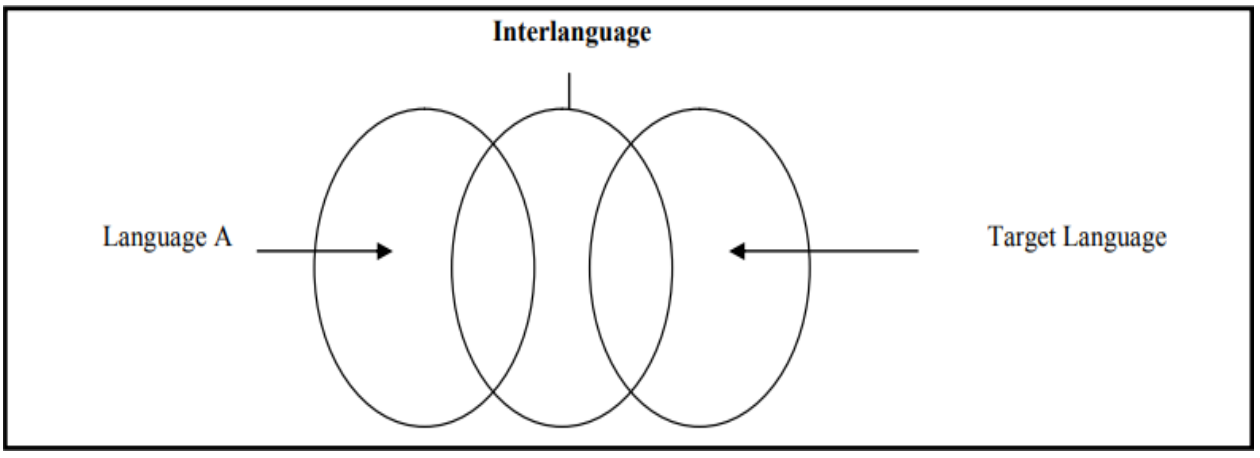

Figure 2: The Interlanguage Notion
Source: Corder (1981)

The figure above represents the evolving language system that L2 learners create during their L2 acquisition process as proposed by Corder (1981). More specifically, it depicts the transitional state between an L1 (language A) and an L2 (target language), in which L2 learners use both their L1 and L2, leading them to a unique linguistic system. This unique system can be characterised by L2 errors, which are deviations from the target language norms made by L2 learners and which play a significant role in understanding the learners' interlanguage system. These errors can be attributed to the learners' incomplete knowledge of the target language as well as to the influence of the learners' L1 and the interlanguage system they are developing

(Corder, 1981). Hence, the analysis of L2 errors can provide valuable information regarding the learners' interlanguage system and the language learning process.

Moreover, errors can be classified into different types based on their linguistic characteristics (Lott, 1983). For example, phonological errors are related to the learners' pronunciation of sounds. As an example of interlanguage characteristics, consider the acquisition of English sounds by Arabic speakers. Arabic and English have different sets of phonemes which can lead to difficulties in pronunciation for Arabic learners of English. For instance, many Arabic speakers struggle with the phonemes /p/ and /b/ in English because the voiceless bilabial stop /p/ does not exist in Arabic (Rehman *et al.*, 2020). As a result, Arabic learners of English may substitute /p/ with similar sounds from their native language. For example, they may substitute the English /p/ sound with the Arabic sound /ب/, /b/. This type of substitution is an example of interlanguage because the learner's L1 influences their production of the L2 (Rehman *et al.*, 2020).

A learner's interlanguage is characterised by a range of linguistic phenomena, including fossilisation (Selinker, 1972), or the plateau L2 learners can reach whereby aspects of their interlanguage become resistant to further development (de Queiroz Barretto, 2021), overgeneralisation (Ellis, 1985), or the application of a rule to a context where it does not apply in native speech, and simplification (Selinker, 1972; Selinker *et al.*, 1975), or the use of simpler forms and avoidance of more complex forms in the L2 (Niestorowicz, 2015; Osman *et al.*, 2022).

Firstly, fossilisation, according to Qiao (2020), is seen as a remarkable feature in the speech of L2 learners who have learned an L2 after adolescence (Penfield & Roberts, 1959). For instance, aspects of pronunciation may become fossilised in the process of L2 learning if learners develop a linguistic system which involves features that do not match the target language (Betu, 2020). Secondly, overgeneralisation errors can be described as developmental errors because L2 learners attempt to build up their linguistic knowledge about the target language based on their limited experience (Chelli, 2013; Heydari & Bagheri, 2012). In other words, their occurrence is

associated with L2 learners' lack of familiarity with the limitations of the target language's rules (Niestorowicz, 2015). Lastly, simplification can be a result of limited knowledge of the target language or an attempt by the learners to communicate more effectively (Hao *et al.*, 2021).

3.9.2 Markedness Differential Hypothesis (MDH)

Regarding simplification, it is the fundamental notion of Markedness Differential Hypothesis (MDH) (Eckman,1985, 2008), as learners tend to simplify or avoid marked structures. According to Eckman (1977), some of the errors made by L2 learners may not come directly from mere L1 transfer. Hence, the transfer phenomenon in SLA should not be studied in isolation; rather, it should be explained in light of other concepts such as universals and markedness (Major, 2008). In this context, MDH (Eckman,1985) is one of the key concepts that explains why learners confront difficulties with L2 patterns, particularly when those patterns are absent or different from those in their native language (Castino, 1991). Eckman's MDH (1985) seeks to identify difficulties in SLA among the languages of the world. It suggests that marked structures are those that are rare, complex, or difficult to produce, whereas unmarked structures are more common and simple.

Eckman (1977) assures that setting up a universal hierarchy of difficulties is necessary to grasp L2 learners' errors which are not directly related to their first language. The MDH (Eckman, 1985) has been applied to various aspects of SLA, including phonology, syntax and morphology. However, the MDH is a core subject in phonology (Hume, 2011). In the context of phonology, marked and unmarked sounds in English can be identified according to their phonetic complexity and rate of commonness (Eckman, 1985; Poongodi *et al.*, 2022; Song, 2022). Examples of marked sounds in English include the voiceless dental fricative /θ/ (as in 'author'), the voiceless alveolar-palatal fricative /ʃ/ (as in 'fish') (Fauzi, 2021) and the voiced dental fricative /ð/ (as in 'this') (Djajadiningrat, 2011; Jehma and Phoocharoensil, 2014). In contrast, the voiced bilabial stop /b/ (as in 'bat') is considered an unmarked sound because it is phonologically neutral, as it is often found in many other languages (e.g., Arabic), making it less

challenging for L2 learners to acquire and produce (Katamba, 1989). This sound /b/ is also found in many other languages (e.g. Arabic), thereby making it less challenging for L2 learners to acquire. The differentiation between marked and unmarked sounds is also evident in the voiced alveo-palatal fricative/ʒ/ (as in 'garage'), which is marked sound, compared to the unmarked voiced affricate /dʒ/ sound (as in 'huge'), which is more commonly used in English (Mousa, 2015).

The concept of markedness can also be applied to the position of sounds within a word. In other words, positions can be marked or unmarked. Therefore, a marked sound and unmarked sound may be produced in a marked or unmarked position. For example, in English, the initial and final positions for the voiceless dental fricative /θ/ (e.g. the "th" sound in the word *think*) are typically unmarked positions because they are relatively frequent positions for this sound. However, the middle position for /θ/ (e.g., *author*) is considered to be marked (Fauzi, 2021), making it require more articulatory precision (Fauzi, 2021).

However, it is important to note that the MDH is not uncontroversial. In this regard, Rice (2016) states that "Markedness is a contentious subject in phonology" (Rice, 2016:79). Further, Eckman (2008) indicates that different languages may exhibit varying degrees of markedness, and this refers to the different degrees of perceived complexity or difficulty in certain linguistic patterns, that might vary between individuals. This is associated with the L2 learners' different native language backgrounds. Hence, some learners may be able to acquire marked features more easily than others, depending on the language they are learning as well as the degree of complexity. Additionally, the MDH applies primarily to learners in the earlier stages of acquiring an L2; however, it may not apply to those who are highly proficient and have developed target-like competence in the target language through rich exposure, as they might potentially overcome the difficulties associated with markedness (Benson, 1988).

Previous research has examined the impact of learners' L1 on the acquisition of L2 pronunciation and how it may facilitate or hinder the acquisition of the target language (Edwards

& Zampini, 2008; Karakas & Sönmez, 2011; Alwabari, 2013; Alfehaid, 2015, Jevring, 2015; Hamzah *et al.*, 2016; Binasfour, 2018; Alzinaidi & Abdel Latif, 2019; Nima, 2019; Farrah & Halahlah, 2020; Hamzah *et al.*, 2020; Abdelgadir, 2021, Demirezen, 2021). In addition to the L1's influence, several other factors also significantly affect the process of L2 phonology acquisition. These factors include the extent to which phonetic features in L1 affect the sounds in L2 (Olsen, 2012), the learner's age (DeKeyser, 2013), motivation (Nagle, 2013), exposure to English (Aliaga-García, & Mora, 2009), cognitive processes (Morales Pech & Izquierdo, 2011; Darcy *et al.*, 2015), and the context in which language learning takes place (Mora, 2008).

Thus, to gain deeper insights into the ways L2 learners perceive and produce the target language, a range of models has been proposed in the field of L2 sound acquisition. Learners initially acquire the phonological system of their mother tongue but when they are exposed to another language, they naturally apply the phonological sieve of their L1 to analyse what they hear (Trubetzkoy, 1969). This sieve is not designed for the target language and, therefore, various misconceptions and errors may occur (Trubetzkoy, 1969). This issue is the cornerstone of most modern models, hypotheses and theories of L2 speech acquisition which emphasise the interaction between perception and production in learning an L2.

In the subfield of phonological SLA, there are two main models attempting to explain how L2 learners acquire the phonological system of their L2: the speech learning model (SLM) (Flege, 1995; Flege & Bohn, 2021) and perceptual assimilation model (PAM) (Best, 1994). A key element in the theorization of these two models is the contrast between comprehension and production. As stated by Escudero (2007), perception precedes production, which implies that how learners perceive L2 sounds has a direct impact on how they pronounce them. Both SLM (Flege, 1995) and PAM (Best, 1994) illuminate the role of transfer in phonological acquisition, which explains how L1 influences L2 patterns (Broselow & Kang, 2013).

According to SLM (1995), transfer takes place when learners attempt to use their L1 categories to interpret and produce L2 phonetic patterns. This process depends on the degree of

similarity between L1 and L2 phonetic segments, which can either facilitate or delay the development of L2 acquisition. Similarly, PAM suggests that learners perceptually categorise L2 sounds according to their L1 phonological system and this influences their ability to perceive and produce the target segments (Best & Tyler, 2007). Furthermore, both SLM and PAM suggest that perceptual similarities and differences between the sounds of L1 and L2, besides other factors such as the learner's age, amount of exposure, cognitive function, and quality of input, significantly affect performance in perceiving and producing L2 sounds (Best & Tyler, 2007; Giannakopoulou, 2012; Flege & Bohn, 2021).

The following subsections introduce the speech learning model (SLM) and Perceptual Assimilation Model (PAM), indicating how they may be able to add to our comprehension of the acquisition of L2 phonology, shedding light on the intricacies of this process.

3.9.3 Speech Learning Model

The SLM is a theoretical framework proposed by Flege (1995) and revised, as the SLM-r, in Flege & Bohn (2021) and which aims to explain how L2 learners acquire the sound system of a new language (Flege, 1995). This model delves into the processes involved in the perception and production of speech sounds in the L2. The SLM suggests that learners first attempt to map the sounds of the L2 onto their existing sound system (Flege & Bohn, 2021) and that acquisition is modulated by linguistic (internal) and extralinguistic (external) factors.

Linguistic factors comprise language-related elements, such as the degree of L1 similarity to L2 phonetic segments, cross-linguistic mapping, and phonetic categorisation. Extralinguistic factors include individual differences, such as the learner's ability to perceive and produce the L2 sounds, experience, and age of acquisition. Learners' L1 phonological system might be brought into the process of L2 acquisition, and this would influence their capacity to learn the target phonetic segments (Flege & Bohn, 2021). More specifically, when the degree of similarity between the L1 and L2 phonetic segments increases, this may result in incorrect perception and challenges with sound production. However, learners may find the

process of perceiving and producing L2 sounds to be easier when the degree of dissimilarity between L1 and L2 sounds increases (Flege & Bohn, 2021).

The SLM suggests that learners' perception of L2 sounds is critical to their phonological acquisition (Flege & Bohn, 2021). Learners must have the ability to accurately discern the differences between L2 sounds before they can start to produce them. More specifically, the SLM emphasises the importance of successfully perceiving L2 sounds which, in turn, enable L2 learners to successfully articulate them (Flege & Bohn, 2021; Chen & van- de Weijer, 2022). The learners' abilities to perceive and produce L2 sounds are impacted by cognitive and neural processes, that are affected by factors, such as learners' age, prior experience, and exposure to the target language (Flege, 1995, 2007; Flege, 1995; Flege and Bohn, 2021). For instance, younger learners may have greater brain flexibility in learning new sounds while older learners may rely more on conscious cognitive resources and structured learning procedures (Flege & Bohn, 2021). In this context, the SLM highlights the significance of perceptual training and exposure to new sounds in enhancing adult learners' phonological abilities (Flege, 1995; Flege & Bohn, 2021).

To better understand the complexities of perceiving and producing speech sounds, it is essential to consider a structured model that interprets these processes. Within the SLM, the Generic Three-Level Production-Perception Model coined by Evans and Davis (2015) provides a useful structured approach that explains learners' perception and production of L2 sounds through three interconnected levels: perception, cognition, and production. This model represents the development of the phonetic categories motorically. It postulates the phonetic 'rules' (Flege & Bohn, 2021) that can be used to create a language-specific phonetic category. Figure 3 below demonstrates the generic three-level production–perception model:

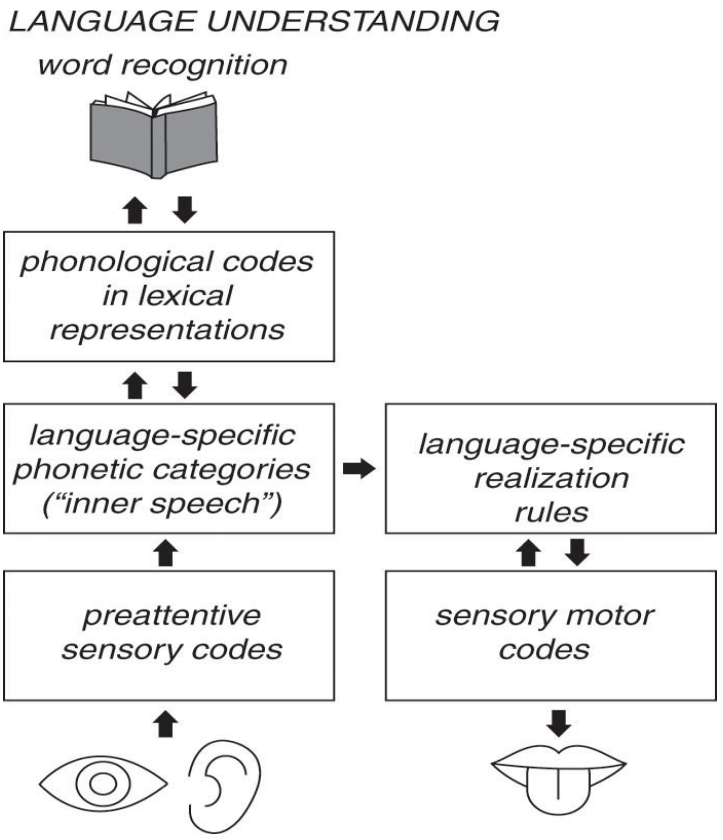

Figure 3: The Generic Three-Level Production–Perception Model Assumed by the SLM
Source: Evans and Davis (2015)

The SLM assumes a three-level model for how learners perceive and produce L2 sounds: (1) the preattentive sensory codes level, (2) the phonetic category formation level, and (3) the phonological level. As assumed by the SLM (Flege & Bohn, 2021), this figure shows the bidirectional relationship between speech perception and production. More specifically, it illustrates how the visual and auditory cues (sensory inputs) undergo through various levels, which influence speech perception and production. This process proposes that information goes from a preattentive sensory codes level to a phonetic category level and finally to lexico-phonological representations (see Figure 3) (Flege & Bohn, 2021). At the sensory-input **level**, the learner's perception of the L2 sound begins with preattentive sensory cues through auditory and visual inputs (Mcgurk & Macdonald,1976). The auditory process, through ears, provides acoustic information (e.g., frequency, duration, and intensity), whereas visual cues, through eyes (e.g., lip movements) contribute to speech comprehension (Mcgurk & Macdonald,1976). Then,

these preattentive sensory codes are mapped onto language-specific phonetic categories (i.e., inner speech) (Khul, 1991; Marslen-Wilson, 1987). In this level (i.e.**, phonetic category level**) the learners attempt to categorise the L2 sound into a specific phonetic category based on their L1 phonetic categories (Feleg & Bohn, 2021; Flege, 1995; Best, 1995). Once speech sounds are categorised, the learners can decode spoken words and recognise their meanings within linguistic contexts (Marslen-Wilson, 1987). This represents the **lexico-phonological level**, which is the final stage of speech perception where the learners link the phonetic category with its corresponding word form in the L2 lexicon (Marslen-Wilson, 1987). This relationship is influenced by the learners' knowledge of L2 vocabulary and grammar, which enables them to integrate the target sound into a broader linguistic structure rather than just a phonetic unit. An example is discussed later in this subsection to illustrate this process. The model also involves sensory- motor codes, which are represented by the tongue and mouth. These sensory-motor codes are influenced by language-specific realization rules, which control the articulation way of the target sounds (Best, 1995).

This model represents a thorough understanding of the bidirectional interaction between speech perception and production. It highlights the essential role of sensory inputs, phonetic categorisation, and motor control in the process of speech learning. These mechanisms, according to SLM (Flege & Bohn, 2021), are updated continuously throughout ones' lifetime to facilitate adaption to novel linguistic contexts. Overall, this interaction between speech perception and production is crucial in an L2 acquisition process, as L2 learners need to adjust their phonetic categories and motor commands in response to new auditory experiences (Flege *et al.,* 1995; Flege, 1999 Best, 1995; Best & Tyler, 2007).

An example of this process could be seen in the way of how Spanish learners of English perceive and comprehend the English vowel /ɪ/ as in ''sit''. They often pronounce it like the Spanish /i/ as in ''seat'' (Garita Sánchez *et al.*, 2019). Initially, they may hear the English vowel /ɪ/ as its Spanish counterpart/i/ because it is not a component of their native language phonetic

system. Hence, the difference between these two sounds may not be apparent to the learners' sensory system. This represents the preattentive sensory stage, in which the learners detect the sound, but may not be able register the distinction between these two sounds (Flege & Bohn, 2021). Then, the learners move to form a mental representation for the English vowel /ɪ/ (Flege & Bohn, 2021). In other words, they attempt to categorise the English vowel /ɪ/ to the closer sounds found in their native language (i.e. The Spanish /i/) (Garita Sánchez *et al.*, 2019). In this context, the process of categorisation is influenced by the phonetic similarity of the English vowel/ɪ / and the Spanish sound /i/. Consequently, learners may assimilate both /ɪ/ and /i/ into the Spanish /i/ category (Garita Sánchez *et al.*, 2019). This process reflects the phonetic category stage where the learners begin to use the phonetic knowledge of their native language to classify the English sound /ɪ/ (Flege *et al.*, 1995; Flege & Bohn, 2021). The learners' categorization of L2 sounds based on their L1 aligns with what Flege and Bohn (2021:13) describe as "interlingual identification" - an automatic and subconscious cognitive process - as the means by which LI and L2 sounds are perceptually related to one another. Finally, the learners move to integrate this sound into a broader linguistic structure (Flege & Bohn, 2021). They link the English vowel/ɪ/ to actual words following the rules of the language (Flege *et al.*, 1995). When producing /ɪ/ as in ''sit'', they mentally merged the English /ɪ/ as in ''sit'' and Spanish /i/ as in ''seat'' under the same phonetic representation /ɪ/ leading to mispronunciation that affect their fluency in L2 speech (Garita Sánchez *et al.*, 2019). This illustrates the lexico-phonological stage where learners try to comprehend the English sound /ɪ/ in the context of English words, but they could not grasp it correctly.

The SLM describes how the learners acquire an L2 sound system. It proposes that the process of SLA is guided by the learner's attempts to match the L2 sound to their existing L1 phonetic categories (Flege & Bohn, 2021). It also emphasizes the obstacles caused by L2 sounds that are different or lacking in the learners' native language, as well as the significance of perceptual training (Flege, 1995, 1999; Flege & Bohn, 2021) This approach also expands on the

Generic Three-Level Production-Perception model (Evan & Davis, 2015) that describes the phases of perceiving, classifying, and relating L2 sounds to their actual linguistic contexts.

Overall, the SLM provides a comprehensive framework for understanding the process of L2 phonology acquisition. The following section discusses certain factors within the SLM which affect the development of speech sounds in the L2.

3.9.3.1 SLM and the Development of Speech Sounds

This section discusses the role of the SLM in the formation of speech sounds. This process is influenced by various factors that should be considered for gaining insights into how individuals acquire target-like speech sounds. These factors include the degree of sound similarity, the cross-language mapping, the categorization of speech sounds, initial exposure, and amount and type of experience (Flege & Bohn, 2021). In the first subsection, on the degree of sound similarity to an L2 (3.9.3.1.1), I will introduce the specific types of L2 sounds that L2 learners encounter when acquiring an L2. These types include identical, similar, and new L2 sounds. This specific classification of L2 sounds may help to better understand how L2 learners perceive and produce L2 sounds and how this classification affects their L2 proficiency. In the second subsection, on the cross-language mapping (3.9.3.1.2), I will explain how L2 learners apply knowledge from their L1 to help interpret and pronounce L2 sounds. In the third subsection, on the categorisation of L2 speech sound (3.9.3.1.3), I will show how effectively the categorization of L2 sounds enhances L2 learners' ability to acquire new phonetic categories. In the fourth subsection, on initial exposure (3.9.3.1.4), I will explain how early exposure to English may help to achieve target-like speech. In the fifth subsection, on amount and type of exposure (3.9.3.1.5), I will refer to the contribution that experiences make to the development of L2. I will briefly introduce the different aspects of experiences that may affect L2 learners' language acquisition. The varied experiences in SLA exert significant influence over the fluency of L2 learners. The subsections below delve into a comprehensive overview of each of these factors.

3.9.3.1.1 Identical, Similar and New L2 Sounds

The degree of sound similarity with L2 sounds also plays a crucial role in the SLM. It identifies the way L2 learners map and recognise speech patterns from both their L1 and L2. The SLM (Flege & Bohn, 2021) classifies L2 learners' errors when learning L2 sounds into three groups depending on how they are perceived by L2 learners: identical sounds, similar sounds and new sounds. Identical sounds are the sounds that are perceived as being the same in L1 and L2. Similar sounds are the sounds in L1 and L2 which share similar features but are not identical. New sounds are the L2 sounds that do not have counterparts in L1 (Flege & Bohn, 2021). The classification of errors would help to predict the errors made by L2 learners when producing L2 phonetic categories. Overall, according to the SLM (1995), when the sounds in L1 and L2 are partially similar in certain features, L2 learners will face difficulties acquiring the target sounds. Hence, L2 learners may be unlikely to discriminate the target sounds from the L1 ones. On the other hand, this model predicts that when the sounds in L1 and L2 are identical or very different, the acquisition process will be easier (Flege, 1995).

As an example of identical sounds, Morcillo Berrueta (2015) conducted a study in which he examined a Spanish-speaking English learner's production of English consonants based on this classification. Because the /b/ sound is identical in both English and Spanish in the initial position, it was found that the Spanish speaker produced it accurately. However, the speaker could not pronounce it accurately in the middle and final positions because this sound behaves differently in these positions in Spanish. In English, it is pronounced in the same way in initial, middle and final positions, whereas in Spanish, it is realised as a voiced, bilabial, plosive /b/ in word-initial, as in ("birds" [bɜːdz]), a voiced bilabial approximant [β] in word- middle, as in (a "bikini" [aβi'kini]), and as a voiceless, labiodental, fricative [f] as in ("pub" [pʌf]) because it is not allowed in word-final position (Morcillo Berrueta, 2015:12-13). As for new sounds, Morcillo Berrueta (2015) found that the speaker was able to create a distinct phonetic category for the English voiceless velar plosive /k/sound in the initial position in the word "colours" ['kʰoləɹs]

without transferring the phonetic rules of her mother tongue for this sound (Morcillo Berrueta, 2015). In English, /k/ is aspirated in the word initial position, whereas this sound is generally not aspirated in Spanish. Hence, the learner treated the word- initial [k] as a new sound, and according to the SLM, this helped the Spanish speaker to produce it accurately, as the learner was able to perceive sufficient phonetic differences when creating the English voiceless velar plosive /k/ in word-initial position. Similar results were reported by Flege *et al.* (1992) when analysing the production of word- final English stops /t/ and /d/ by Mandarin and Spanish learners of English. Neither Mandarin nor Spanish has words with final stops, making them able to produce the word- final English /t/ and /d accurately, because they treated them as new sounds (Flege *et al.*, 1992). In the case of similar sounds, Berrueta (2015) noticed that the participant was unable to produce the English voiced dental fricative /ð/ in some positions. Spanish lacks the English dental fricative / ð/, and instead the closest dental sound /d̪/ is used. The speaker was most likely to exchange the English dental fricative / ð/ with the Spanish dental [d̪] in the word-initial position, as in *the* [d̪e]; however, sometimes she tended to pronounce it using the English alveolar stop[d] sound. Furthermore, in the word-final position, she produced it as the sibilant [θ] as in the word think [θɪŋk], whereas in the word-middle position, it was realised as the Spanish voiced, dental, approximant [ð̞] as in *that* [ð̞at] (Berrueta, 2015:13-14). Hence, due to the partial similarity of phonetic features between the English voiced dental fricative /ð/ and the closest Spanish sound, the new category formation was blocked because the participant could not establish functional contrast between the target English sound and the Spanish ones. Similar results were also found in Flege (1987) where he investigated the production of the French vowel /u/ by native English speakers. English vowel /u/ differs acoustically from the French vowel /u/. Flege (1987) found that English native speakers were unable to produce the French vowel /u/ accurately due to the similarity between the English /u/ and the French vowel /u/.

3.9.3.1.2 Cross-language Mapping

Cross-language mapping is another critical factor in the SLM (Flege & Bohn, 2021) which

explains how learners use their existing linguistic knowledge to acquire new phonetic categories in the L2. According to the SLM, learners attempt to map the L2 sounds onto their existing L1 sounds but this process can be affected by several factors, such as language distance, phonological similarity and salience. Language distance, for instance, refers to the connection between the two languages in terms of their phonological and morphological structures. Learners may be able to create a new phonetic category if they phonetically perceive the dissimilarity between an L2 sound and its closest L1. Flege (1995: 264) refers to the ability of French learners of English to produce the English word-initial /t/ with 'compromise' VOT (Voice Onset Time) values, taking into account the cross-language phonetic distance between this target sound and its closest French category /t/. The English /t/ requires a longer VOT s, whereas the French /t/ is produced with a shorter VOT. Due to this phonetic distance, the more accurate the perception of the phonetic distance between the English /t/ as an L2 sound and its closest sound French /t/ as an L1 phonetic category, the greater the target-like production of the target category by French learners of English is likely to be (Flege, 1995).

On the other hand, the cross- language mapping process may be influenced by the phonological resemblance between L1 and L2 sounds. Learners may be more likely to transfer knowledge between sounds that share similar phonetic features, such as place or manner of articulation. For example, the English-voiced dental fricative /ð/ may be more easily mapped onto its Arabic equivalent /ð/ [ذ] due to their shared voicing, place and manner of articulation. Furthermore, salience refers to the perceptual distinctiveness of a sound and learners may find it easier to map sounds that are more salient in the L2 (Barzilai, 2021; Ellis, 2016). For example, the distinction between Hindi retroflex and dental place of articulation is easier to distinguish more accurately in voiceless unaspirated stops than in prevoiced stops by English- speaking learners of Hindi (Polka, 1991). This is attributed to the greater differences in formant transitions in voiceless unaspirated stops than in prevoiced stops, enhancing the perceptual salience of certain sounds (Polka, 1991, Flege, 1995).

Hence, it can be observed that the mapping of L2 sounds onto L1 sounds can lead to both positive transfer (it occurs when L1 knowledge helps L2 acquisition) and negative transfer occurring when L1 knowledge hinders L2 acquisition (Felge *et al.*, 1998; Bingjun, 2013). Comparing and analysing phonetic categories between two or more languages is a difficult procedure. Learners rely on their L1 knowledge to develop hypotheses about the phonetic categories in the L2 and to make predictions about how these categories may be produced and perceived.

3.9.3.1.3 Categorisation of L2 Speech Sounds

The categorisation of L2 speech sounds plays a crucial role in the perception of L2 sounds (Holt & Lotto, 2010; Flege & Bohn, 2021). According to the SLM, categorisation process posits that L2 learners acquire new phonetic categories rather than simply learning to differentiate between contrasts (Flege, 1995, 2007; Flege et al., 2003; Flege and Bohn, 2021). The categorisation process focuses on the individual sounds that exist in the phonetic subsystems of the L1 and L2 of L2 learners. During the process of categorisation, an L2 learner classifies an L2 stimulus sound by understanding its relative distance among other distinct tokens (Flege, 1995). This means that an L2 learner perceptually links between L1 and L2 sounds through the mechanism of 'interlingual identification' (see Section 3.9.3) (Flege & Bohn, 2021). Contrast, on the other hand, implies the discrimination between phonetic categories (e.g., discriminating between the two pairs of sounds: /p/ and /b/) (Flege & Bohn, 2021). The SLM focuses on the L2 learners' categorisation process by considering it as the basis of speech perception (Holt & Lotto, 2010; Flege & Bohn, 2021). L2 learners can match the properties of an L2 sound with its relative distant items (e.g., [θ] in think, not [f], not [s], not [v]) (Flege & Bohn, 2021). These four sounds are distinct phonemes, but they still belong to the same category of consonant sounds (i.e., fricatives).

A learner whose L1 does not distinguish between /θ/ and /ð/ may still create separate mental categories for these two sounds in the L2, rather than simply treating them as different

realisations of a single phoneme. Previous studies also provided evidence of the creation of new phonetic categories in L2 learners, such as the emergence of a separate category for the English /æ/ sound by Spanish-English learners (Flege, 2007; Hattori & Iverson, 2009). Hence, L2 learners do not rely solely on their L1 phonological system when acquiring new phonetic categories but instead group items based on related features. This allows L2 learners to perceive and produce the target item more efficiently (Flege & Bohn, 2021).

Flege & Bohn (2021) note the importance of distinguishing between categorisation and identification in the context of sound perception (Flege & Bohn, 2021). An example of this is the study by Bohn and Flege (1993) which investigated the comprehension of English stops by Spanish monolinguals in a forced-choice task with two choices. The participants were asked to listen to a number of Spanish and English stops. The stimuli included the Spanish stops (pre-voiced /d/ and short-lag /t/) and the English stops (short-lag /d/ and long-lag /t/). They then had to choose between either 'd' (representing the Spanish voiced stop /d/) or 't' (representing the English voiceless stop /t/). The Spanish monolinguals recognised the long-lag English /t/ tokens as 't,' despite not having this sound in their native language. The use of the 'X-not-X' strategy makes us understand that the participants' selection of the target sound /t/ relies on the absence of the English /t/ in their native language rather than a specific recognition of the target sound /t/.

On the other hand, Mackey *et al.* (2001) used the alternative forced choice (AFC) test where more possible response alternatives were presented in order to activate the cognitive abilities of native Italian participants by examining their perception of English consonants. In their experiment, they offered five response alternatives for the target sound 'word-initial /s/. These alternatives included /s/, /θ/, /ʃ/, /f/ and /t/. The results showed that when the participants were offered five response alternatives rather than two, they were able to draw the phonetic boundaries of the target sound reflecting perceptual sensitivity to the same extent as categorisation tasks do (Mackey *et al.*, 2001; Benders *et al.*, 2012). Changes in cross-language

mapping are necessary because this would lead to improvements in the formation process of the target phonetic categories (Mackey et.al., 2001; Best & Tyler, 2007; Benders *et al.*, 2012; Flege & Bohn, 2021). Therefore, Mackey *et al.*'s study highlights the importance of considering the participants' cognitive strategies when interpreting the results of language perception tasks.

Thus, L2 learners do not rely solely on their L1 phonological system when acquiring new phonetic categories but instead group items based on related features. This allows L2 learners to perceive and produce the target item more efficiently (Mackey *et al.*, 2001; Benders *et al.*, 2012; Flege & Bohn, 2021). Consequently, learners can create new mental categories for L2 sounds, even if they do not exist as phonemic contrasts in their L1 (Flege & Bohn, 2021).

3.9.3.1.4 Initial Exposure to an L2

The term 'initial exposure' refers to the age at which someone first encounters an L2. According to the SLM, younger learners have an advantage in acquiring a target-like accent because they have a greater capacity to perceive and produce new phonetic categories (Flege, 1995; Flege & Bohn, 2021). In contrast, older learners might be affected by their L1 phonological system, which can result in accent transfer (Hu, 2016). The age of initial exposure can influence the acquisition of particular phonetic categories, according to studies concerning the acquisition of English phonetics by English learners. For example, Archila- Suerte *et al.* (2012) found that English learners who were exposed to English at an earlier age were more accurate in terms of producing the targeted phonetic categories compared to those who were exposed at an older age. Other studies on L2 acquisition of sounds have explored the effect of age on the ability to produce different phonetic categories (Baker & Trofimovich, 2006; Flege *et al.*, 2003; Patkowski, 1990; Singleton & Ryan, 2004). Overall, these studies concluded that the age of first exposure can contribute to the acquisition of specific phonetic categories and younger learners may have an advantage in acquiring a target-like accent.

This leads on the Critical Period Hypothesis (CPH) which was first introduced by Penfield and Roberts (1959) and later expanded by Lennberg (1967) laying the framework for

the CPH. It refers to the period after which the ability to acquire language declines (Penfield and Roberts,1959). This means that children have a better chance of achieving a target-like accent than adults or adolescents with mere exposure and no conscious effort (Penfield and Roberts, 1959; Lenneberg, 1967; Herschensohn, 2000; Hu, 2016). According to the CPH, the period between the ages of 2 to 11 years is pivotal for L1 acquisition and, at the same time, the ability to learn a foreign language is easier because the brain's plasticity is at its peak, leading to a potential rapid and efficient learning process (Hu, 2016).

However, after the age of puberty, whilst the ability to learn a foreign language remains, the brain becomes less sensitive to stimuli (Flege, 1995). The process of learning a foreign language after the age of puberty might be slower and less successful compared to that before the age of puberty. In other words, foreign language acquisition may not occur automatically from mere exposure and, instead, L2 learners after puberty need to be taught the target language through a conscious effort (Fege, 1959; Lennberg, 1967; Snow& Hoefnagel- Höhle, 1978; Johnson &Newport, 1989; Singleton & Ryan, 2004). Further, the concept of CPH has been also explored by recent researchers, including Yrina (2021), who discusses the role of age in L2 learning. She indicates that age continues to influence the development of language acquisition in adulthood. She adds that after puberty, the brain's sensitivity to stimuli declines, resulting in linguistic challenges like fossilization. Therefore, the language learning process of adults requires structured methods and conscious effort.

Lamendella (1977) refers to the term 'sensitive period' which states that the possibility of mastering a new language may happen after the age of puberty. This means that while children may show better performance in some areas of the L2 (e.g., accent), older L2 beginners, those over 11 years old, can outperform children under 11 years old. in some aspects of the L2 (e.g., grammar) leveraging the same cognitive strategies they used earlier when acquiring their native language (Hu, 2016). However, it is assumed that after approximately one year of exposure to the target language, younger people can catch up with older L2 beginners in other aspects of an

L2 and outperform them as long as they are exposed to the L2 at an early stage (Snow & Hoefnagel-Höhle, 1978).

This is supported by Hu (2016: 2165) who states, ‘‘Older learners will learn language faster and more efficient than young learners, whereas young learners will win the achievement in the long period of language learning. It convinces us that the young learner stands the superior stage in the SLA and they will perform better than older learners in ultimate language learning’’ (Hu, 2016:2165)**.**

This means that although achieving target-like mastery after early childhood is possible, the likelihood of attaining fluency can differ significantly between older and younger learners. Thus, the success of L2 learners in forming L2 speech and ultimately achieving high levels of proficiency can be critically influenced by their first age of exposure. These opinions highlight the advantages of early exposure to an L2 and the possibility for older learners to achieve a high standard in L2 learning.

However, the age hypothesis in SLM (Flege & Bohn, 2021) is introduced as an alternative to the CPH, suggesting that the decline in neurocognitive plasticity may lead to age-related effects in L2 speech learning. Instead, the age hypothesis in SLM proposes that learners, over time, may gradually recognise the phonetic differences between an L2 sound and its closest L1 sound segment and create new independent L2 phonetic representations (Flege & Bohn, 2021). Nevertheless, as learners get older, their ability to discern these differences declines, since they rely on stable phonetic features rather than fine phonetic details (Flege & Bohn, 2021).

3.9.3.1.5 L2 Experience

The second factor influencing the process of language acquisition is learners’ experience with an L2. Second language experience refers to the amount and type of exposure that an individual has to the L2. The SLM suggests that the quantity and quality of L2 inputs are critical for successful L2 acquisition (Flege & Lui, 2001; Flege *et al.*, 1995; Flege & Bohn, 2021).

Quantity of L2 inputs implies how much exposure a learner receives, and according to

the SLM, this is usually measured by length of residence (LOR) in an L2 speaking- environment (Flege & Bohn, 2021). However, Flege & Bohn (2021) point to the limitations of this type of L2 experience, as it does not accurately represent the actual use of the L2 during that period. For instance, learners with a short period of residence may have more frequent and intensive L2 interactions compared to those with longer stays (Flege *et al.*, 1995; Flege and Liu, 2001; Flege & Bohn, 2021).

In addition to the quantity of L2 input, the quality of L2 input is an essential type of L2 experience. Flege and Bohn (2021) emphasize that L2 learners usually engage in mixed conversations with both non-native and native speakers. Such a context of involvement may substantially affect L2 learners' perception and production of novel phonetic properties, as they might hear the target language with foreign accents, including dialectal differences (Flege & Bohn, 2021).

According to Flege (2008, 2018; see also Flege & Wayland, 2019; Flege & Bohn, 2021), the quantity and quality of input are more crucial to acquiring an L2 successfully than the age at which learners are initially exposed to an L2. Aligned with this argument, Flege (1991; see also Flege & Efting, 1987) supported his view by conducting research on VOT in the perception and production of English stops by two groups of Spanish- English learners who had acquired English early in life in Texas (Flege, 1991) and Puerto Rico (Flege & Efting, 1987).The results revealed that the learners from Texas perceived and produced English stops in a target-like manner, whereas those from Puerto Rico were influenced by both Spanish and English, as they showed intermediate VOT values that are falling between the typical values of Spanish and English monolingual speakers (Flege, 1991; Flege & Efting, 1987). Flege (2018) attributed the difference between the two groups to the quality of input the two groups had received early in their life. The early learners tested in Texas were mostly exposed to English spoken by English native teachers (Flege, 1991, Flege, 2018), whereas those tested in Puerto Rico were exposed to Spanish- accented English from native Spanish teachers (Flege & Efting, 1987; Flege,2018). On

the other hand, previous research suggests that L2 learners can benefit from interacting with trained non-native teachers who can be effective models, particularly when using effective pedagogical stratigies such as explicit pronunciation methods and targeted feedback (Levy, 2014; Derwing and Munro, 2015).

Overall, Flege and Bohn (2021) and Flege & Wayland (2019) suggest that the input variation has a significant effect on the perception and production of English phonetic patterns. Consequently, learners who have greater exposure to the L2 are more likely to have better phonetic and phonological knowledge of the language, which can result in a more accurate production of specific phonemes.

This section has discussed how the SLM offers a conceptual framework for comprehending the acquisition of speech in an L2. According to the SLM, the methods and procedures used to create the components of the L1 phonetic system, including the capacity to create phonetic categories, are still in place and accessible to L2 learners. However, the process for learning an L2 might be slower and more challenging for L2 learners because they face several issues with forming new categories that differ from those in their L1. These challenges are influenced by various factors, including the age of first exposure, L2 experience and the nature of the L2 phonetic system. In the current study, selected data are assessed based on the SLM because it describes the way that L2 learners perceive the phonetic similarity between English and their native language. According to the SLM, L2 sounds that are similar to those in an L1 are often harder for learners to perceive and produce, compared to those that are not present in their L1 phonetic system. This theoretical approach is central to my thesis, as it explores how the phonetic inventories of Hijazi Urban and Hwaiti Bedouin Arabic speakers would affect the way they produce the English phonemes. In this context, the phonemes /dʒ/, /θ/, /ð/, and /v /in Hijazi Urban and Hwaiti Bedouin Arabic are analysed. In Hijazi Urban Arabic, / dʒ/,/ θ/and /ð/ are similar sounds as they share partial similarity of phonetic features with those found in the Hijazi Urban consonant inventory. In Hijazi Urban dialect, / dʒ/ is realised as [ʒ], /

θ/ as [t] or [s], and /ð/ as [d] or [z] (see Chapter 5, table 26). As for Hwaiti Bedouin Arabic, these English sounds are identical sounds to those found in the Hwaiti Bedouin consonant inventory (see Chapter 5, table 26), whereas /v/ is a similar sound, as it exhibits partial similarity to a sound existing in both dialects (i.e., [f]) (see Chapter 5, table 26). Furthermore, the SLM suggests that pronunciation instruction becomes essential for helping learners resolve phonetic difficulties, particularly in the sounds that are absent in their L1. By considering these phonetic challenges, the current study derives benefit from the SLM because it underscores how targeted pronunciation training, guided by the SLM, can improve L2 learners' perception and production of L2 sounds.

3.9.4 Perceptual Assimilation Model

Building on the insight provided by the SLM which discusses the perception and production of L2 sounds by L2 learners, the PAM provides a more detailed framework regarding how L2 sounds are integrated to the L2 learners' phonetic system. The PAM describes the perceptual process of L2 learners by assimilating/dissimilating an L2 sound into the existing phonetic categories in their native language (Best and Tyler, 2007; Best *et al.*, 2009; Wagner, 2012). The PAM was developed by Best and Tyler in 2009. The model proposes that the perception of non-native speech sounds is influenced by the learner's existing categories for their L1 phonemes, as well as the articulatory gestures used to produce similar speech sounds in the L1 (Best *et al.*, 2009; Wagner, 2012; Afshar & van Heuven, 2022). For example, an English speaker may initially perceive the Mandarin Chinese phoneme /tsʰ/ as a variant of the English phoneme /tʃ/ because they are both voiceless affricates, but they differ in the place of articulation (Wang & Chen, 2020).

Perceptual assimilation is a significant SLA process because it can affect the learners' capacity to precisely perceive and produce non-native speech sounds (Best & Tyler, 2007; Chen *et al.*, 2020; Wang & Chen, 2020). This process can be influenced by various factors, such as the degree of similarity between the L1 and L2 phonemes, as well as the learner's level of

proficiency in the L2. As for the degree of similarity, some non-native speech sounds might be more challenging to see and sort than others, contingent upon the level of similarity between the L1 and L2 categories. The PAM implies that the L2 contrasts with the L1 under three main categories (Komurcu & Yildiz, 2011). First, similar sounds: if the L2 sound, which is comparable to that of an L1 phonetic category, either in terms of its articulation or perceptual characteristics (e.g., the Spanish /s/ & the English /ʃ/), discrimination between them would likely be challenging. Second, dissimilar sounds: if the L2 sound is different from the native one, discrimination is easier to predict (e.g., the Russian /v/ & the English /w/). Third, unrelated sounds: if the L2 sound does not entirely correspond to any sounds in the learners' native language, discrimination would be difficult (i.e., producing a non-linguistic phonetic category). This classification entails that in the case of dissimilar sounds, perceiving L2 sounds would be easier than in similar and unrelated sounds (Komurcu & Yildiz, 2011). With regards to the L2 learners' proficiency level, as learners become more proficient in L2 sounds, they start to perceive speech sounds more in terms of the articulatory gestures used to produce them. This means that they start to focus on the special features of the non-native speech sounds and categorise them based on those features. Chen & Fon (2007) investigated the perception of English liquid sounds '/l/ or /r/' by Mandarin-English learners. The participants differed in terms of their English proficiency level. Half of the participants were of a high proficiency level, whereas the other half were of a low proficiency level. The findings revealed that the L2 learners with a high proficiency level were better able to discriminate the English liquids compared to their peers with a low proficiency level (Chen & Fon, 2007). This indicates that proficiency level plays a crucial rule in the process of perceiving an L2. It could either facilitate or hinder the ability to perceive an L2 phonological category.

To summarise, phonological categories are an important concept in PAM because they help to explain how learners perceive and categorise non-native speech sounds. The following subsection briefly introduces several specific phonological features which may provide insight

into how various phonological categories are processed by L2 learners and how this influences their perception in light of the PAM.

3.9.4.1 Phonological Features in Light of the Perceptual Assimilation Model

3.9.4.1.1 Articulatory Gestures

Articulatory gestures refer to the movements and constrictions of the articulators, such as the tongue, lips and vocal cords during speech production (Byrd & Krivokapić, 2021). Different speech sounds are produced by varying the degree and location of the constriction in the vocal tract. For example, the English sound /p/ is produced by a complete closure of the lips which prevents air from passing through, whereas the sound /b/ is produced by the same constriction but with the vocal cords vibrating. When learning another language, learners require the ability to create new articulatory gestures, which can be challenging. This is particularly true for sounds that require complicated or new articulatory gestures. For instance, some languages have sounds that require the tongue to be set in a particular position that may not exist in the student's native language (Byrd & Krivokapić, 2021). This ability can be achieved through practice and exposure to the new language. In contrast, in the event that learners are unable to create the necessary articulatory gestures, they may experience issues producing the sounds accurately.

3.9.4.1.2 Universal Patterns of Perceptual Assimilation

Universal patterns of perceptual assimilation refer to the way in which learners of different languages perceive and categorise non-native speech sounds. According to Georgiou (2021), numerous perceptual assimilation general patterns apply to all languages. The degree of resemblance among the L1 and L2 categories, for instance, can affect how learners detect and classify non-native speech sounds. PAM specifically contends that easier-to-assimilate non-native speech sounds to existing L1 phoneme categories have a greater probability of being correctly learned than harder-to-assimilate sounds. Additionally, previous research has established that certain patterns of perceptual assimilation are shared by various language combinations. For example, studies found that non-native speech sounds that are similar to L1

categories in terms of their manner of articulation are more easily perceived and categorised than those that are dissimilar in manner of articulation (Millet *et al.*, 2022). Millet *et al.* (2022) also found that non-native speech sounds that were similar to L1 categories in terms of voicing are more easily perceived and categorised than those that are dissimilar in voicing.

Another example of a universal pattern of perceptual assimilation is the role of consonant quality in the perception of non-native speech sounds (Millet *et al.*, 2022). As voicing is a universal feature of consonant quality (Best, 1991; Cummins, 2015), Best (1991) indicated that learners are able perceive the phonological distinction between the English /p/ and /b/ because voicing contrast between them is a universal features of speech perception, regardless learners' native language. Hence, the universal patterns of perceptual assimilation have important implications for language teaching because they suggest that some non-native speech sounds may be more difficult or easier for learners to accurately perceive and produce than others, depending on how close the L1 and L2 categories are to one another.

3.9.4.1.3 Language-specific Patterns of Perceptual Assimilation

Language-specific patterns of perceptual assimilation refer to the ways in which the categories and distinctions of the L1 affect the perception of non-native speech sounds (Best *et al.*, 2001). The PAM proposes that L1 phonological categories can influence the perception of non-native speech sounds by providing a framework for categorising and processing speech sounds (Jing *et al.*, 2019). For example, speakers of Japanese, a language that does not distinguish between /r/ and /l/ sounds, may have difficulty perceiving and producing these sounds in English. This is because they do not have a separate category for these sounds in their L1, thereby making it difficult for them to distinguish between them in the L2 (Hattori & Iverson, 2009; Flege & Bohn, 2021).

On the other hand, speakers of Italian, which has both /t/ and /d/ sounds, may accurately perceive and produce these sounds in English because they already have separate categories for these sounds in their L1. Despite English /t/ and /d/ differ from their Italian counterparts in terms

of aspiration and flapping, these differences may not affect perception, since the place of articulation of these sounds is identical. This may make it easier for Italian speakers to perceptually recognise the English sounds as two separate categories (Avesani *et al.*, 2017). Language-specific patterns of perceptual assimilation can also vary depending on the specific dialect or variety of the L1 (Jing *et al.*, 2019). For example, speakers of Mandarin Chinese may have difficulty perceiving and producing the English /l/ and /r/ sounds but may find it easier with the retroflex /r/ sound used in some Chinese dialects.

Thus, PAM focuses on how non-native sounds are assimilated into L2 learners' native language phonological system. In this context, L2 learners categorise L2 speech sounds based on how similar or different the target sounds are to the sounds existed in their L1. The way they perceive non-native sounds would influence their ability of comprehension and later production. Further, the model highlights the importance of teaching pronunciation in the L2 learning process and suggests that teachers should focus on teaching non-native sounds that are perceptually assimilated by learners to their L1 categories (Pennington & Richards, 1986; Derwing & Munro, 2005; Best & Tyler, 2007; Offerman, 2020).

3.10 Conceptual Framework of the Current Study

This section provides insight into the conceptual framework that integrates the theoretical constructs underlying the selection of the target phonemes, hypothesis formulation, and error interpretation.

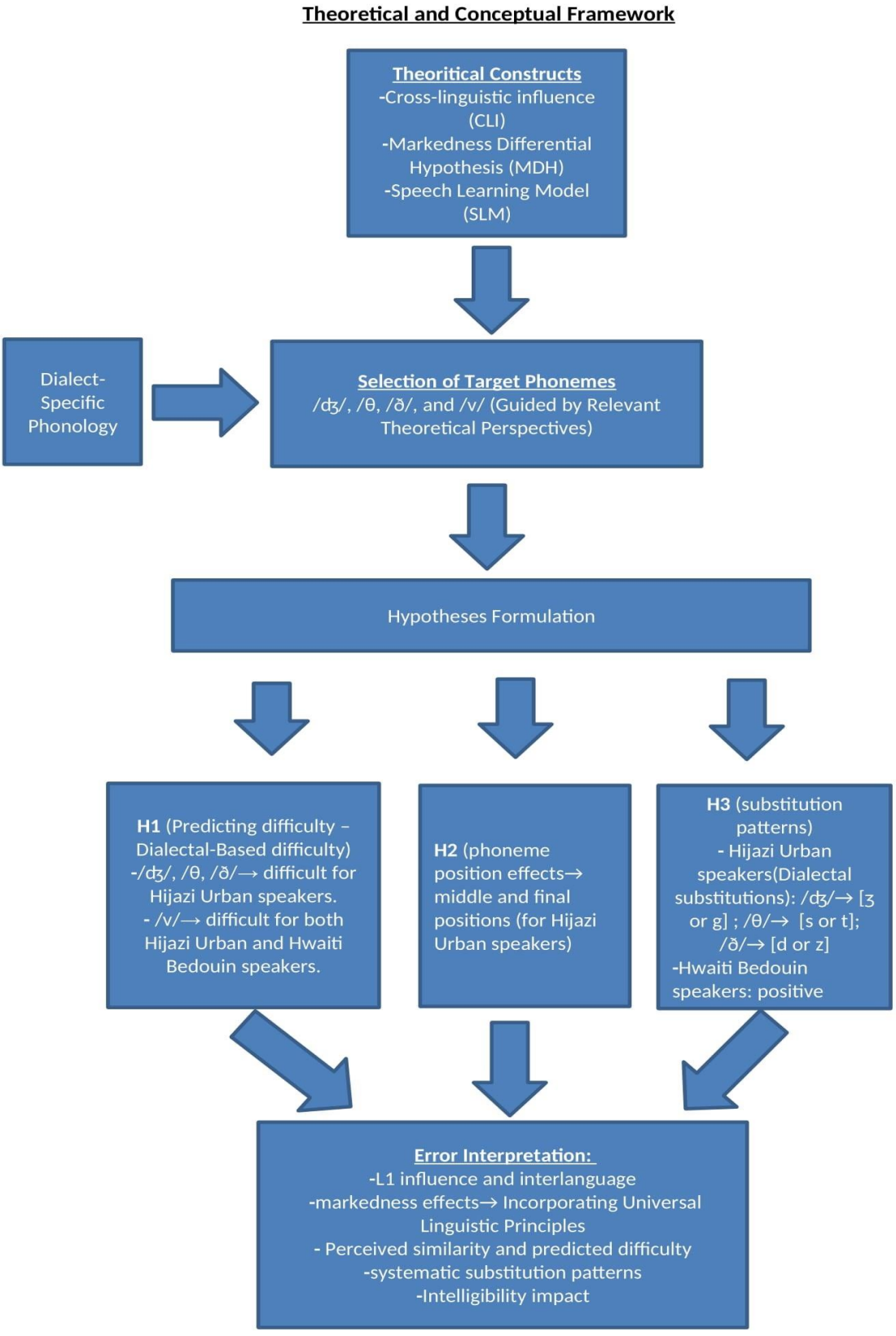

Figure 4: Theoritical and Conceptual Framework of the Current Study

Figure 4 above elucidates how the current study integrates three theoretical constructs to guide the selection of the target phonemes /ʤ/, /θ, /ð/, and /v/, the formulation of the study's hypotheses, and the interpretation of the speakers' errors. The target phonemes represent dialect-specific phonological features and were chosen based on the presence and absence of these phonemes in two main spoken dialects: the Hijazi Urban and Hwaiti Bedouin dialects, where /ʤ/, /θ, and /ð/ are absent in the Hijazi Urban dialect but occur in Hwaiti Bedouin dialect, whilst /v/ is absent in both dialects. The first hypothesis (H1) predicts the degree of target-likeness in the speakers' productions, illuminating group differences. It is expected that there will be greater difficulty for Hijazi Urban speakers when producing /ʤ/, /θ, and /ð/, while /v/ is predicted to be challenging for both groups. The second hypothesis proposes phoneme positional effects (initial, middle, and final) on the speakers' productions, with the expectation of greater difficulty for Hijazi Urban speakers, particularly in the middle and final positions. The third hypothesis envisages substitution patterns, indicating negative dialectal influence for Hijazi Urban speakers, whereas Hwaiti Bedouin speakers are expected to benefit from positive transfer. The speakers' errors are interpreted in terms of L1 transfer and interlanguage phenomena, markedness effects, which implies the typological rarity of specific sounds and positions cross-linguistically, and perceived similarity between the speakers' L1 dialect and the target language, reflecting systematic substitution patterns which may affect intelligibility. Overall, this conceptual framework ensures that the phonemes selection, hypothesis formulation, and error interpretation are theory-driven and in accordance with the research questions of the current study (see Chapter 1).

3.11 Summary of the Chapter

This chapter reviewed the previous literature concerning the consonant sounds /ʤ/, /θ/, /ð/, and /v/, showing their contrasts in Arabic language varieties. Furthermore, it described the acquisition of these sounds in English by Arabic-speaking learners of English and other speakers

from various L1 backgrounds. Firstly, the studies reviewed in this chapter showed that the voiced post-alveolar fricative /dʒ/ does not exist in the sound system of the Arabic language (Alfehaid, 2015; Chouchane, 2016; Al Suwaiyan, 2018). Therefore, Arab students speaking different dialects do not produce it correctly most of the time and they pronounce it as [ʒ], [g] or [j] (Jabali and Abuzaid, 2017; Ababneh, 2018; Hamza *et al.*, 2020). The previous studies focusing on this sound have demonstrated that the phoneme /dʒ/ is more problematic than /tʃ/ for both Arabs and non-Arabs (Rustiba, 2009; Hamza *et al.*, 2020), especially when it appears in the middle and final positions of words.

Secondly, this chapter reviewed studies concerning the voiceless dental fricative /θ/, showing that Arabic speakers pronounce this phoneme as [θ], [t], [s] or [f] (Elsalamn, 2016; Mustafawi, 2019; Albdairat, 2021; Almadani, 2021). Similarly, several studies such as those by Amadani (2021), Rasool (2010), and Albiderat (2021) demonstrated that the voiced dental fricative sound /ð/ has four variants when it is pronounced by Arabs: [ð], [d], [θ] or [z]. However, the literature review revealed that only a small number of studies have investigated the production of the voiced dental fricative /ð/ and its counterpart /θ/ by Arabic-speaking learners of English (Alzinaidi & Abdul Latif, 2019). Furthermore, Alzinaidi and Abdul Latif's work (2019) is among only a limited number of papers to examine the production of these two phonemes in relation to the position of the phoneme in the word. Consequently, it is a rich area of research to investigate the production of these two phonemes by Arabic-speaking English learners and to explore the effect that their position in a word has on the performance of the target speakers.

Furthermore, the findings of the studies discussed in this literature review reveal that the pronunciation of the sound /v/ is challenging for Arabs because this sound does not exist in the sound system of SA, similar to the sound /dʒ/ (Ahmed, 2011; Alzinaidi & Abdul Latif, 2019). These studies differ in terms of identifying the difficulties that Arabs experience when producing this sound in different word positions. For instance, Ahmed (2011) highlighted the fact that Arab

L2 learners encounter greater difficulties when pronouncing this sound in the middle and final positions of words than when it occurs in the initial position but Alzinaidi & Abdul Latif (2019) suggested the contrary.

Generally, the literature review illustrates that there is a gap in addressing the production of the affricate and fricative sounds /dʒ/, /θ/, /ð/, and /v/ by learners who speak different Arabic dialects. Arabic varieties (i.e., CA, SA, and vernacular Arabic) possess different phonetic features, which may affect Arab L2 learners' acquisition of English sounds. Consequently, their mispronunciations may lead to miscomprehensions, which may impede effective communication and academic success. Further, the chapter moves on to explain the influence of L1 on the acquisition of L2 sounds in the light of a range SLA of phonological theories, addressing a gap in the literature where these issues have not been examined within a specific theoretical framework. These theories include the phenomenon of CLI which indicates how the knowledge of L1 can influence L2 comprehension and production. It encompasses two main processes manifested in native language transfer and interlanguage. Native language transfer is a broader concept highlighting the influence of a learner's L1 on L2 acquisition which can be either positive or negative, while interlanguage, in essence, helps explain the negative influence of L1 on an L2 resulting in mistakes in pronunciation (Zhao, 2019). Native language transfer explains why some aspects of SLA are easier or harder for learners, depending on how similar or different the native language is from the target language. On the other hand, interlanguage reflects the transitional linguistic system creating by L2 learners when moving from their L1 to L2. This system is a mix of rules from learners' L1 and L2. It is marked by several linguistic features including and fossilisation, simplification, and overgeneralisation. Further, the MDH proposes that marked sounds in a target language are more difficult for L2 learners to acquire than unmarked sounds. Also, it shows how L1 knowledge play a significant impact in perceiving and acquiring the marked and unmarked segments in the L2. However, not all L2 learners' outputs may directly relate to their L1. Hence, other current models such as the SLM and PAM can

provide a more comprehensive explanation of language acquisition by integrating perceptual and cognitive components which earlier L2 concepts and models did not fully account for. The SLM and PAM emphasise the perceptual processes in SLA. Furthermore, they imply that the learners' native language affects the phonetic categorisation process of L2 items.

The SLM is also a theoretical framework which elucidates how L2 learners acquire the sound system of a new language. It highlights the fact that L2 learners may achieve target-like speech production, but this is dependent on various factors related to the individual learners and their language learning context. Furthermore, the PAM offers a theoretical framework for understanding how L2 learners' perception of non-native speech sound is influenced by their existing knowledge of L1 categories. Moreover, it is apparent that both the SLM and the PAM explain the importance of the phonological categorisation of L2 sounds. This suggests that the mental representations individuals create to organise speech sounds shape how these phonetic segments are perceived. The categorization process is based on the acoustic properties of the speech sounds, as well as the cognitive processes involved in perceiving and categorising them (Li *et al.*, 2022).

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

This chapter describes an empirical study in investigating L2 English learners' productive abilities when pronouncing some English phonemes. It elucidates the methodology that is used for the aim of answering the research questions, examining the authenticity of the predicted hypotheses set out in this chapter, and addressing the objectives as presented in the introduction chapter. The chapter comprises ten sections apart from the introduction and summary. Section 4.2 introduces participants engaged in this study, raters, and selected phonemes; section 4.3 establishes the operational definitions of key phonetic and pronunciation-related terms employed throughout the thesis. Section 4.4 covers the methods of data collection and research procedures. Section 4.5 provides acoustic Analysis of the Hwaiti Bedouins' and Hijazi Urbans' Productions of the Target Phonemes. Section 4.6 highlights the thesis ethical considerations, whereas section 4.7 presents the analysis of the demographic information questionnaire, while Section 4.8 examines inter-rater reliability. Section 4.9 explains the statistical tests employed to analyse the participants' productions of the target phoneme.

4.2 Participants, Raters, and Selected Phonemes

The participants involved in this study were forty senior English major female students studying in the Department of Languages and Translation at Tabuk University. The study included only female participants because Tabuk University is a university for women in Saudi Arabia. These participants had not visited any English-speaking countries and had limited exposure to native English language settings, aside from the media. They grew up monolingually in Arabic, learning English as a foreign language. They were chosen according to this standard to avoid the impact of the variables that might weaken the results of the experiment. Additionally, all of the participants completed an English proficiency test (see Subsection 4.4.2) which confirmed that

they had a comparable intermediate English proficiency level (see Table 11). Hence, this ensures that the participants are homogenous in terms of their academic experience and English proficiency level, confirming uniformity across the sample which helps to minimise potential sources of bias, thereby maintaining a more focused investigation of pronunciation difficulty. Controlling both the academic background, language experience, and proficiency level is essential because variation in language experience or exposure may affect learners' pronunciation performance owing to the fact that pronunciation development is shaped by sustained exposure to the target language (Flege, 1995; Best & Tyler, 2007). A greater linguistic competence and increased exposure to the target language may lead to a better proficiency level and the achievement of a more developed phonological awareness, resulting in more target-like productions (Saito, 2018). Conversely, limited language learning experience may result in a reduced proficiency level and elevated pronunciation error frequency. In the current study, proficiency was not examined as a variable in the present study, as the focus was placed on linguistic variables. Investigating proficiency effects remains an important avenue for future research.

The forty students are divided into two main groups: twenty Hwaiti Bedouin Saudi students recruited from the northern western region of Saudi Arabia as this region is mostly inhabited by the Hwaiti Bedouin tribe, and twenty Hijazi Urban Saudi students who moved to Tabuk in the last three years. All of the informants were aged between twenty-two and twenty-three years old. The two groups speak two different Saudi Arabic dialects: Hawiti Bedouin Arabic and Hijazi Urban Arabic. Detailed sociolinguistic information about those Saudi inhabitants is presented in Chapter 2, Subsections 2.1.7 and 2.1.8; also, their dialect linguistic features as Hwaiti Bedouin and Hijazi Urban speakers are described in Chapter 2, Subsection 2.2.2. Table 8 summarises the participants' background information:

Group	**Number of Participants**	**Age**	**Gender**	**Major**	**Academic Year**	**Proficiency Level (Test Result)**

Hijazi Urban	20	22-23	Female	English	Senior (Final Year)	Intermediate
Hwaiti Bedouin	20	22-23	Female	English	Senior (Final Year)	Intermediate

Table 8: Participants' Background Information

Two raters were asked to be a part of this empirical study. They are English native speakers working at Tabuk university as English language instructors at the department of Languages and Translation. They were recommended to me by the head of Languages and Translation Department at Tabuk University in Saudi Arabia. A brief summary of the raters' biographical information is provided in table 9 below**:**

Information about the Two Raters							
Raters	**Age**	**Occupation**	**Gender**	**Place of birth**	**Nationality**	**Academic Qualification**	**Teaching Experience**
Rater 1	37	English instructor	Male	United Kingdom	British	MA in Education and Teaching; A Cambridge CELTA Qualification for teaching English	13 years
Rater 2	48	English instructor	Female	United States of America	American	BA in English Speech Communications with Journalism-TEFL/ESOL Certificate	18 years

Table 9: Biographical Information About the Two Participated Raters

Table 9 shows that the two raters are native speakers of the English language, who are working as English instructors at Tabuk University, Saudi Arabia. The first rater is British (born in London) but has been living in Zambia. He holds an MA in education and teaching and has a Cambridge CELTA qualification for teaching English. He has 13 years of teaching experience. The second rater is American (born in San Antonio, Texas) and has been living in Ohio. She holds a BA in English speech communications with journalism and has 18 years of teaching experience. They are of different genders: a male and a female. Prior to commencing their work as English instructors at Tabuk Univeristy in 2015, they had spent the preceding ten years

residing in their home countries: the UK for the former and the US for the latter. The raters' different demographics may increase the representativeness of their assessments.

I contacted the two raters via email, and they were informed about the instructions they had to follow. Then, I met them in person at Tabuk University and gave them the response sheet which had a series of numbers that refer to the participants, 1-40. The two raters were asked to listen to the anonymised students' English productions in order to identify the level of their proficiency and correctness. Each rater listened to the recordings of each informant and evaluated them using the evaluation form adopted from different studies such as Hamza et al. (2020), Hamza & El-Weshahi (2018), and Hamza et al. (2016). The evaluation form was designed using Likert Scale, a rating scale used to measure opinions, attitudes, or behaviours. It consists of five answer statements.: Perfectly target-like Pronunciation, Close to target-like Pronunciation, Not Sure, Close to non-target-like Pronunciation, and Completely non-target-like Pronunciation (see appendix A). The two raters did not know to which tribe each participant belongs.

The agreement between the two raters was needed to certify consistency in judging speakers' productions in the two groups. An inter-rater reliability using Cronbach's Alpha was calculated for each rater. Cronbach's Alpha is one of the most common methods that are used to test the internal consistency reliability between two or more raters when they are rating the same items (Stemler, 2004). In the current study, the level of agreement between the two raters was very high, and this implies a higher level of internal consensus between the two raters. Stemler (2004) states that "when judges exhibit a high level of consensus, it implies that both judges are essentially providing the same information" (Stemler, 2004: 3). This indicates that more agreement between raters would lead to less subjectivity amongst their judgements, and this means that the listeners or raters are sharing a response to the properties of particular objects (Stemler, 2004).

After introducing the participants and raters, giving a brief clarification of the four target

English sounds is essential to highlight the possible variants that each phoneme would have (see Chapter 3, Subsection 3.2 and 3.5 for a thorough presentation of the phonemes under study).

i) The Voiced Palatal Affricate /ʤ/

The voiced palatal affricate /ʤ/ is not a distinct phoneme in SA, but it occurs as an allophone of the SA Arabic phoneme /ʒ/, which itself is considered differently in various Arabic dialects as explained in Chapter 3, Subsection 3.4.1; however, figure 5 below shows four main variants of the variable [ʤ] that are used widely in the spoken Arabic dialects.

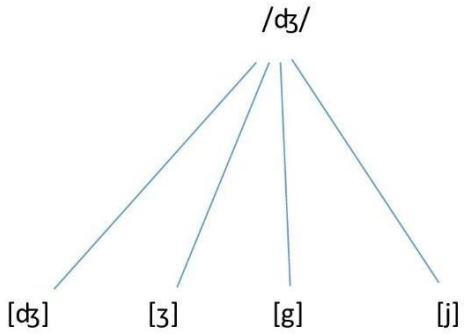

Figure 5: The Variants of the Phoneme /ʤ/

ii) The Voiceless Dental Fricative /θ/

Similarly, the voiceless dental fricative /θ/ is articulated in different ways in numerous Arabic dialects as described in Chapter 3, Subsection 3.4.2. It has three main allophones as shown below in Figure 6:

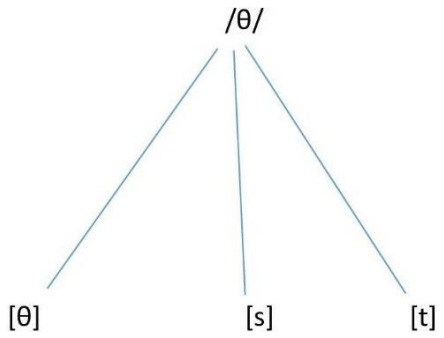

Figure 6: The Variants of the Phoneme /θ/

iii) The Voiced Dental Fricative /ð/

The voiced dental fricative English sound is perceived differently by some English learners as explained in Chapter 3, Subsection 3.4.2. Figure 7 below shows its possible perceived variants:

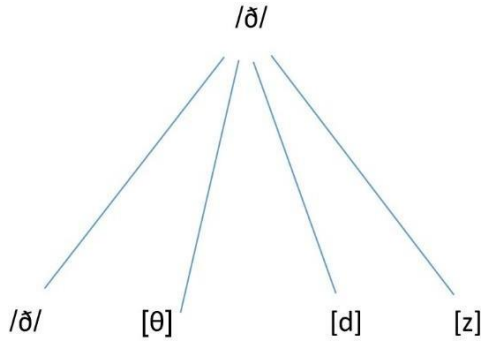

Figure 7: The Variants of the Phoneme /ð/

iv) The Voiced Labiodental Fricative /v/

As explained in Chapter 3, Subsection 3.4.3, the voiced labiodental fricative /v/ does not have an equivalent in Arabic language, and other world languages as well. It is pronounced in Arabic as /f/. Figure 8 below demonstrates that it is devoiced by some Arabic speaking-English language learners:

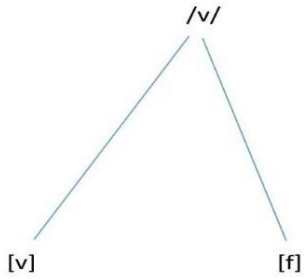

Figure 8: The Variants of the Phoneme /v/

I visited Tabuk University where the participants are studying at the department of languages and translation. I contacted the head of the department, who provided me with a letter of approval to conduct the experiment at the university (see Appendix J). I focused on the participants who are Hwaiti Bedouin and Hijazi Urban. Those who agreed to participate in the experiment were involved in two production tasks. The participants of this study were individually approached by me and asked to participate in the study. Each respondent spent approximately an hour to complete the four tasks explained in the next subsection.

4.3 Operational Definition of Terms

i. Pronunciation

Pronunciation is one of the skills involved in language learning. It is defined by Burns and Seidhofer (2019) as a term that "encompasses all aspects of how we employ speech sounds for communicating" (Burns and Seidhofer, 2020: 247). In other words, it is a method of producing sounds for making meaning (Gilakjani, 2016).

ii. Affricate

An affricate sound refers to a consonant sound that begins with a stop sound (e.g., /d/ or /t/) and ends with a continuous airflow that causes friction (e.g., /ʤ/ as in 'judge' and /tʃ/ as in 'church') (Ashby & Maidment, 2005; Ladefoged & Johnson, 2015).

iii. Fricative

A fricative sound refers to a consonant sound which is produced by blocking the passage of the

airstream without a complete closure causing audible friction (e.g., /v/ as in 'van') (Ashby & Maidment, 2005; Ladefoged & Johnson, 2015).

iv. Phoneme position

A phoneme position is where a distinct sound appears within a word: a) initial position (at the start of a specific item, such as /tʃ/ in 'cheap' [tʃi;p]); b) middle position (in the medial, surrounded by other sounds, such as /tʃ/ in 'lecture' [lɛktʃə]); c) final position (at the end of a word, such as/tʃ/ in 'dutch' [dʌʧ]) (Roach, 2009; Hadjah & Hamzah, 2023; Hamza *et al.*, 2020).

v. Target-like production vs. non-target-like production

Sounds which are produced aligned with the target English variety (the institutional norm) are described as 'target-like' productions, whereas deviations from the target norm are described as 'non-target-like' productions (Jenkins, 2000).

This thesis employs the above terms to analyse pronunciation features and speech sound production within the context of the study.The current study uses the term 'pronunciation' as a feature involved in language learning, 'fricative' and 'affricate' as specific phonetic characteristics of consonant sounds, 'phoneme position' to refer to how sound patterns in words and their position in words would affect pronunciation, and the terms 'target-like' versus 'non-target' like to evaluate accuracy in pronunciation according to a particular variety.

4.4 Methods of Data Collection and Research Procedures

The current study employs quantitative methods. These methods are: a questionnaire to gather information about the students' language background, an evaluation test (LexTALE English proficiency test) to test the participants' language proficiency levels, an Arabic production task to make sure that the participants pronounce the selected phonemes in their own Arabic dialect, and an English production task to investigate the productions of the English target sounds. These sounds are the voiced Affricate /ʤ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labio-dental fricative /v/ by Hwaiti Bedouin and Hijazi Urban Saudi Learners

of English at Tabuk university. The results of the quantitative methods are analysed through using R programme (R Core Team, 20212), a Language and environment for statistical computing, Vienna, Austria, in RStudio (2020) statistical version. This quantitative research method was assumed to be appropriate for the current research (Rasinar, 2010). It contributes to the research aim which is to illustrate the extent to which Hwaiti Bedouin and Hijazi Urban informants adhere to the target-like pronunciation of the four target sounds /ʤ/, /θ, /ð/, and /v/ and explores the influence of their Arabic dialects on their English productions of these sounds. More specifically, it allows for a systematic analysis of the Hwaiti Bedouin and Hijazi Urban speakers' pronunciation performance through a structured measurement. Furthermore, using numerical data such as error rates objectively enables the study to examine patterns of difficulty among of the four target sounds /ʤ/, /θ, /ð/, and /v/. This approach facilitates systematic comparisons between both groups of speakers in relation to their way of production, enabling the observation of differences between them to statistically assess the significance of the outcomes. This enhances the objectivity and reliability of the reseach findings. Figure 10 below presents a flow chart to illustrate the process of data collection and analysis followed in the current study.

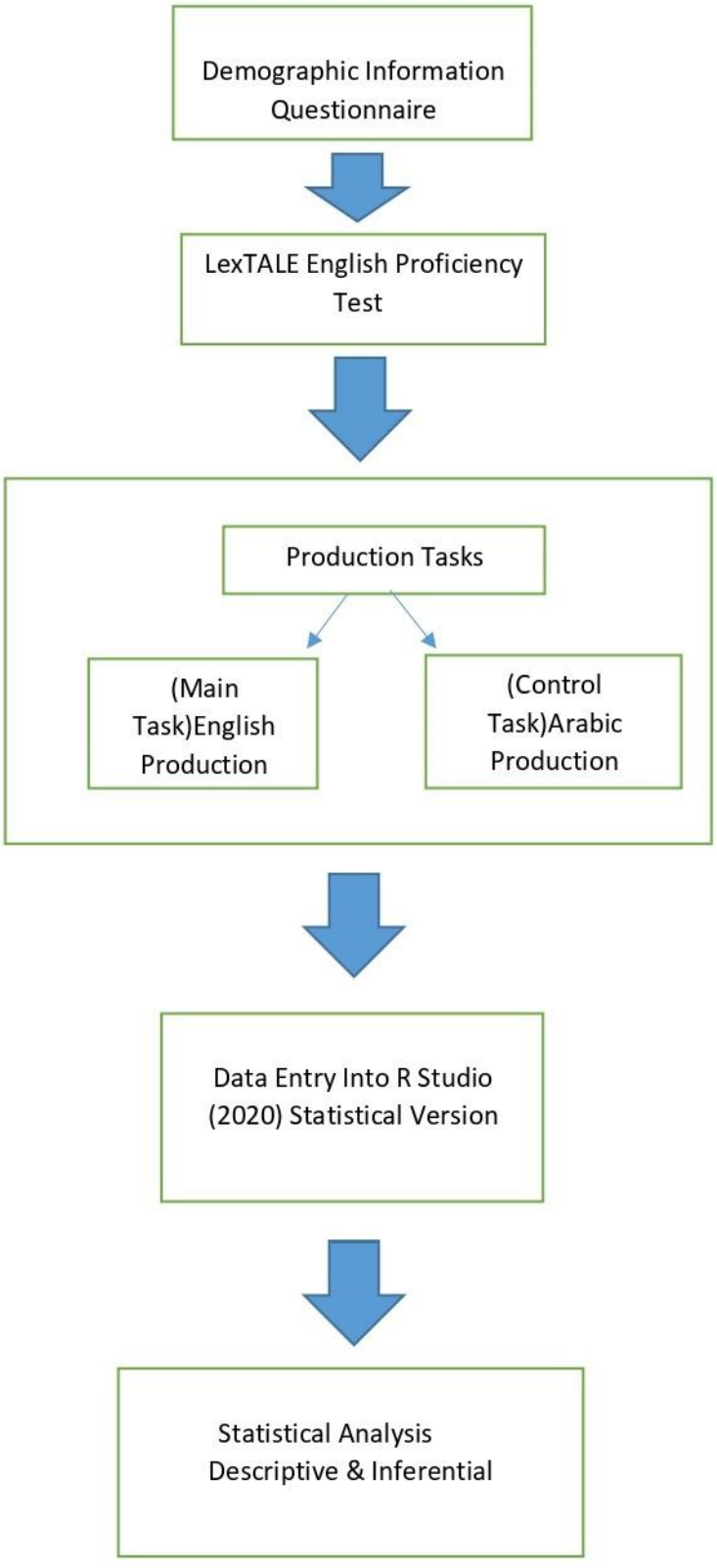

Figure 9: The Process of Data Collection and Analysis

As shown above, Figure 9 shows the order in which a demographic information questionnaire, LexTALE English proficiency test, and the production tasks were administered to the participants, followed by the statistical analysis included both descriptive and inferential results in order to examine participants' performance. The subsections below discuss each of these methods, and the procedure adopted in this process followed by the statistical analysis.

4.4.1 Demographic Information Questionnaire

At the beginning of the study, the participants were asked to fill out a demographic information questionnaire[5] to provide general information about their demographic status and language background (Al Yaqoobi *et al.*, 2016). The short questionnaire was aimed at collecting information about the participants' place of birth and living, preferred languages, and dialects used in different settings, years spent learning English, and general proficiency level in English and Arabic language skills (see Appendix B). An Arabic version of the questionnaire was given to each participant to facilitate the process of answering the questions (see Appendix C). This would help to ensure accurate comprehension and avoid any misinterpretation of the given items, thereby increasing the reliability of the responses and the validity of the data collected (Brislin, 1970; Dornyei, 2010). Then, a statistical analysis of this questionnaire was implemented to give insight into the participants' personal information, languages, and dialects; however, the P-value was not calculated since it was an expected finding. The P-value was not statistically significant, indicating that there was no significant difference in age, nationality, and gender between the two groups.

I designed this questionnaire that included demographic questions such as the participants' name, nationality, age. background of learning English as a second language, exposure to English language, duration of language learning to date, living in an English-speaking country before, and additional spoken languages. The participants, all Saudi female

[5] Age, year of study, and period of study English were continuing variables. Mann-Whitney test was used to assess the comparison between two groups. Chi-square tests is sensitive to the sample size. If the sample size is five or less, it is not recommended to use it.

students, were asked about the most difficult and easiest linguistic aspects of the English language and the Arabic language. This question might provide an early indication of how the students would perform in the given test. In other words, if the students mis-pronounced the inspected English sounds, this would be attributed to the difficulty that they may find in the acquisition of English sounds in general. All respondents were Saudi citizens. Regarding the place of birth, all of the respondents were born in Saudi Arabia. These demographic characteristics indicate that the sample is representative of Saudi female English major students in Saudi universities. The Bedouin and Urban groups included the same number of students: twenty students in each group. The median age in both groups was twenty-two years old. The Hijazi Urban group had a higher number of students born and lived in Jeddah, Makkah, and Madinah (Hijazi region) compared to the Hwaiti Bedouin group who were all born and lived in Tabuk.

4.4.2 The LexTALE English Proficiency Test

A proficiency level test was applied to this study; it consisted of sixty trials, and the participants were requested to decide whether each of these items was a word that existed in English or not. All the words used are British English spelling. This test is aimed to measure their knowledge about a given number of English vocabularies (Lemhöfer, & Broersma, 2012). Prior to the test, I explained the instructions to the students. It was a paper and pencil test in which the subjects responded to sixty trials identifying the English and non-English words (see Appendix D). They were dealing with two types of English inputs: words and non-words. An example of LexTALE English proficiency test is shown below in table 10:

Word	**Mark /1**
platery	
denial	
generic	

Table 10: Examples from the LexTALE English Proficiency Test

Table 10 shows samples of words used in the proficiency level test (LexTALE) to find out the participants' general proficiency level in English language. It includes two columns, one contains the words, and the other one is for the participants to respond 'Yes' if the word is an English word, and 'No' if it is not an existing English word. Table 2 demonstrates that each correct answer was given one mark, and a zero mark was given for each incorrect response. The test is designed without time limit (Lemhöfer, & Broersma, 2012), but it generally takes approximately five minutes to complete. The participants were informed that there was no time limit for the completion of the test in order to reduce text anxiety, thus enhancing the validity of the results. Furthermore, the test was implemented under supervised classroom settings. Prior to commencing the test, the participants were instructed not to use dictionaries, mobile phones, or any other external resources. The researcher was present during the session to ensure that all of the participants performed the test independently. The proportion of words and non-words were scored by calculating the percentages correct for these two item types. Table 11 below illustrates the scores of the Hijazi Urban and Hwaiti Bedouin groups:

Characteristic	Hijazi	Hwaiti	P.value
English score, median (IQR)	59.38 (52.56-65.94)	59.38 (51.56-65.75)	0.89

Table 11: The Result of the Hijazi and Hwaiti Groups' LexTALE English Proficiency Test

Table 11 demonstrates the results of the LexTALE English Proficiency Test undertaken by the Hijazi Urban and Hwaiti Bedouin Groups. The table shows the scores, median (IQR), of both dialect groups, and the p-value for this characteristic is 0.89, which indicates that there is no statistically significant difference between the two groups in terms of their English proficiency level. Overall, both groups showed comparable intermediate-level English

proficiency (B2) (Lemhöfer, & Broersma, 2012). Because the sample did not show variation in proficiency, proficiency level was not considered to be a factor affecting the speakers' productions.

4.4.3 The Arabic Production Task

The third quantitative method is an Arabic production test designed in the form of a word list style adopted from Labov (2006) who states: "a further step in the direction of a more formal context is to consider the subject's pronunciations of words in 'isolation'" (Labov, 2006: 63). The word list is also named the 'Labovian highest formal style.' This style emphasises that speakers can achieve more measured pronunciation if they concentrate on a single word, thereby helping to show how a language shift happens because the stylistic level increases in such formal situations (Hickey, 2010). Likewise, Albdairat (2021), Binasfour (2018), and As-Sammer (2010) have applied this method to their studies as explained further in the literature review (see Chapter 3).

The Hwaiti Bedouin and Hijazi Urban informants were asked to pronounce seventy-two Arabic items including the voiced fricative /ʒ/ (ج/ *jeem* in SA and the counterpart of the two English letters g and j), the voiceless dental fricative /θ/ (ث/ *tha'a* in SA), the voiced dental fricative /ð/ (ذ/ *tha*), and the voiceless labio-dental fricative /f/ (ف/ *fa* in SA) (see Appendix E). These four sounds are considered as the Arabic counterparts of the four targeted English phonemes, /ʤ/, /θ/, /ð/, and /v/. Additional twelve unrelated items were randomly included as distractors within the seventy-two tokens, but they were not a part of the experiment. Therefore, the total number of the words is eighty-four words. The speakers were asked to read them spontaneously as they used to articulate them in their own dialect. The aim of this test is to make sure that Hijazi Urban and Hwaiti Bedouin participants adhere to the vernacular representatives of the SA phonemes founding in the Urban and Bedouin Arabic dialects.

The first eighteen words were categorised as six tokens containing the sound /ʒ/ in the initial position of the words, six items involved the sound /ʒ/ in the middle position of the words,

and six items included the sound /ʒ/ in the final position of the words. The Arabic production task also includes other eighteen items comprising the sound /θ/; these words were also classified based on three different linguistic environments: initial, middle, and final (Al Yaqoobi *et al.*, 2016; Hamza *et al.*, 2020). The third sound in the Arabic production task is /ð/ presented also in eighteen words that were categorised based on their positions in the selected words: initial, middle, and final. The last Arabic phoneme /f/ is also introduced in three different positions in eighteen items. Table 12 below is an illustration:

Items of the Arabic Sound ج /ʒ/								
Initial Position			**Middle Position**			**Final Position**		
Item	Transcription of SA	English Translation	Item	Transcription of SA	English Translation	Item	Transcription of SA	English Translation
جَبَل *jabal*	/ʒabal/	mountain	حاجة *haja*	/ħɑ:ʒɑ/	need	بُرج *burj*	/burʒ/	tower
جِسر *jisr*	/ʒisr/	bridge	ماجد *majed*	/maʒid/	proper name	تاج *taaj*	/taaʒ/	crown
جَرَس *jaras*	/ʒaras/	bell	يجلس *yajles*	/jaʒlis/	set down	نَسيج *naseej*	/nasi:ʒ/	woof
Items of the Arabic Sound ث /θ/								
Initial Position			**Middle Position**			**Final Position**		

Item	Transcription of SA	English Translation	Item	Transcription of SA	English Translation	Item	Transcription of SA	English Translation
ثاني *thani*	/**θ**ani:/	second	مَثَل *math a l*	/ma**θ**al/	prover b	حَرَث *harath*	/har**θ**/	plow
ثَوب *thawb*	/**θ**awb/	dress	أُنثى *ounth a*	/oun**θ**a/	female	بَحَث *bahth*	/baha**θ**/	search
ثعلب *thalab*	/**θ**ʕlab/	fox	مُثلث *mutha lath*	/mu**θ**ala**θ**/	tringle	ميراث *merath*	/mi:ra**θ**/	inherita nce
Items of the Arabic Sound ذ /ð/								
Initial Position			**Middle Position**			**Final Position**		
Item	Transcri ption of SA	English Translat ion	Item	Transcription of SA	English Translation	Item	Transcription of SA	English Translat ion
ذَهَب *thahab*	/**ð**əhəb/	gold	يذبل *yathbul*	/jəðbul /	fade	فخذ *fikheth*	/fikheð/	thigh
ذوق *thouq*	/**ð**ouk/	tact	عذاب *ʕthab*	/ʕðæb/	torment	ملاذ *malath*	/məlæð/	refuge
ذقن *thaqn*	/**ð**ikn /	chin	أُذُن *authun*	/ɔ:ðun/	ear	معاذ *M*uaath	/muʕæð/	proper name
Items of the Arabic Sound ف /f/								
Final Position			**Middle Position**			**Initial Position**		
Item	Transcription of SA	English Translation	Item	Transcription of SA	English Translation	Item	Transcription of SA	English Translation
فول *fool*	/fu:l/	beans	يفرح *yafrah*	/jæfrəh /	being happy	ملف *malaf*	/mæləf/	file
فجر *fajer*	/fəʒr/	down	تفاح *tufah*	/tufæh/	apple	هتف *hataf*	/hætəf/	exclaimed
فيديو *fidyu*	/fidju /	video	فلفل *filfil*	/filfil/	pepper	علف *ʕlaf*	/ʕləf/	feed

Table 12: Items of the Four Arabic Sounds ج /ʒ/ ث,/θ/ ذ,/ð/, and ف /f/

Table 12 illustrates twelve examples of Arabic words including the four selected sounds in different positions: initial, middle, and final. It also shows the transliteration, transcription in SA, and the English translation of each word.

The participants were asked to read these words, and their voices were recorded using AVR X-Voice Recorder programme and saved as wave files on my PC separately. Each informant had her own audio document. Then, their sounds were analysed phonemically using the international IPA symbols in order to prove the Hwaiti Bedouin informants' articulation of the sound /ʤ/ in the first eighteen objects as this phoneme constitutes part of the Bedouin Arabic consonants inventory. As for the sounds /θ/ and /ð/, they already exist in the SA and Bedouin Arabic dialect. Unlike the Bedouin Arabic, those three phonemes do not form a part in the Urban Arabic. As for the /f/ sound, it exists in SA and both Urban and Bedouin Arabic dialects. All the transcriptions were made by me, as I am a native speaker of Hwaiti Bedouin. The target sounds were transcribed manually. Then, I conducted a two-tailed Chi square tests on the participants' productions of each of the Arabic sounds (see appendix L).

4.4.4 The English Production Task

The fourth quantitative method was an English production task, proposed to measure L2 learners' pronunciation accuracy but not their reading abilities (see Appendix F). To avoid the risk of challenging informants to pronounce uncommon words, all the given items were single words and frequently used in English. Students were given 2 minutes to look over the given words to make sure that they are familiar with them. Then, the interlocutors were asked to read the words one time when they are ready, and they were not allowed to practice the pronunciation more than one time. The English words were selected from previous studies such as As-Sammer (2010) and Hamza *et al.* 2020) (see Chapter 3, Section 3.5). Some other examples were taken from the students' textbooks taught at Tabuk University.

The English diagnostic production test included in the experiment consisted of seventy-

two English tokens including the English sounds /ʤ/, /θ/, /ð /and /v/ in three different positions (Al Yaqoobi *et al.*, 2016; Hamza *et al.*, 2020). Each of the four groups of words included eighteen items containing the sound in initial, middle, and final positions (six items for each position of a sound in a word). In other words, each eighteen words represented a certain phoneme. An additional forty-eight unrelated items were added as distracting items, but they also were not taken into account. Therefore, the total number of the presented words was 120 stimuli (see Appendix F). Table 13 below shows samples of the words included in English production task:

Items of the English Phoneme /ʤ/					
Initial Position		**Middle Position**		**Final Position**	
Item	**Transcription**	**Item**	**Transcription**	**Item**	**Transcription**
Jungle	/**ʤ**ʌŋgl/	wager	/wei**ʤ**ə/	sage	/sei**ʤ**/
Junk	/**ʤ**ʌŋk/	danger	/ dein**ʤ**ə /	rage	/rei**ʤ**/
Jut	/**ʤ**ʌt/	sager	/ sei**ʤ**ə /	wage	/wei**ʤ**/
Items of the English Phoneme /θ/					
Initial Position		**Middle Position**		**Final Position**	
Item	**Transcription**	**Item**	**Transcription**	**Item**	**Transcription**
Throw	/**θ**rəʊ/	panther	/ˈpæn**θ**ə/	cloth	/klɒ**θ**/
Three	/**θ**riː/	pathway	/ˈpɑː**θ**weɪ/	truth	/truː**θ**/
Thread	/**θ**rɛd/	birthday	/ˈbɜː**θ**deɪ/	fifth	/fɪf**θ**/
Items of the English Phoneme /ð/					
Initial Position		**Middle Position**		**Final Position**	
Item	**Transcription**	**Item**	**Transcription**	**Item**	**Transcription**
them	/**ð**ɛm /	brother	/ˈbrʌ**ð**ə/	teethe	/tiː**ð**/
these	/**ð**iːz/	mother	/ˈmʌ**ð**ə/	breathe	/briː**ð**/
the	/**ð**ə/	father	/ˈfɑː**ð**ə/	seethe	/siː**ð**/
Items of the English phoneme /v/					
Initial Position		**Middle Position**		**Final Position**	
Item	**Transcription**	**Item**	**Transcription**	**Item**	**Transcription**
voice	/**v**ɔɪs/	river	/ˈrɪ**v**ə/	dove	/dʌ**v**/
vest	/**v**ɛst/	over	/əʊ**v**əˈ/	love	/lʌ**v**/
vidioˈ	/**v**ɪdɪəʊ/	lover	/lʌ**v**əˈ/	above	/əˈbʌ**v**/

Table 13: Items of the English Phonemes /ʤ/, /θ/, /ð/, and /v

Table 13 illustrates twelve examples of English words including the four selected sounds in different positions: initial, middle, and final. It also shows the transcription of these words. The interlocutors' productions were recorded separately using microphones. The participants

were aware that their voices had been recorded because they were given general information about the study as part of the ethics approval process; however, they were not informed about the specific phonemes investigated in the experiment to avoid monitoring or modifying their pronunciation, thereby ensuring more natural and spontaneous pronunciation data. The participants were debriefed about the specific goals once they had completed the tasks. Recordings obtained from participants were downloaded on laptop for research purposes. The materials were transcribed phonemically using IPA symbols and analysed by me.

4.5 Acoustic Analysis of the Hwaiti Bedouins' and Hijazi Urbans' Productions of the Target Phonemes

To answer the research questions, the productions of the two groups were analysed by using Praat spectrogram, a software used to analyse speech. This software gives transcription of the way that the speakers attempted to produce each English token, the investigated English phonemes (Boersma & Weenink, 2018; Boersma & Van Heuven, 2001). The waveform and spectrogram representations helped to show whether or not the Hwaiti Bedouin and Hijazi Urban informants face problems when pronouncing the target sounds in different linguistic environments (initial, middle, and final positions of the phonemes in words). The visual representations revealed specific patterns in pronunciation difficulties, highlighting variability in how the two groups produced the target sounds in different phonetic contexts. The recording of the participants' voices took place in their classrooms at Tabuk university. Each student's production was recorded in isolation to avoid any noise that may affect the quality of elicited data. Figures representing the sounds in a form of waveforms and spectrograms were taken; each figure characterises a specific sound. The waveforms appear at the top of each figure, and the spectrogram occurs on the bottom. The results from the Acoustic Analysis are presented immediately after the displayed figures to help interpret these visual representations of the acoustic measurements. Figures 10, 11, and 12 below are examples of the two groups' productions of the target sound /ʤ/:

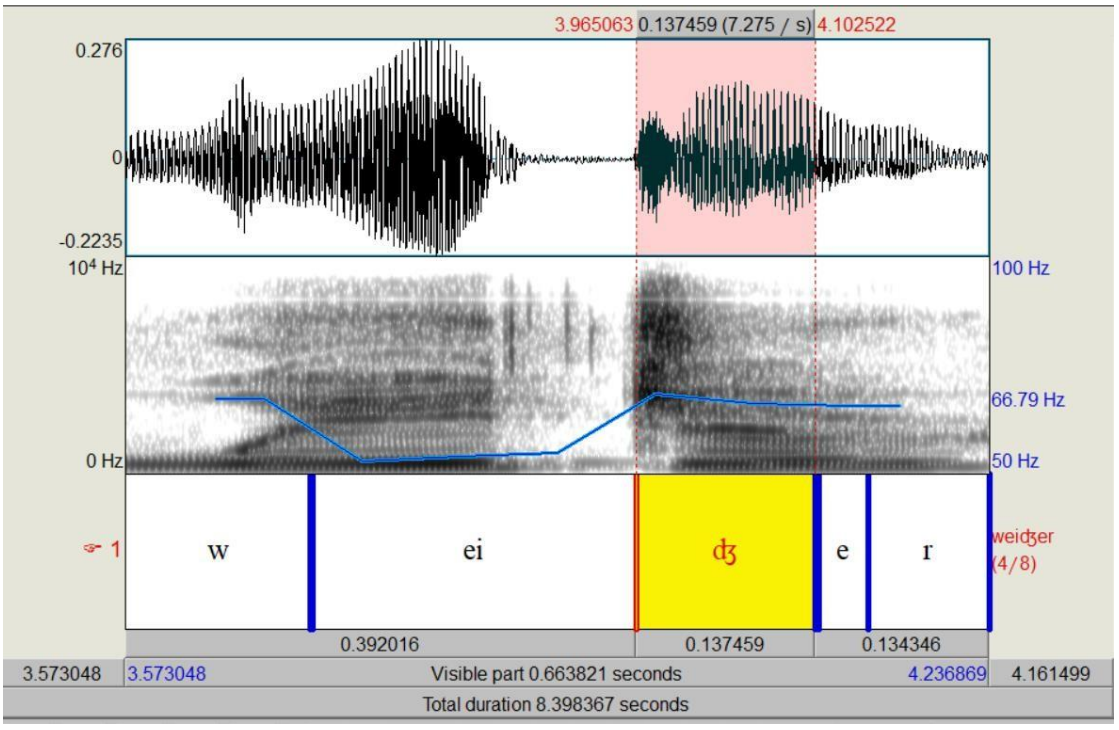

Figure 10: The Acoustic Analysis of a Hwaiti Speaker's Production of the Sound /ʤ/ in the Word Wager: Pronounced as [ʤ]

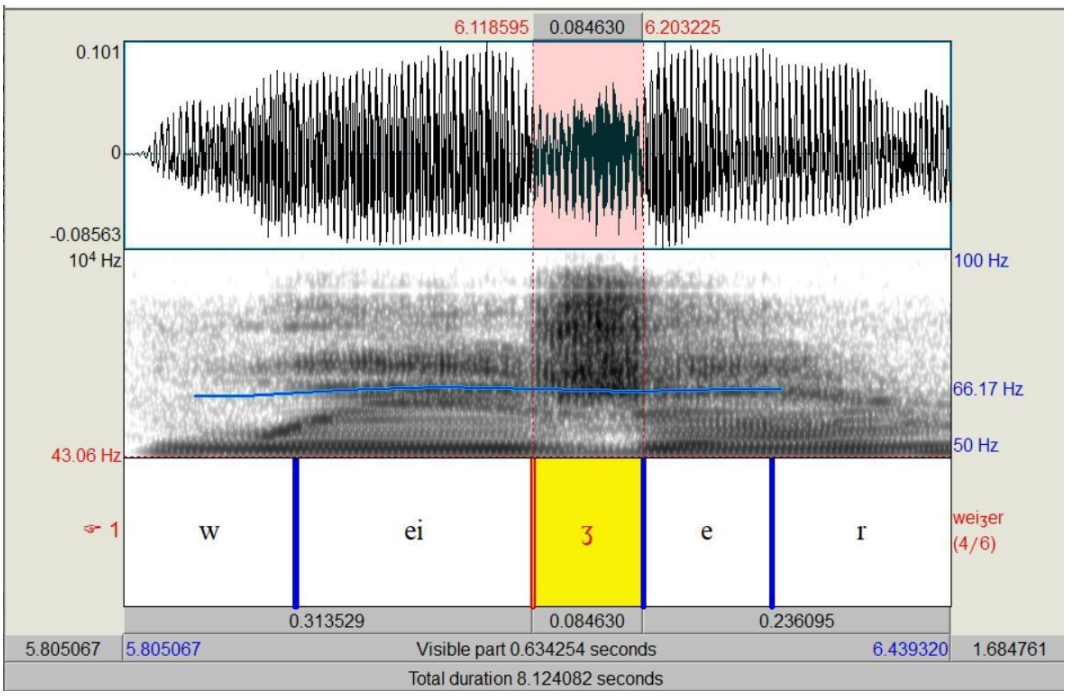

Figure 11: The Acoustic Analysis of a Hijazi Speaker's Production of the Sound /ʤ/ in the Word Wager: Pronounced as [ʒ]

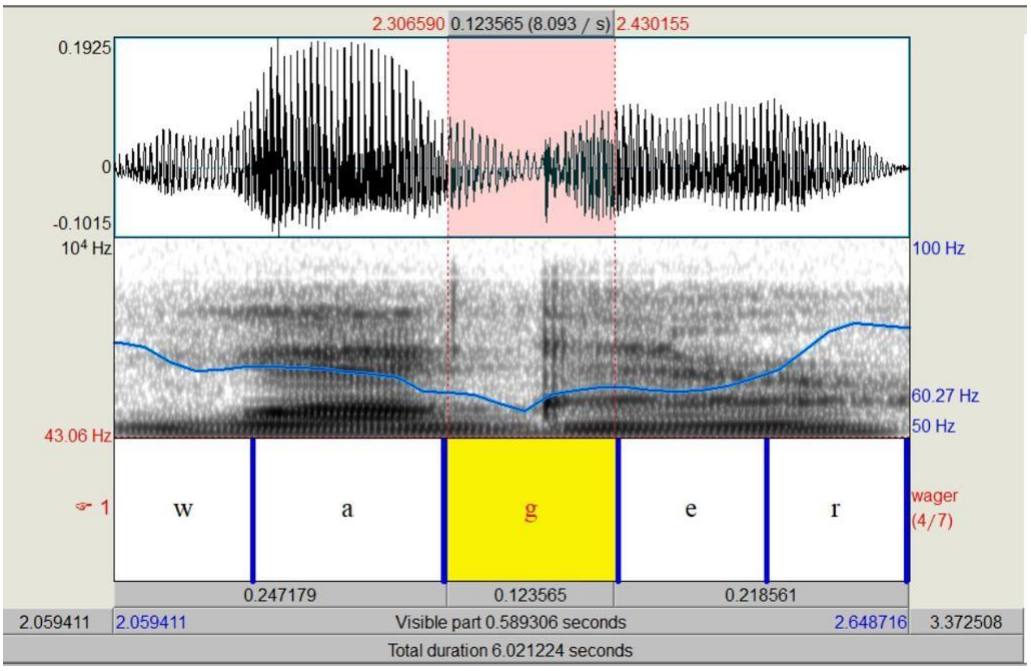

Figure 12: The Acoustic Analysis of a Hwaiti Speaker's Production of the Sound /ʤ/ in the Word Wager: Pronounced as [g]

Figures 10, 11, and 12 show the acoustic analysis of the productions of the sound /ʤ/ by three speakers: Hwaiti Bedouin speaker no. 1, Hijazi speaker no. 6, Hwaiti Bedouin speaker no. 2 respectively. The figures illustrate that the speakers use the three allophones [ʤ], [ʒ] and [g] for the phoneme /ʤ/. Figure 10 demonstrates that the phoneme /ʤ/ in the word *Wager* was produced correctly by the Hwaiti Bedouin speaker no. 1 as [ʤ], while figure 11 shows that the same sound in the same word was produced as [ʒ] by the Hijazi speaker no. 6. However, figure 12 displays that the Hwaiti Bedouin speaker no. 2 uttered /ʤ/ in the word *Wager* as [g]. These three allophones are discriminated from each other by both place and manner of articulation. The figures show that the waveform representations of the three allophones are different. Figure 11 shows the periodic noise of the variant [ʒ] which differs from that of the the other two vaients [ʤ] and [g]. As the affricate /ʤ/ is a consonant sound that begins as a stop and releases as a fricative, the spectrogram of the variant [ʤ] in figure 11 shows the stop gap and fricative noise when producing it. However, the spectrogram of the variant [ʒ] shows a fricative noise without a stop gap; nonetheless, the spectrogram of the variant [g] in figure 12 demonstrates dark band running parallel to the very bottom of the spectrogram indicating closure of intervals

when producing the sound [g]. This is because no air exists in the vocal tract when producing [g]. Figures 13, 14, and 15 below are examples of the two groups' productions of the target sound /θ/:

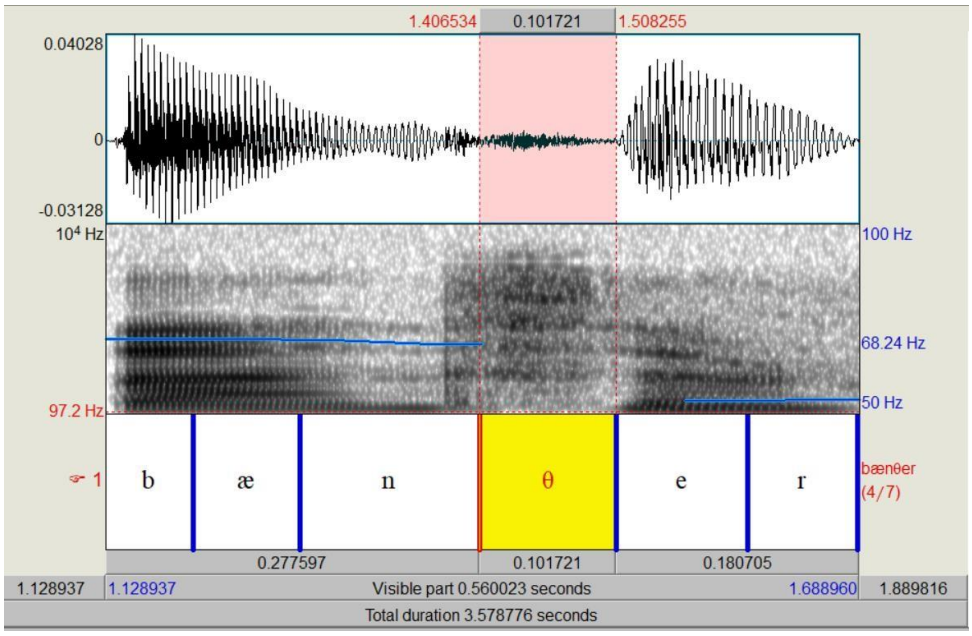

Figure 13: The Acoustic Analysis of a Hwaiti Speaker's Production of the Sound /θ/ in the Word Panther: Pronounced as [θ]

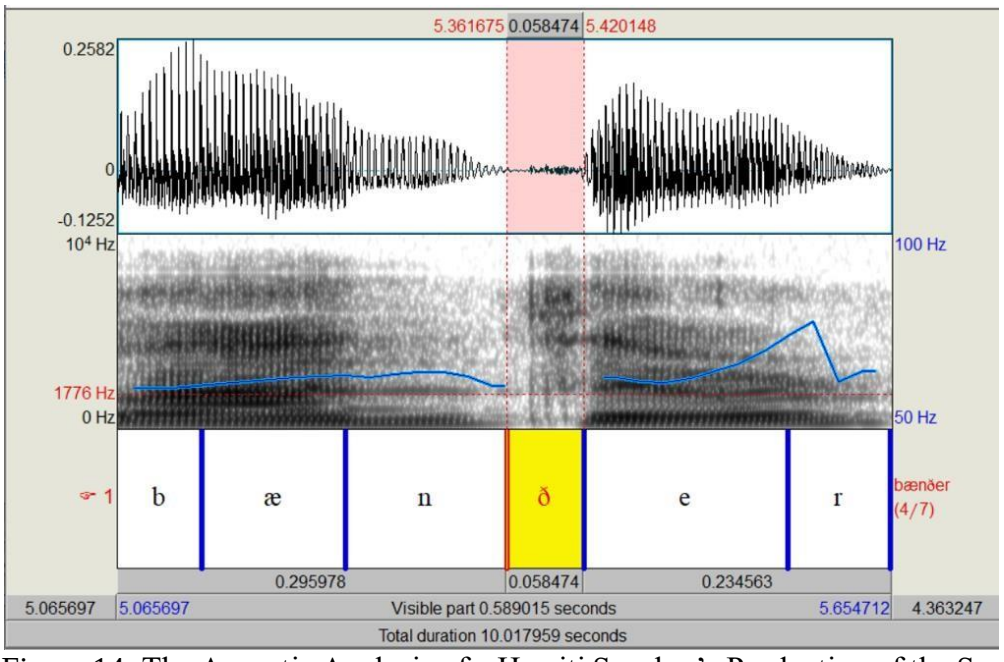

Figure 14: The Acoustic Analysis of a Hwaiti Speaker's Production of the Sound /θ/ in the Word Panther: Pronounced as [ð]

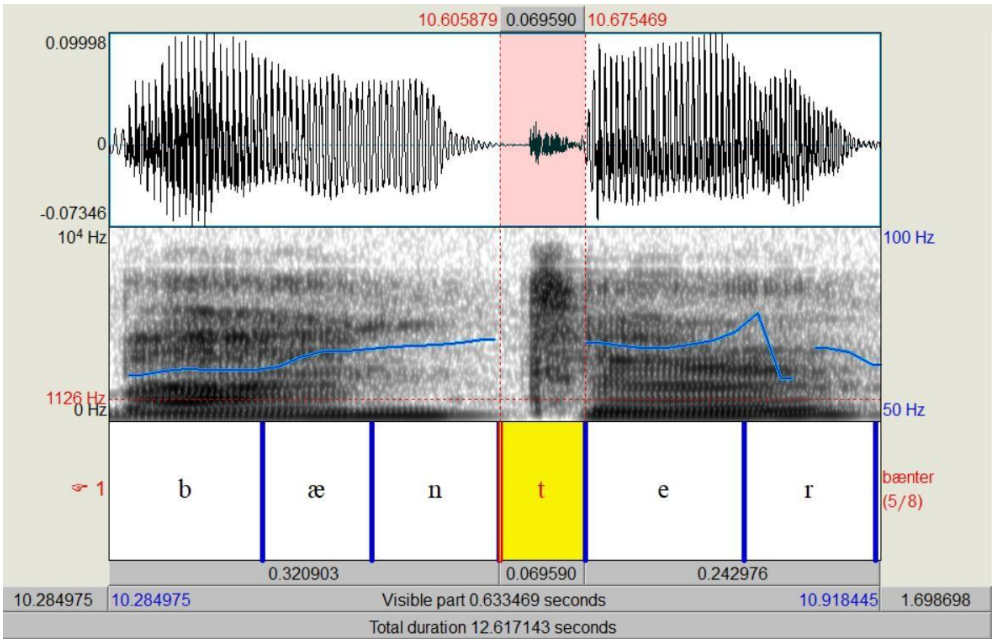

Figure 15: The Acoustic Analysis of a Hijazi Speaker's Production of the Sound /θ/ in the Word Panther: Pronounced as [t]

Figures 13, 14, and 15 show the acoustic analysis of the productions of the sound /θ/ by three speakers: the Hwaiti Bedouin speaker no. 4, Hwaiti Bedouin speaker no. 9, and Hijazi Urban speaker no. 3 respectively. They pronounced the sound /θ/ in the word *Panther* as [θ], [ð], and [t]. The figures show that these allophones are discriminated from each other in both manner and place of articulation. The waves and the spectrographic representations show that the two variants of the voiceless dental fricative /θ/ sound are different in production. In figure 13, the word *Panther* was produced by Hwaiti Bedouin speaker no. 4, while the same word in figure 15 was produced by the Hijazi speaker no. 3. On the other hand, figure 14 shows how the target sound /θ/ was produced by the Hwaiti Bedouin speaker no. 9, who produced it as [ð], and this is attributed to the fact that both /θ/ and /ð/ are spelt as 'th'; therefore, the speaker might be confused when producing it. The waveform representation of [ð] differs from those of the two variants [θ] and [t]; it can be seen in the figures that [ð] has voicing and weak frequencies compared to [θ] and [t]. Figures 16, 17, and 18 below are examples of the two groups' productions of the target sound /ð/:

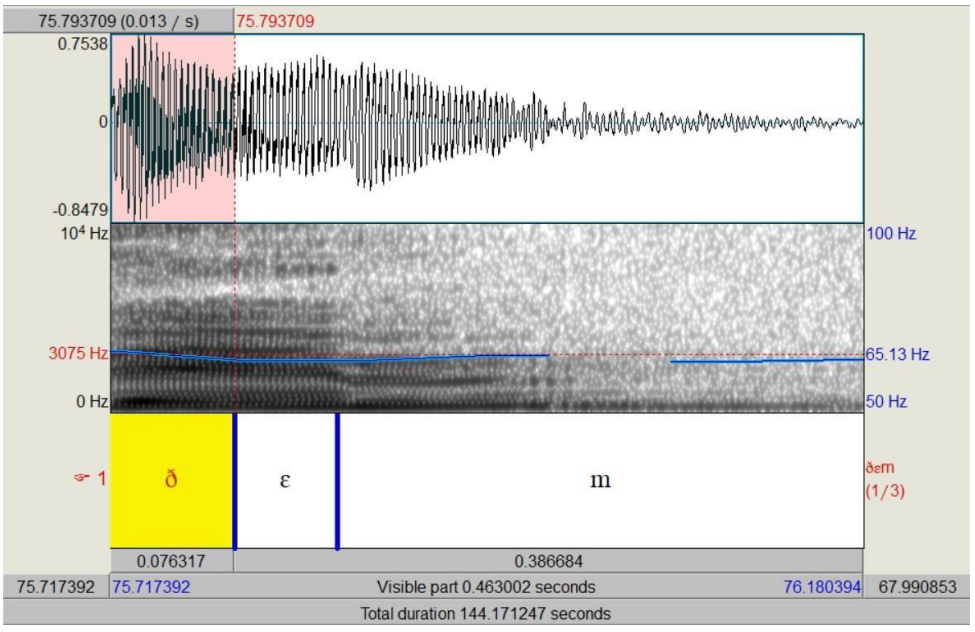

Figure 16: The Acoustic Analysis of a Hwaiti Speaker's Production of the Sound /ð/ in the Word Them: Pronounced as [ð]

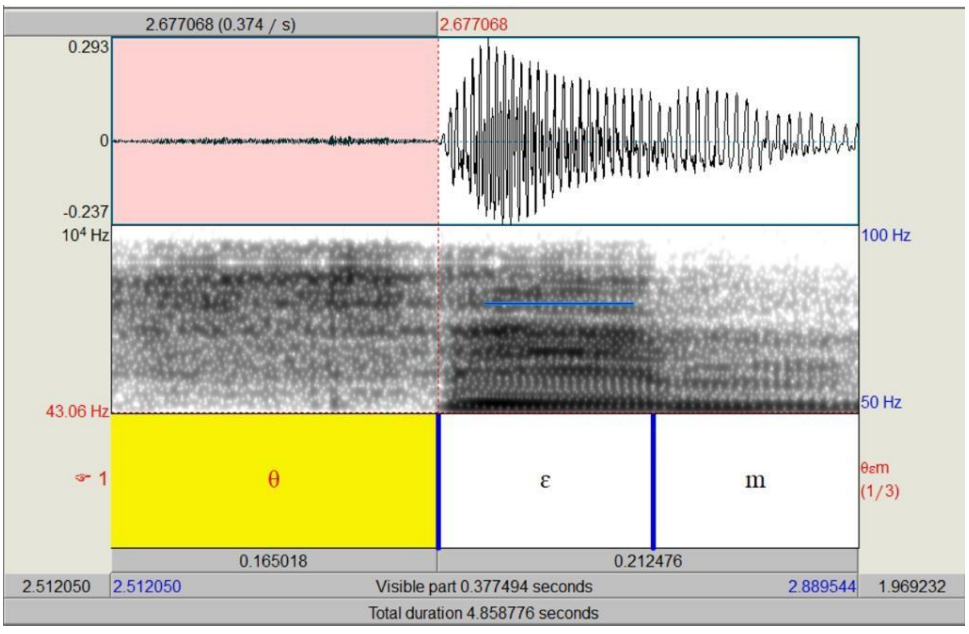

Figure 17: The Acoustic Analysis of a Hwaiti Speaker's Production of the Sound /ð/ in the Word Them: Pronounced as [θ]

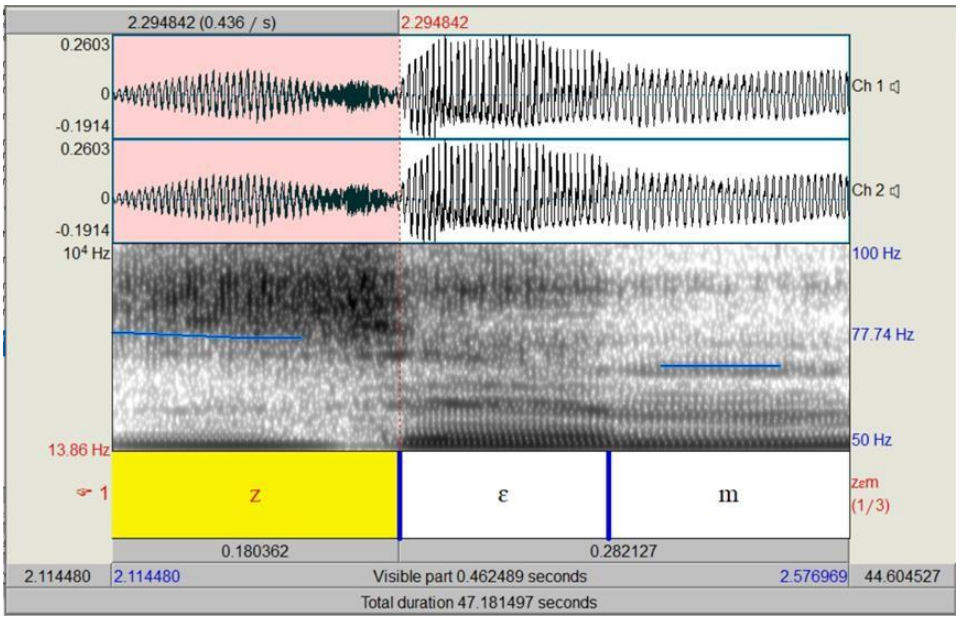

Figure 18: The Acoustic Analysis of a Hijazi Speaker's Production of the Sound /ð/ in the Word Them: Pronounced as [z]

Figures 16, 17, and 18 show the acoustic analysis of the productions of the sound /ð/ by three speakers: the Hwaiti Bedouin speaker no. 10, Hwaiti Bedouin speaker no. 14, and Hijazi Urban speaker no. 7 respectively. The figures reveal that the sound /ð/ was pronounced as [ð], [θ], and [z] by the nominated speakers. The spectrographic representations in Pratt for the variants [θ] and [z] in figure 17 and 18 differ from what is presented in figure 16 showing the spectrogram and waveform of the voiced dental fricative /ð/. Figure 16 illustrates that the Hwaiti Bedouin speaker no. 10 pronounced the phoneme /ð/ correctly as [ð]. Compared to the production of the variant [ð] in figure 16, the Hijazi and Hwaiti Bedouin speakers in figures 18 and 17 show longer duration for pronouncing the two variants [z] and [θ] (180 and 165 ms, respectively). Figures 19 and 20 below are examples of the two groups' productions of the target sound /v/:

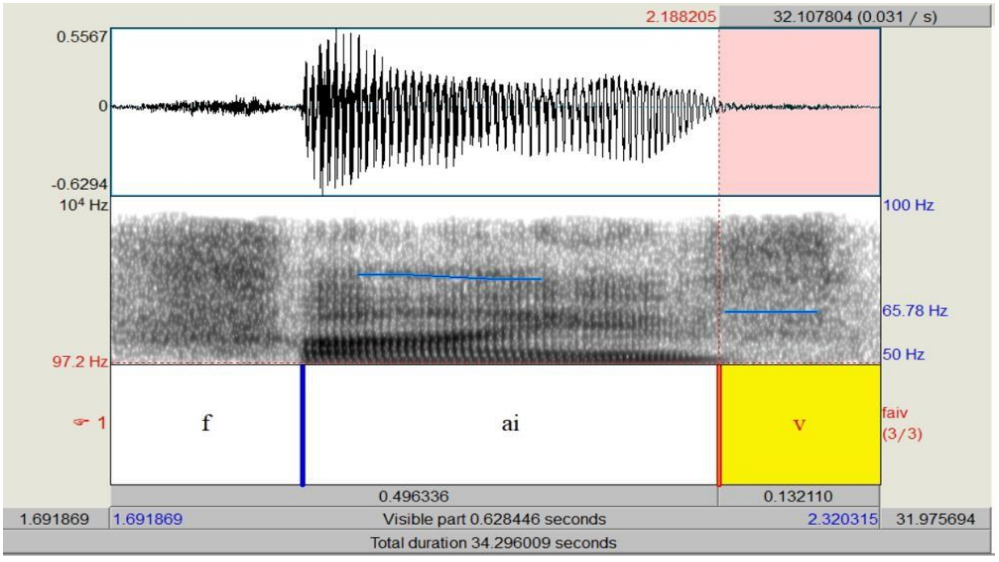

Figure 19: The Acoustic Analysis of a Hijazi Speaker's Production of the Sound /v/ in the Word Five: Pronounced as [v]

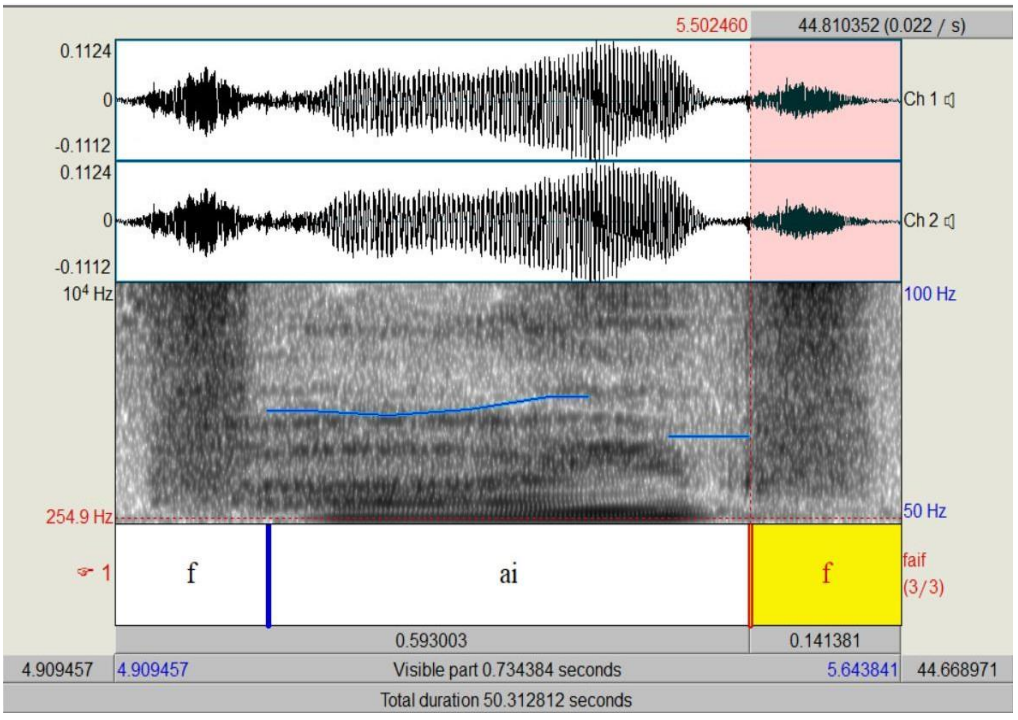

Figure 20: The Acoustic Analysis of a Hijazi Speaker's Production of the Sound /v/ in the Word Five: Pronounced as [f]

Figures 19 and 20 show the acoustic analysis of the productions of the sound /v/ by two speakers: the Hijazi Urban speaker no. 1 and Hwaiti Bedouin speaker no. 7 respectively. Figure 19 shows the spectrograms and waveforms of the variant [v], a correct pronunciation by the Hijazi speaker no. 1. Figure 20 reveals the waveforms of the variant [f] that is pronounced

instead of [v] by the Hwaiti Bedouin speaker no. 7. The waveform and the spectrogram representations of the two given variants [f] and [v] are different. Figure 19 shows regular periodic signals (between 50 Hz and 100 Hz) for the variant [v], while during the production of the voiceless variant [f] such regular periodic signals cannot be seen.

4.6 Ethical Considerations

Because the current research used human respondents, who were involved in this study, there were certain ethical considerations that must be addressed, reviewed, and approved by the Social Research Ethics Sub-Committee (SRESC) at the National University of Ireland Maynooth (Maynooth University). To meet this requirement, I submitted an ethical protocol form to the Social Research Ethics Sub-Committee (SRESC) at Maynooth University, and it was approved (see Appendix K). I made sure that all the considerations are met. First, the informants were over 18 years and aged between 22-23. A consent form had been given to the target groups to make sure that they were interested to take part in the current research and understand the extent of their participation in the study.

Furthermore, each participant was given an information sheet which explains the broader purpose of the current study, the anonymity and privacy of the data, and other professional support services. Both the consent form and the information sheet were translated into Arabic, and each participant was given the Arabic and the English versions to ensure their accurate absorption of the content in case they could not understand the English version (see Appendices H and I). Also, they were informed that they had the right to withdraw at any point during the progression of the research without any obligations (Thomas, 2009). The participants were aware that their real names would be remained anonymised. Numbers were used to be assigned to each informant instead of using their identifiable information. The participants were debriefed about the study's true objectives afterwards. The data were encrypted and saved securely on a password-protected file on my PC. This information is accessed by me alone for the sake of confidentiality.

4.7 A Statistical Analysis of the Demographic Information Questionnaire

A statistical analysis and graphical presentation of the results of the Demographic Information Questionnaire was performed by using the R program (R Core Team, 20212), a Language and environment for statistical computing, Vienna, Austria, in RStudio (2020) statistical version. The statistical significance of the differences between Hwaiti Bedouin and Hijazi Urban groups in their demographic variables were assessed using two-tailed Chi square tests and Mann-Whitney test. P values of 0.05 were considered significant.

The characteristics of the Hijazi Urban group and the Hwaiti Bedouin group were presented (see Appendix G). The groups were compared to determine if there were significant differences in various characteristics such as nationality, age, gender, education level, place of birth, and others. A p-value less than or equal to 0.05 was considered statistically significant. The P-value was less than 0.001, indicating a statistically significant difference in the place of birth and living between the two groups. Both groups had a median of four years of study, and all of them had English language as their major of study. The P-value was not statistically significant, indicating that there was no significant difference in the years, and major of study between the two groups.

As for mother's educational level, the Hwaiti Bedouin group had a higher number of mothers with primary education compared to the Hijazi Urban group, while the Hijazi Urban group had a higher number of mothers with secondary and intermediate education levels. The P-value was less than 0.001, indicating a statistically significant difference in mother's education level between the two groups. Regarding father's educational level, the Hwaiti Bedouin group had a higher number of fathers with intermediate education compared to the Hijazi Urban group, while the Hijazi Urban group had a higher number of fathers with secondary and doctoral educational levels. However, specific tertiary levels (i.e., Bachelors's/Master's) were not provided. The P-value was less than 0.001, indicating a statistically significant difference in father's educational level between the two groups.

Moreover, Appendix G shows that all students in the Hijazi Urban group spoke the Hijazi Urban dialect, while all students in the Hwaiti Bedouin group spoke the Hwaiti Bedouin dialect. The P-value was not calculated since there was no variation in the data. Also, Appendix G demonstrates that the Hijazi Urban group had a higher number of students with mothers and fathers born in Jeddah, Makkah, and Madinah compared to the Hwaiti Bedouin group whose father and mother place of birth was in Tabuk. The P-value was less than 0.001, indicating a statistically significant difference in mothers and fathers' place of birth between the two groups. With reference to mother and father indigenous dialects, all mothers and fathers in the Hijazi Urban group spoke the Hijazi Urban dialect, while all mothers and fathers in the Hwaiti Bedouin group spoke the Hwaiti Bedouin dialect. Additionally, Appendix G illustrates that none of the respondents had lived in an English-speaking country, and none had attended international schools in Saudi Arabia during their studies. However, 32.5% of the Hijazi respondents only reported having foreign relatives living in other countries, but they never visited them during their life. Hijazi Students reported having fourth-degree relatives who are living in different countries as stated in the table, whereas this was not applicable to Hwaiti Bedouin students, who were reported that they did not have any foreign relatives in other countries. Regarding the language of communication with foreign relatives, this was not applicable to all respondents.

As for Language Learning Environment, the analysis demonstrated that Hijazi students used different languages in different contexts. The majority of Hijazi respondents (50%) reported using Hijazi Urban dialect with family and friends, and Hwaiti Bedouin students (50%) used Hwaiti Bedouin dialect with family and friends. Regarding the language of communication with teachers, all respondents were reported using their Arabic dialect or a combination of their dialects and English. English was used by about 40% of the Hijazi respondents, and 17% of Hwaiti Bedouin when they communicate with teachers at the university, while 10% used Hijazi Urban dialect, and 32% used Hwaiti Bedouin, respectively. During break time, the majority of Hijazi Urban and Hwaiti Bedouin respondents (45% and 47%) were reported using Hijazi urban

dialect and Hwaiti Bedouin dialect, respectively, while 5% of Hijazi Urban and 7% of Hwaiti Bedouin participants used English. These figures suggest that the language environment of the students varied depending on the context.

With reference to language learning experience, the statistical analysis illustrates that all respondents learned English in school, with a median of 10 years of English language learning. However, none of the respondents joined training courses to improve their English pronunciation. The results also suggest that the students had limited exposure to English-speaking environments. Their reasons for learning English were diverse, with the most common being to complete undergraduate study (22.5%) and to study abroad (12.5%). The analysis showed no significant difference in English proficiency among students with different reasons for learning English. The simplest aspect of the English language that students found when learning English was grammar (40%), followed by vocabulary (7.5%), and dictation (2.5%). The most challenging aspect of learning English was English sound (37.5%), followed by English sound and dictation (7.5%), and dictation (5%). These percentages suggest that grammar and vocabulary are the easiest aspects of English language learning, while pronunciation is the most challenging for both groups.

Regarding the level of English proficiency, the majority of Hijazi Urban and Hwaiti Bedouin respondents were reported to have an intermediate level of proficiency in writing (32%, for each). However, only 25% of Hwaiti Bedouin students were reported in the intermediate level in speaking, compared to 40% of Hijazi respondents. These results suggest that the students have a relatively good command of English, particularly in writing. As for their level of Arabic proficiency, both groups showed advanced levels in all skills. Generally, these results will be helpful for investigating L2 learners' views regarding their proficiency level in both Arabic and English, and this would convey insights for teachers in order to adopt the suitable teaching procedures for more successful learning process especially when they deal with heterogeneous groups.

4.8 A Statistical Analysis of Inter-Rater Reliability

After interpreting the raters' evaluation of the learners' productions of the selected phonemes, I applied Cronbach's Alpha, a method used to test the internal consistency and reliability between two or more raters when they are rating the same items (Stemler, 2004). I realised that the level of agreement between the two raters was very high, which implied a higher level of internal consensus between the two raters. Cronbach's alpha in the two groups was 1.00, which means that the internal consistency between rater 1 and rater 2 to evaluate the sound production was excellent.

Prior to conducting the Cronbach's Alpha test for the two raters, there was a little bit difference in the judgments of the two raters regarding three productions of a Hijazi speaker. The first rater considered the first two productions as close to wrong, whereas the second rater considered them completely wrong. As for the third production, the first rater rated it as close to correct, while it was perfectly correct for the second rater. After consulting the two raters regarding these few differences, the first rater listened again to the target items, and considered them as completely wrong as the student produced them inappropriately. Then, the first rater listened to the third item produced by the same student, and rerated it as perfectly correct as the student produced it correctly.

It was necessary to consult the raters as the majority of the data was based on two levels only by the two raters (i.e. perfectly correct and completely wrong), and this would help to keep the consistency between the judgments of the two raters. Table 14 below shows the results of Cronbach's alpha inter-rater reliability coefficient test between the two raters:

Characteristic	Cronbach's alpha	95% CI	Reliability level
Hijazi Urban			
Rater 1	1.00	(1.00-1.00)	Excellent
Rater 2	1.00	(1.00-1.00)	Excellent
Hwaiti Bedouin			
Rater 1	1.00	(1.00-1.00)	Excellent
Rater 2	1.00	(1.00-1.00)	Excellent

Table 14: The Results of Cronbach's Alpha Inter-rater Reliability Coefficient Test

Table 14 demonstrates that Cronbach's Alpha Reliability Test highlights the reliability of the two raters' evaluation of the learners' productions of the target phonemes. It shows that the level of consistency is excellent. Thus, considering the raters' interpretation and evaluation can help give insight into the learners' difficult phonemes and the differences between the pronunciations of the two groups.

4.9 Statistical Analyses of the Participants' Productions of the Target Phonemes

In this project, I determined the way in which Hwaiti Bedouin and Hijazi Urban students at Tabuk University, Saudi Arabia, produce the English consonant sounds /ʤ/, /θ/, /ð/, and /v/ and the effect of the positions of these phonemes in words on the participants' productions. I also endeavoured to know whether Hwaiti Bedouin and Hijazi Urban speakers are affected in their pronunciations of the target sounds by the consonantal variations in their own dialects. In order to do so, the data collected through the quantitative methods (see Section 4.4) were analysed by implementing R (R Core Team, 2021) in RStudio (2021). To answer the first and third research questions, two- tailed Chi square test is used to identify the statistical significance of the differences in the sound productions between the two groups and whether the participants are influenced by the closest sounds found in their dialects. However, to answer the second question, a mixed effect model is implemented to determine the impact of the phoneme position of on the participants' productions. Thus, Chapter 5 presents a descriptive statistical summary in cross-tabulation tables and inferential statistical analyses of the collected data.

4.10 Summary of the Chapter

This chapter presented the experimental research design of the current study. It highlighted the methods of data collection and data analysis. The required information concerning the participants, raters, materials, and variables gathered and inspected in this study. Additionally,

specific operational definitions of key pronunciation- and phonetics-related terms were defined and clarified. Furthermore, the quantitative methods were explained, and the ethical considerations were discussed. Also, the results were elucidated through descriptive and inferential statistics.

The quantitative methods of data collection are fivefold: a demographic information questionnaire, LexTALE English proficiency test, an Arabic production task, an English production task, and an acoustic analysis of the Hwaiti Bedouins' and Hijazi Urbans' productions of the target phonemes. The information gathered from these quantitative methods is interpreted using statistical analysis and this is covered in the following Chapter.

CHAPTER 5

RESULTS AND DISCUSSION

THE ACQUISTION OF ENGLISH AFFRICATES AND FRICATIVES ACROSS WORD POSITIONS BY SAUDI- ENGLISH LEARNERS

5.1 Introduction

This chapter introduces the results of the production task conducted at Tabuk University in Saudi Arabia. The experiment examines the participants' productions of phonemes that are similar in Arabic in order to explore L1's influence on the production of the English voiced Affricate /ʤ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labiodental fricative /v/. More specifically, the experiment investigates the impact of the Arabic dialects spoken by the participants on their pronunciation of those four English phonemes in different positions of words. The study involves two main Arabic vernaculars: Hwaiti Bedouin and Hijazi Urban Arabic. Section 5.2 provides the results of the study by giving a descriptive statistical summary that explains the frequencies and percentages of target-like and non-target-like pronunciations of the selected sounds by Hijazi Urban and Hwaiti Bedouin Arabic speaking-English language learners. This summary is presented in cross-tabulation tables. Further, Section 5.3 introduces inferential statistical analyses to address the three research questions of the current study. More specifically, Subsection 5.3.1 presents an analysis of data on the productions of the sounds, while Subsection 5.3.2 offers an analysis of data on the effect of the position of the phoneme on the productions of the sounds. Subsection 5.3.3 introduces an analysis of data on the effect of the consonantal variation in the speakers' dialects on their productions of the sounds. This chapter, in turn, discusses the research questions of the current research project in light of the results obtained. In this chapter, Section 5.4 introduces the discussion of the results of each of the research questions. Specifically, Subsection 5.4.1 discusses the first research

question, which explores the ratings of the productions of the four English phonemes by the Hijazi Urban and Hwaiti Bedouin speakers. Then, Subsection 5.4.2 explores the second research question analysing the effect of phoneme position in the word on the production of the English phonemes /ʤ/, /θ/, /ð/, and /v/ by Hijazi Urban and Hwaiti Bedouin speakers. Subsection 5.4.3 determines whether the Hwaiti Bedouin and Hijazi Urban speakers' pronunciation of these phonemes is affected by the consonantal variations found in their own dialect. Finally, Section 5.5 provides a summary of this chapter.

5.2 Descriptive Statistics

In this section, the cross-tabulation tables present the results from the ratings of the two raters conducted to determine how well Hijazi Urban and Hwaiti Bedouin participants are able to pronounce and distinguish certain English phonemes. In this case, the experiment focused on four phonemes: the voiced post-alveolar affricate /ʤ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labiodental fricative /v/. In order to examine the acquisition of the pronunciation of these four phonemes, all participants' productions of the phonemes in three different positions of words: initial, middle, and final were recorded. The speakers' productions were rated individually by two independent raters as either perfectly correct or completely wrong. The following table summarises the ratings of Hijazi Urban group's productions of the sound /ʤ/ in the three positions:

The Voiced Post-alveolar Affricate /ʤ/													
Initial													
	Perfectly correct						**Completely wrong**						**Total**
Item	Jug	Jump	Jungle	Junk	Just	Jut	Jug	Jump	Jungle	Junk	Just	Jut	20
Rating / n (%)	18 (90)	18 (90)	16 (80)	17 (85)	18 (90)	18 (90)	2 (10)	2 (10)	4 (20)	3 (15)	2 (10)	2 (10)	
Middle													
	Perfectly correct						**Completely wrong**						**Total**
Item	Wager	Danger	Sager	Major	Pager	Ranger	Wager	Danger	Sager	Major	Pager	Ranger	20

Rating / n (%)	3 (15)	0 (0)	5 (25)	4 (20)	5 (25)	2 (10)	17 (85)	20 (100)	15 (75)	16 (60)	15 (75)	18 (90)	
Final													
	Perfectly correct						**Completely wrong**						**Total**
Item	Sage	Rage	Wage	Page	Cage	Age	Sage	Rage	Wage	Page	Cage	Age	20
Rating / n (%)	8 (40)	8 (40)	7 (35)	13 (65)	12 (6)	12 (60)	12 (60)	12 (60)	13 (65)	7 (35)	8 (40)	8 (40)	

Table 15: Ratings of the Productions of the Voiced Post-alveolar Affricate /dʒ/ by the Hijazi Urban Group

Table 15 illustrates that eighteen words including the sound /dʒ/ in initial, middle, and final positions were pronounced by the participants (e.g. *Jungle*, *Sager*, and *Rage*). The rating results were analysed and the number and percentage of participants who were able to correctly pronounce the target phonemes were recorded. The table illustrates the results of the learners' productions as completely wrong or perfectly correct. The "completely wrong" column shows the numbers and percentages of the participants who were rated as not producing the sound correctly, while the perfectly correct column shows the numbers and percentages of the participants who were rated as producing the sound correctly. The number of the Hijazi Urban participants is 20. Table 15 shows that participants were able to pronounce this phoneme accurately, since, on average, the vast majority of responses fell into the perfectly correct category. However, variability was attested. It also demonstrates that the percentage of completely wrong responses ranged from 10% to 90% across the different words, and the percentage of perfectly correct responses ranged from 10% to 90%.

Furthermore, Table 15 shows that the words "danger" and "ranger" had the highest percentages of completely wrong responses (100% and 90%, respectively), and the lowest percentages of perfectly correct responses (0% and 10%, respectively). These percentages reveal that the participants had particular difficulty pronouncing these words, which may be attributed

to the participants' limited oral exposure to these words, which can result in a mismatch between their spelling and pronunciation. Furthermore, familiarity with the word in written form does not necessarily guarantee target-like pronunciation, despite its selection from the participants' course textbooks. On the other hand, the table illustrates that some words were easier for participants to pronounce correctly than others. For example, the words *Jug*, *Jump*, *Just*, and *Jut* were pronounced correctly by 90% of participants while the lowest percentage of completely wrong responses in these items was (10%), suggesting that these words were easier for participants to identify.

Another pattern that emerges in table 15 is that participants were generally better at identifying the /dʒ/ sound when it occurred in initial positions compared to middle and final positions. For example, the words *Sager* and *Pager* had a rather high percentage of completely wrong responses (75%) and a relatively low percentage of perfectly correct responses (15%). This suggests that participants were less successful at identifying the /dʒ/ sound when it occurred in the middle of the word. Overall, the results shown in table 16 show that the production of the voiced post-alveolar affricate /dʒ/ is relatively easy for speakers to utter, particularly when the sound occurs in initial positions.

The second phoneme tested was the voiceless dental fricative /θ/. The study tested the participants' ability to correctly pronounce /θ/ in eighteen different words, including *Think*, *Something*, and *Truth*. This phoneme is presented in a word context in three different positions: initial, middle and final. Table 16 below summarises the ratings of Hijazi Urban group's productions of the sound /θ/ in the three positions:

The Voiceless Dental Fricative /θ/													
Initial													
	Perfectly correct						**Completely wrong**						**Total**
Item	Throw	Three	Thread	Think	Throat	Thick	Throw	Three	Thread	Think	Throat	Thick	20
Rating / n (%)	16 (80)	16 (80)	16 (80)	14 (70)	16 (80)	13 (65)	4 (20)	4 (20)	4 (20)	6 (30)	4 (20)	7 (35)	
Middle													
	Perfectly correct						**Completely wrong**						**Total**
Item	Panther	Pathway	Toothpick	Something	Birthday	Truthful	Panther	Pathway	Toothpick	Something	Birthday	Truthful	20
Rating / n (%)	7 (35)	12 (60)	13 (65)	12 (60)	9 (45)	8 (40)	13 (65)	8 (40)	7 (35)	8 (40)	11 (55)	12 (60)	
Final													
	Perfectly correct						**Completely wrong**						**Total**
Item	Cloth	Truth	Fifth	Tooth	Month	Bath	Cloth	Truth	Fifth	Tooth	Month	Bath	20
Rating / n (%)	16 (80)	12 (60)	10 (50)	11 (55)	9 (45)	13 (65)	4 (20)	8 (40)	10 (50)	9 (45)	11 (55)	7 (35)	

Table 16: Ratings of the Productions of the Voiceless Dental Fricative /θ/ by the Hijazi Urban Group

Table 16 shows that the perfectly correct utterances of the phoneme in /θ/ when it appears in an initial position range from 65% to 80%; however, 20% of the participants made some errors while pronouncing this sound in the same position ranging between 20% and 35%. The percentages in the table indicate that at the level of individual words, some words were more challenging for participants than others. For example, table 16 demonstrates that twelve participants produced the /θ/ sound in the word *Truthful* incorrectly reaching 60%, whereas thirteen participants uttered the same sound in the word *Panther* incorrectly accounting for 65%. These figures demonstrate that some words are more difficult for the participants to produce.

Table 16 also reveals that with reference to the phoneme position, Hijazi students were better at producing /θ/ when it came in the initial position. For example, the words *Throw*, *Three*, *Thread*, *Think*, and *Throat* had the highest percentage of perfectly correct responses, with 16 (80%), 16 (80%), 16 (80%), 14 (70%), and 16(80%), respectively. Overall, these results show that while the majority of speakers are be able to produce the sound correctly, a considerable portion of the other participants might struggle with it.

The third phoneme tested was Voiced dental fricative /ð/. The study tested the participants' ability to correctly pronounce /ð/ in eighteen different words, including *The*, *Mother*, and *Loathe*. This phoneme is presented in a word context in three different positions: initial, middle, and final. Table 17 below summarises the ratings of Hijazi Urban group's productions of the sound /ð/ in the three positions:

Voiced Dental Fricative /ð/													
Initial													
	Perfectly correct						**Completely wrong**						**Total**
Item	Them	These	The	Then	Though	There	Them	These	The	Then	Though	There	20
Rating / n (%)	7 (35)	9 (45)	5 (25)	5 (25)	7 (35)	7 (35)	13 (65)	11 (55)	15 (75)	15 (75)	13 (65)	13 (65)	
Middle													
	Perfectly correct						**Completely wrong**						**Total**
Item	Brother	Mother	Father	Gather	Another	Clothing	Brother	Mother	Father	Gather	Another	Clothing	20
Rating / n (%)	7 (35)	7 (35)	10 (50)	9 (45)	10 (50)	5 (25)	13 (65)	13 (65)	10 (50)	11 (55)	10 (50)	15 (75)	
Final													
	Perfectly correct						**Completely wrong**						**Total**
Item	With	Loathe	Teethe	Breathe	Seethe	Smooth	With	Loathe	Teethe	Breathe	Seethe	Smooth	20

Rating / n (%)	5 (25)	5 (25)	2 (10)	2 (10)	2 (10)	1 (5)	15 (75)	15 (75)	18 (90)	18 (90)	18 (90)	19 (95)

Table 17: Ratings of the Productions of the Voiced Dental Fricative /ð/ by the Hijazi Urban Group

Table 17 shows the results of the participants' productions of the voiced dental fricative consonant sound /ð/ in eighteen English words. The words included in the study are *Them*, *These*, *The*, *Then*, *Though*, *There*, *Brother*, *Mother*, father, *Gather*, *Another*, *Clothing*, *With*, *Loathe*, *Teethe*, *Breathe*, *Seethe*, and *Smooth*. The table demonstrates that a significant number of participants' productions rated as completely wrong responses to most of the words included in the study. For example, the productions of thirteen participants were evaluated as completely wrong responses to the word *Them* reaching 65%, while the productions of eighteen participants were rated as completely wrong responses to the word *Smooth* accounting for 95%.

Moreover, table 17 illustrates that a few productions of Hijazi participants were assessed as perfectly correct responses. For example, only seven responses (35%) were evaluated as perfectly correct responses to the word *Them*, while only one production (5%) was rated as a perfectly correct response to the word *Smooth*. Overall, the results of the study as shown in table 17 highlight the fact that the perception of the voiced dental fricative consonant sound was challenging for most Hijazi English learners, particularly when it comes in the final position. The majority of participants' productions in the study were rated as completely wrong responses to most of the words included, indicating a high level of difficulty in distinguishing between words that differ only in the presence or absence of this sound. The table shows that a few productions of participants were evaluated as perfectly correct responses.

The fourth phoneme tested was the voiced labiodental fricative /v/; the study tested the participants' ability to correctly pronounce /v/ in eighteen different words, including *Valley*, *Lover*, and *Move* in the three different positions: initial, middle and final. Table 18 below summarises the ratings of Hijazi Urban group's productions of the sound /v/ in the three positions:

Voiced Labiodental Fricative /v/													
Initial													
	Perfectly correct						**Completely wrong**						**Total**
Item	Voice	Vest	Video	Valley	Vine	Virus	Voice	Vest	Video	Valley	Vine	Virus	20
Rating / n (%)	18 (90)	17 (85)	18 (90)	18 (90)	17 (85)	18 (90)	2 (10)	3 (15)	2 (10)	2 (10)	3 (15)	2 (10)	
Middle													
	Perfectly correct						**Completely wrong**						**Total**
Item	River	Over	Lover	Level	Clover	Seven	River	Over	Lover	Level	Clover	Seven	20
Rating / n (%)	2 (10)	19 (95)	19 (95)	20 (100)	20 (100)	19 (95)	18 (90)	1 (5)	1 (5)	0 (0)	0 (0)	1 (5)	
Final													
	Perfectly correct						**Completely wrong**						**Total**
Item	Five	Dove	Shave	Love	Move	Above	Five	Dove	Shave	Love	Move	Above	20
Rating / n (%)	9 (45)	18 (90)	17 (85)	17 (85)	18 (90)	18 (90)	11 (55)	2 (10)	3 (15)	3 (15)	2 (10)	2 (10)	

Table 18: Ratings of the Productions of the Voiced Labiodental Fricative /v/ by the Hijazi Urban Group

Table 18 shows that the participants had varying degrees of accuracy in perceiving the /v/ sound in English. Out of the twenty participants, eighteen (90%) were able to produce the sound perfectly correct, while only two to three (10% and 15 %) produced it completely wrong. The table, for example, demonstrates that the word *Above* was most accurately perceived by 18 participants (90%) producing the sound perfectly correct. On the other hand, the word that was least accurately perceived was *River*; eighteen participants (90%) produced the sound completely wrong. The table shows that the results for the other words ranged from two participants (10%) producing the sound completely wrong for *Voice*, *Video*, *Valley*, *Virus*, *Over*,

Lover, *Level*, *Dove*, and *Move*, to three participants (15%) producing the sound completely wrong for *Seven*, *Vest*, *Vine*, *Shave* and *Love*.

Table 18 illustrates that the participants had more difficulty perceiving and producing the /v/ sound in some words than in others. For example, the words *River* seemed to be particularly challenging for the participants, as the majority of them produced the sound completely wrong. The words *Over*, *Lover*, *Level*, *Clover* and *Seven*, on the other hand, were the most accurately perceived, with almost all participants producing the sound perfectly correctly. The table shows that Hijazi were better in producing this phoneme when it came in the middle position of a word.

Like the Hijazi Urban participants, the Hwaiti Bedouin group comprises twenty people, whose productions of the same sounds in the same words were recorded. Table 19 below shows the results of the Hwaiti Bedouin group's productions of the phoneme /dʒ/:

The Voiced Post-alveolar Affricate /dʒ/													
Initial													
	Perfectly correct						**Completely wrong**						**Total**
Item	Jug	Jump	Jungle	Junk	Just	Jut	Jug	Jump	Jungle	Junk	Just	Jut	20
Rating / n (%)	19 (95)	19 (95)	19 (95)	19 (95)	19 (95)	19 (95)	1 (5)	1 (5)	1 (5)	1 (5)	1 (5)	1 (5)	
Middle													
	Perfectly correct						**Completely wrong**						**Total**
Item	Wager	Danger	Sager	Major	Pager	Ranger	Wager	Danger	Sager	Major	Pager	Ranger	20
Rating / n (%)	13 (65)	18 (90)	12 (60)	18 (90)	18 (90)	16 (80)	7 (35)	2 (10)	8 (40)	2 (10)	2 (10)	4 (20)	
Final													
	Perfectly correct						**Completely wrong**						**Total**
Item	Sage	Rage	Wage	Page	Cage	Age	Sage	Rage	Wage	Page	Cage	Age	20
Rating/	16	15	15	18	14	13	4	5	5	2	6	7	

n (%)	(80)	(75)	(75)	(90)	(7)	(65)	(20)	(25)	(25)	(10)	(30)	(35)

Table 19: Ratings of the Productions of the Voiced Post-alveolar Affricate /dʒ/ by the Hwaiti Bedouin Group

Table 19 provides the results of the Hwaiti Bedouin group's production of the voiced post-alveolar affricate sound /dʒ/. It shows that most participants were able to produce the /dʒ/ sound accurately, with a total of 19 (95%) participants producing seventeen out of the eighteen words perfectly correct. The highest percentage of perfectly correct responses was for pronouncing the words *Jug*, *Jump*, *Jungle*, *Junk*, *Just*, and *Jut*. Nineteen out of twenty (95%) participants produced these words accurately. The lowest percentage of perfectly correct responses was for the word *Sager* with 12 out of 20 (60%) participants producing it accurately. On the other hand, table 20 shows that there were some instances where participants produced the /dʒ/ sound incorrectly, resulting in the completely wrong category. For instance, one participant produced the word *Jug* as /ʒʌg/; another one produced *Jump* as /ʒʌmp/. However, the number of participants who fell into this category was relatively low, ranging from 1 (5%) to 8 (40%) across the eighteen words. Table 19 also demonstrates that the words *Wager* and *Sager* had the highest number of participants who produced the /dʒ/ sound incorrectly, reaching 7 (35%) and 8 (40%) participants, respectively. These percentages reveal that some words are more difficult for the participants to pronounce than others.

Furthermore, the table illustrates that there were no significant differences between initial, middle, and final positions in terms of accuracy. For example, the word *Age* had the same percentage of perfectly correct responses 10 (50%) like the word *Jungle*, which has the sound in initial position. These figures show that the position of the sound in the word may not necessarily affect its production accuracy. Overall, the results as shown in table 19 provides valuable insights into the ability of Hwaiti Beouin- English learners to produce the voiced post-alveolar affricate sound /dʒ/. While most participants were able to produce it accurately, there were some instances where it was produced incorrectly.

The second phoneme is the voiceless dental fricative /θ/. The words presented in the experiment including this phoneme are *Throw, Three, Thread, Think, Throat, Thick, Panther, Pathway, Toothpick, Something, Birthday, Truthful, Cloth, Truth, Fifth, Tooth, Month,* and *Bath*. Table 20 below shows the results of the Hwaiti Bedouin group's productions of the phoneme /θ/:

The Voiceless Dental Fricative /θ/													
Initial													
	Perfectly correct						**Completely wrong**						**Total**
Item	Throw	Three	Thread	Think	Throat	Thick	Throw	Three	Thread	Think	Throat	Thick	20
Rating / n (%)	20 (100)	19 (95)	19 (95)	20 (100)	19 (95)	19 (95)	0 (0)	1 (5)	1 (5)	0 (0)	1 (5)	1 (5)	
Middle													
	Perfectly correct						**Completely wrong**						**Total**
Item	Panther	Pathway	Toothpick	Something	Birthday	Truthful	Panther	Pathway	Toothpick	Something	Birthday	Truthful	20
Rating / n (%)	18 (90)	18 (90)	18 (90)	20 (100)	19 (95)	17 (85)	2 (10)	2 (10)	2 (10)	0 (0)	1 (5)	3 (15)	
Final													
	Perfectly correct						**Completely wrong**						**Total**
Item	Cloth	Truth	Fifth	Tooth	Month	Bath	Cloth	Truth	Fifth	Tooth	Month	Bath	20
Rating / n (%)	19 (95)	19 (95)	16 (80)	20 (100)	20 (100)	20 (100)	1 (5)	1 (5)	4 (20)	0 (0)	0 (0)	0 (0)	

Table 20: Ratings of the Productions of the Voiceless Dental Fricative /θ/ by the Hwaiti Bedouin Group

Table 20 provides the results of the students' production of the voiceless dental fricative sound /θ/. It shows that the Hwaiti Bedouin group's productions of eighteen words containing

this sound in initial, middle, or final position were examined. The participants' responses were categorised into two groups: completely wrong and perfectly correct. The table also includes the number and percentage of participants into each category for each word. The table demonstrates that most participants were able to produce the /θ/ sound accurately, with a total of 19 (95%) participants producing it perfectly correct for 16 out of the 18 words. The highest percentage of perfectly correct responses was for the words *Throw*, *Think*, *Toothpick*, *Something*, *Bath*, *Month*, and *Truth*, as all the twenty participants produced them accurately. The lowest percentage of perfectly correct responses was for the word *Fifth*, with 16 out of 20 (80%) participants producing it accurately.

On the other hand, table 20 shows that some participants produced the /θ/ sound incorrectly, resulting in the completely wrong category. For example, one participant produced the word *Three* as /ðri/, substituting the voiceless dental fricative /θ/ with its voiced counterpart [ð]; another participant produced *Thick* as /tik/, substituting the voiceless dental fricative /θ/ with the voiceless alveolar stop [t]. However, the number of participants who fell into this category was relatively low, ranging from 0 to 4 (20%) across the eighteen words. With reference to the words individually, the table illustrates that some words were more challenging for participants than others. For example, the words *Truthful* and *Fifth* were produced incorrectly by 3 (15%), and 4 (20%) participants, respectively. In terms of the position of the /θ/ sound in the word, there were no significant differences between initial, middle, and final positions in terms of accuracy. For example, the word *Birthday* had the same percentage of perfectly correct responses (19, or 95%) like the word *Throw*, which has the sound in initial position. This reveals that the position of the sound in the word might not necessarily affect its production accuracy.

The third phoneme is the voiced dental fricative /ð/. The words presented in the experiment for this phoneme are *Them*, *These*, *The*, *Then*, *Though*, *There*, *Brother*, *Mother*, *Father*, *Gather*, *Another*, *Clothing*, *With*, *Loathe*, *Teethe*, *Breathe*, *Seethe*, and *Smooth*. Table 21 below shows the results of the Hwaiti Bedouin group's productions of the phoneme /ð/:

Voiced Dental Fricative /ð/													
Initial													
	Perfectly correct						**Completely wrong**						**Total**
Item	Them	These	The	Then	Though	There	Them	These	The	Then	Though	There	20
Rating / n (%)	16 (80)	19 (95)	20 (100)	20 (100)	5 (25)	17 (85)	4 (20)	1 (5)	0 (0)	0 (0	15 (75)	3 (15)	
Middle													
	Perfectly correct						**Completely wrong**						**Total**
Item	Brother	Mother	Father	Gather	Another	Clothing	Brother	Mother	Father	Gather	Another	Clothing	20
Rating / n (%)	18 (90)	20 (100)	17 (85)	17 (85)	20 (100)	13 (65)	2 (10)	0 (0)	3 (15)	3 (15)	0 (0)	7 (35)	
Final													
	Perfectly correct						**Completely wrong**						**Total**
Item	With	Loathe	Teethe	Breathe	Seethe		With	Loathe	Teethe	Breathe	Seethe	Smooth	20
Rating / n (%)	18 (90)	18 (90)	1 (5)	1 (5)	0 (0)	2 (10)	2 (10)	2 (10)	19 (95)	19 (95)	20 (100)	18 (90)	

Table 21: Ratings of the Productions of the Voiced Dental Fricative /ð/ by the Hwaiti Bedouin Group

Table 21 shows that all participants pronounced the words *The*, *Then*, *Mother*, and *Another* as perfectly correct, while they all pronounced the word *Seethe* as completely wrong. The table also demonstrates that nineteen participants pronounced the words *Teethe* and *Breathe* as completely wrong. Additionally, it shows that two participants were rated that they uttered

the words *Brother, With,* and *Loath* as completely wrong. On the other hand, the table reveals that the words *Teethe, Breathe, Seethe,* and *Smooth* received lower ratings of perfectly correct indicating that these words might be particularly challenging for most speakers. Overall, the results shown in table 21 illustrates that the participants had varying degrees of difficulty in pronouncing the voiced dental fricative sound in some English words. It highlights the words *Though, Teethe, Breathe, Seethe,* and *Smooth* as challenging for most participants. The majority of participants were able to correctly pronounce most of the words, with only a small percentage (less than 25%) reporting that they pronounced any of the words completely wrong.

The fourth sound is the voiced labiodental fricative /v/, which is also presented in eighteen words that contained it in initial, middle, and final positions. Table 22 below shows the results of the Hwaiti Bedouin group's productions of the phoneme /v/:

Voiced Labiodental Fricative /v/													
Initial													
	Perfectly correct						**Completely wrong**						**Total**
Item	Voice	Vest	Video	Valley	Vine	Virus	Voice	Vest	Video	Valley	Vine	Virus	20
Rating / n (%)	10 (50)	12 (60)	14 (70)	16 (80)	12 (60)	12 (60)	10 (50)	8 (40)	6 (30)	4 (20)	8 (40)	8 (40)	
Middle													
	Perfectly correct						**Completely wrong**						**Total**
Item	River	Over	Lover	Level	Clover	Seven	River	Over	Lover	Level	Clover	Seven	20
Rating / n (%)	18 (90)	18 (90)	18 (90)	18 (90)	18 (90)	15 (75)	2 (10)	2 (10)	2 (10)	2 (10)	2 (10)	5 (25)	
Final													
	Perfectly correct						**Completely wrong**						**Total**
Item	Five	Dove	Shave	Love	Move	Above	Five	Dove	Shave	Love	Move	Above	20

Rating/ n (%)	1 (5)	12 (60)	10 (50)	19 (95)	16 (80)	10 (50)	19 (95)	8 (40)	10 (50)	1 (5)	4 (20)	10 (50)	

Table 22: Ratings of the Productions of the Voiced Labiodental Fricative /v/ by the Hwaiti Bedouin Group

Table 22 shows that the percentages of completely wrong responses ranged between 10% and 50% across the different words, while the percentage of perfectly correct responses ranged between 5% and 95%. It reveals that the word *Video* had the highest percentage of completely wrong responses reaching 30% and the lowest percentage of perfectly correct responses accounted for 70%, highlighting participants' difficulty in producing this word. On the other hand, the table demonstrates that the word *Love* had the highest percentage of perfectly correct responses (95%), and the lowest percentage of completely wrong responses was 5%, emphasising the easiness of this word for the participants to utter.

Table 22 also illustrates that the Hwaiti Bedouin participants were generally better at identifying the /v/ sound when it occurred in middle positions compared to initial positions. For example, they had a relatively low percentage of completely wrong responses (25%) and a relatively high percentage of perfectly correct responses (75%) in pronouncing the word *Seven*. Overall, the results shown in the table reveal that distinguishing this voiced fricative sound is not always easy for listeners to make, particularly when the sound occurs in initial positions.

5.3 Inferential Statistics

This section presents the inferential statistics of the data collected to answer the three research questions; the statistical analyses and graphical presentation of the results were performed using R (R Core Team, 2021) in RStudio (2020). R is a free software environment for statistical computing and graphics.

5.3.1 Analysis of Data on the Productions of the Sounds

The statistical significance of differences in the sound production between Hwaiti Bedouin and Hijazi Urban groups was assessed using two-tailed Chi square tests; P values of 0.05 were considered significant. Table 23 below shows the results related to the first research question

inquiring the way in which Hwaiti Bedouin and Hijazi Urban students produce the English consonant sounds /ʤ/, /θ/, /ð/, and /v/:

Sound/ Rating	**Hijazi Urban n=1440 (50%)**	**Hwaiti Bedouin n=1440 (50%)**	**P-value**	**Degree of freedom (df)**
1. Voiced post-alveolar affricate /ʤ/, n (%) Completely wrong	176 (12.2)	60 (4.7)	**<0.01**	1
Perfectly correct	184 (12.8)	300 (20.8)		
2. Voiceless dental fricative /θ/, n (%) Completely wrong	137 (9.5)	20 (1.4)	**<0.01**	1
Perfectly correct	255 (17.7)	340 (23.6)		
3. Voiced dental fricative /ð/, n (%) Completely wrong	255 (17.7)	118 (8.2)	**<0.01**	1
Perfectly correct	105 (7.3)	242 (8.6)		
4. Voiced labiodental fricative /v/, n (%) Completely wrong	58 (4.00)	111 (7.7)	0.27	1
Perfectly correct	302 (20.9)	249 (17.3)		

Table 23: The Statistical Analysis of the Hwaiti Bedouins' and Hijazi Urbans' Sound Productions

Table 23 shows the distribution of responses to four different speech sounds in two groups of participants: the Hijazi Urban group and the Hwaiti Bedouin group. It displays the numbers and percentages of participants' productions which were rated as completely wrong or perfectly correct responses for each of the selected four speech sounds. Table 23 also includes the p-value and the degrees of freedom (df) for each speech sound; it demonstrates that the first speech sound in the experiment is the voiced post-alveolar affricate /ʤ/. In the Hijazi Urban group, 176 productions were judged as completely wrong responses reaching 12.2%, while 184 productions were judged as perfectly correct responses accounting for (12.8%). In the Hwaiti

Bedouin group, 60 productions (4.7%) were rated as completely wrong responses, while 300 productions (20.8%) were rated as perfectly correct responses. The two-tailed Chi square test indicated that there was a significant difference between the two groups in how correct their pronunciation was rated to be (X^2 (1, N =1440) =83.3, p <.01). Therefore, the Hwaiti Bedouin group was judged to pronounce this sound more correctly than the Hijazi group.

The second speech sound in table 24 is the voiceless dental fricative /θ/. In the Hijazi Urban group, 137 productions (9.5%) were judged as completely wrong, while 223 productions (15.5%) were rated as perfectly correct. In the Hwaiti Bedouin group, 20 productions (1.4%) were rated completely wrong, while 340 productions (23.6%) were rated as perfectly correct responses. The two-tailed Chi square test indicated that there was a significant difference between the two groups in how correct their pronunciation was rated to be ***(X^2*(1, N =1440) =109.6, p <.01)**. Therefore, the Hwaiti Bedouin group was judged to pronounce this sound more correctly than the Hijazi group.

The third speech sound in the table is the voiced dental fricative /ð/. In the Hijazi Urban group, 255 productions (17.7%) were evaluated as completely wrong responses, while 105 productions (7.3%) were evaluated as perfectly correct responses. In the Hwaiti Bedouin group, 118 productions (8.2%) were rated as completely wrong responses, while 242 productions (16.8%) were evaluated as perfectly correct responses. The two-tailed Chi square test illustrated that there was a significant difference between the two groups in how correct their pronunciation was rated to be ***X^2*(1, N =1440) =102.8, p <.01**). Therefore, the Hwaiti Bedouin group was judged to pronounce this sound more correctly than the Hijazi group.

The fourth speech sound in the table is the voiced labiodental fricative /v/. In the Hijazi Urban group, 58 productions (4.00%) were evaluated as completely wrong responses, while 302 productions (20.9%) were assessed as perfectly correct responses. In the Hwaiti Bedouin group, 111 productions (7.7%) were assessed as completely wrong responses, while 249 productions (17.3%) were rated as perfectly correct responses. The two-tailed Chi square test indicated that

there was a significant difference between the two groups in how correct their pronunciation was rated to be **(X^2(1, N =1440) =20.9, p <.01)**. Therefore, the two groups show similar results concerning their production of this phoneme.

In summary, table 23 shows that there are significant differences in the responses of the two groups for the first three speech sounds /ʤ/, /θ/, and /ð/. Furthermore, the Hwaiti Bedouin group was rated as pronouncing /ʤ/, /θ/, and /ð/ sounds more correctly than Hijazi group; however, there is no significant difference of the proportion of voiced labiodental fricative sound /v/ when the two groups were compared.

The median ratings of the two groups are compared and presented in graphs. Each graph presents the median percentage for perfectly correct and completely wrong ratings for each sound individually. Figure 21 below shows the median ratings of the two groups' productions of the sound /ʤ/.

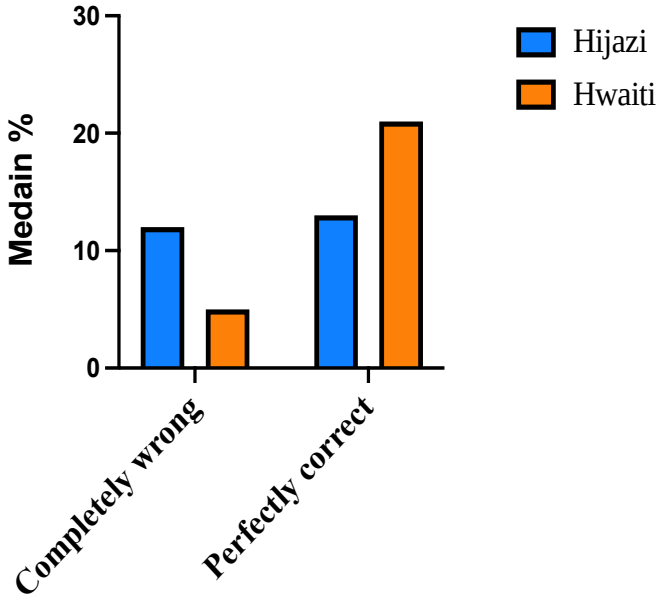

Figure 21: The Median Ratings of the Two Groups' Productions of the Sound /ʤ/

Figure 21 demonstrates the median ratings of the productions of Hijazi Urban and Hwaiti Bedouin speakers of the voiced post-alveolar affricate /ʤ/, showing that the Hijazi Urban speakers pronounced 12.2% of the data completely wrong in comparison to the Hwaiti Bedouin

speakers, whose percentage was about 4%. On the other hand, the median percentage shown in the above graph indicates that Hijazi speakers are perfectly correct of about 12.8% of the data, while Hwaiti Bedouin speakers are about 21% of the data. Overall, the median of the perfectly correct responses was higher for the Hwaiti Bedouin group compared to Hijazi. Figure 22 below shows the median ratings of the two groups' productions of the sound /θ/:

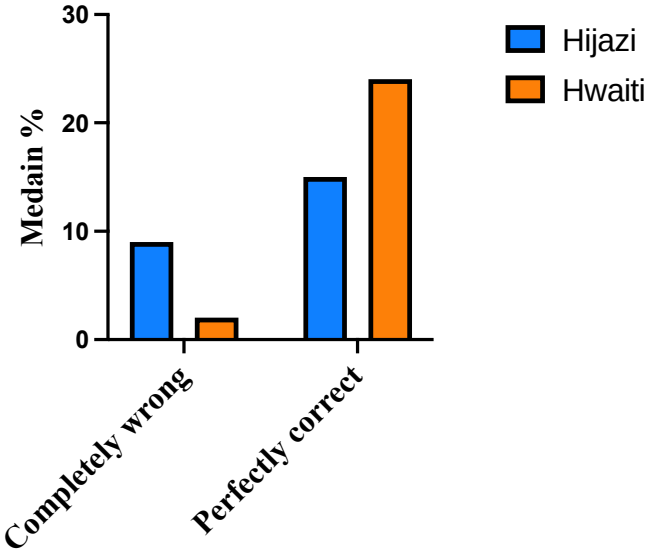

Figure 22: The Median Ratings of the Two Groups' Productions of the Sound /θ/

Figure 22 presents the median ratings of the voiceless dental fricative /θ/ amongst Hijazi Urban and Hwaiti Bedouin speakers. It shows that the Hijazi Urban group produced about 9% of the data completely wrong, whereas the Hwaiti Bedouin group uttered about 1% of the data completely wrong. While the median shown in the above graph illustrates that the Hijazi Urban group is perfectly correct of about 15% of the data, the Hwaiti Bedouin group is about 23% of the data. In general, the median of perfectly correct answers was higher for Hwaiti Bedouin speakers compared to Hijazi Urban participants; hence, there is significant difference in the production of /θ/ sound between the two groups. Figure 23 below shows the median ratings of the two groups' productions of the sound /ð/:

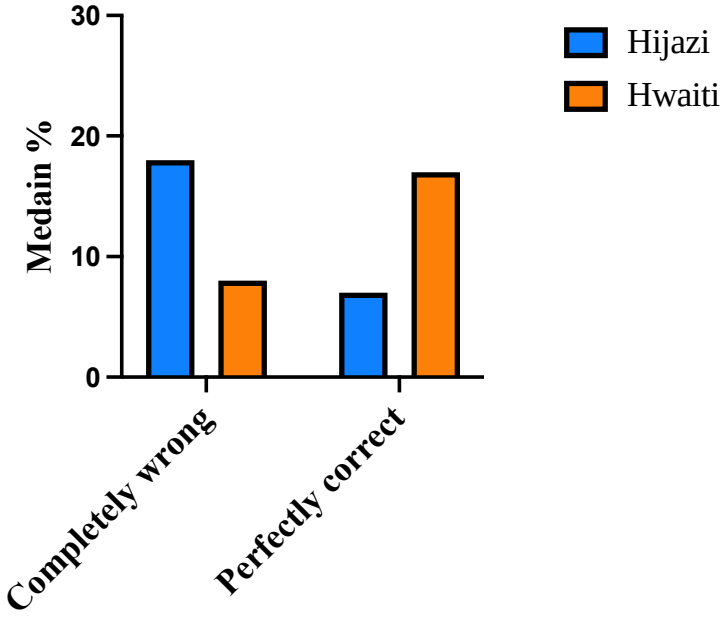

Figure 23: The Median Ratings of the Two Groups' Productions of the Sound /ð/

The median of Voiced dental fricative/ð/ shown in the above graph points that Hijazi Urban group is completely wrong of about 17% of the data, whilst Hwaiti Bedouin group is about 8% of the data. In regard to the perfectly correct answers, the median shows that Hijazi Urban is perfectly correct of about 7% of the data while Hwaiti Bedouin is about 16% of the data. A higher rate of wrong pronunciation ratings was from Hijazi Urban speakers, showing that the Hwaiti Bedouin group was better at producing this phoneme than the Hijazi Urban participants. Figure 24 below shows the median ratings of the two groups' productions of the sound /v/:

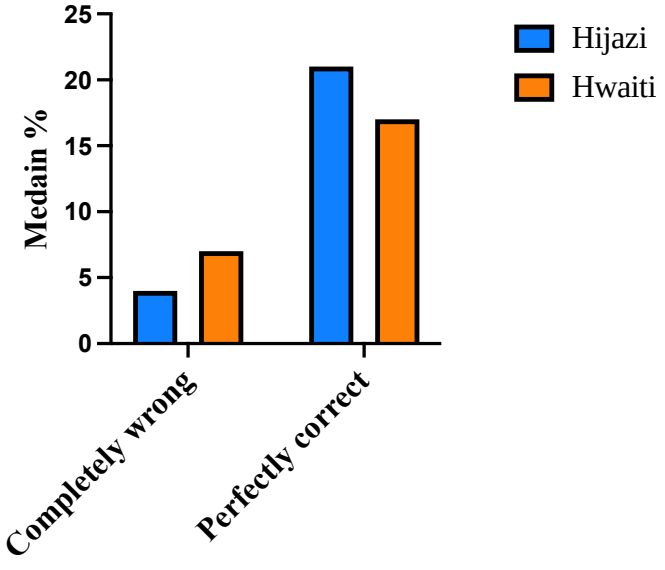

Figure 24: The Median Ratings of the Two Groups' Productions of the Sound /v/

Figure 24 shows that the Hijazi Urban group is completely wrong of about 4% of the data and Hwaiti Bedouin is about 7% of the data. As for the median of perfectly correct responses for each group, the above graph shows that the Hijazi Urban group is perfectly correct of about 21% of the data, and the Hwaiti Bedouin group is perfectly correct of about 17% of the data. Generally, in terms of the completely wrong and perfectly correct responses of this sound, there is a slight difference between Hijazi Urban and Hwaiti Bedouin speakers of about 2%.

5.3.2 Analysis of Data on the Effect of the Position of the Phoneme on the Productions of the Sounds

The second research question is aimed to investigate the effect of the phoneme position on the participants' productions of the English phonemes /ʤ/, /θ/, /ð/, and /v/. In order to answer this question, a mixed-effect model was run using R (R Core Team, 2021) in RStudio (2021). The mixed effect model is a statistical schema containing both fixed effects and random effects. In this study, the fixed effects were sounds, position of a phoneme (initial or middle of a word), and speaker dialect, whereas the random effects were participants and items. Furthermore, the data includes dichotomous dependent variable (i.e. rating), which has two levels: perfectly correct and completely wrong. The Ime4 package was used to run the mixed-effect model. The results are presented in terms of estimates[6], standard errors (SE), z-scores, and p-values.

Earlier conducting the mixed effect model, I tried to identify the reference level[7] for sounds and positions in order to collect data to answer the second question. I chose the /v/ sound

[6] A positive estimate reflects a positive association between the independent variables and the dependent variable when the levels of all other independent variables are kept constant which indicting an increased the impact of the word position on the production of the four English phenomes. A negative estimate reflects a negative association between the independent variables and the dependent variable when the levels of all other independent variables are kept constant which indicates a decreased impact of word position on the production of the four English phenome.

[7] The reference level was selected based on the significant of phenome position and the sound production.

to be the reference level of sounds; this choice is based on the result of RQ 1 (table 24) that showed that there were significant differences between the two groups in producing the sounds /ʤ/, /θ/, and /ð/, but not the /v/ sound. As for the phenome position that has three levels (Initial, Middle and Final), I compared the phonemes positions of the four given sounds between the two groups using Chi-square test (see Appendix P). The outcome showed that there is no significant difference in the proportion of the phenome position of /θ/, /ð /and /v/ sounds between the two groups, except with middle post-alveolar affricate /ʤ/. Further, the proportion of the final position was lower in the voiced dental fricative /ð/ for the two groups compared to the positions of the other sounds: /ʤ/, /θ/, and /v/. For this reason, the final position was chosen as the reference level of phoneme position. Using the mixed effect model statistical analysis, an initial model was designed to identify the effect of the phoneme position on the participants' productions.

Then a second model was utilised to justify breaking the initial model down into another analysis. I tried to change the reference level in each model to identify the most significant differences between the two groups. In model 1 and 2, the sound reference was /ð/ and /v/, while the phoneme position reference was final and middle, respectively (see Appendix N & O). A third model was designed, in which the reference level was /v/ as a sound and 'Final' as a phoneme position (table 25). Interestingly, when the sound was changed to /v/ and phenome position was changed to 'Final' as reference levels in model 3 (table 25), the result was easy to explain and the impact of phoneme position on the English sound production was clear. Table 24 below presents the results of the mixed-effect model used to identify the impact of the position of a phoneme on the participant's production:

Characteristics	Estimate	SE	z	P-value
Speaker dialect group **1. Hijazi Urban** Sound/ð/	-3.54	0.38	-9.18	**<0.001**
Sound/ʤ/	-1.57	0.32	-4.79	**<0.001**

Sound/θ/	-1.61	0.32	-4.90	**<0.001**
Phoneme Middle	2.00	0.57	3.47	**<0.001**
Phoneme Initial	0.61	0.39	1.57	0.11
Sound/ð/: Middle phoneme	-0.64	0.67	-0.95	0.34
Sound/ʤ/: Middle phoneme	-3.83	0.67	-5.69	**<0.001**
Sound/θ/: Middle phoneme	-1.93	0.64	-2.98	**0.002**
Sound/ð/: Initial phoneme	0.58	0.53	1.09	0.27
Sound/ʤ/: Initial phoneme	1.49	0.53	2.79	**0.005**
Sound/θ/: Initial phoneme	0.67	0.50	1.33	0.18
2. Hwaiti Bedouin Sound/ð/	-2.45	0.77	-3.16	**0.001**
Sound/ʤ/	0.89	0.73	1.21	0.22
Sound/θ/	3.56	0.87	4.07	**<0.001**
Phoneme Middle	2.10	0.76	2.74	**0.006**
Phoneme Initial	0.31	0.72	0.44	0.66
Sound/ð/: Middle phoneme	3.09	1.14	2.71	**0.006**
Sound/ʤ/: Middle phoneme	-1.58	1.06	-1.49	0.13
Sound/θ/: Middle phoneme	-2.97	1.19	-2.48	**0.01**
Sound/ð/: Initial phoneme	4.03	1.09	3.66	**<0.001**
Sound/ʤ/: Initial phoneme	2.09	1.10	1.88	**0.05**
Sound/θ/: Initial phoneme	-0.01	1.24	-0.01	0.98

Table 24: The Results of the Mixed-effect Model

Table 24 provides the results of the experiment, mainly the examination of the dialectal differences in the pronunciation of three sounds in the Hijazi Urban and Hwaiti Bedouin groups. Further, it shows the effect of the position of the sounds (initial or middle of a word) on the participants' productions of the given sounds. The mixed-effects model results for the "Hijazi Urban" group reveal substantial insights into the impact of word position on the production of English phonemes. Notably, the /ð/ sound exhibits a significant decrease with an estimate of -3.54 (p-value < 0.001), suggesting that individuals from the "Hijazi Urban" group produce this sound less frequently than the Hwaiti Bedouin group. This emphasizes the robust statistical significance of this finding. Similarly, the /ʤ/ sound shows a significant decrease with an estimate of -1.57 (p-value < 0.001), and the /θ/ sound experiences a significant decrease with an estimate of -1.61 (p-value < 0.001). These estimates underscore distinct phonemic patterns within the "Hijazi Urban" group compared to the Hwaiti Bedouin group, with the associated p-values emphasizing the reliability and statistical significance of these phonemic distinctions.

The analysis further investigates how the position of a phoneme within a word (Middle vs. Initial) influences its production. For Hijazi Urban group, the results show that the sound /ð/ is less likely to occur in the middle of a word compared to the beginning (estimate -0.64, z-score = 0.95, p-value 0.34). The same pattern is observed for the sound /ʤ/ and /θ/ (estimate = -3.83 and -1.93, p-value <0.01 and 0.002 respectively). However, these differences are only significant for /ʤ/ and /θ/ in the middle position, but not for /ð/.

Regarding the effect of a specific phoneme compared to another, table 24 demonstrates that the sound /ð/ is less likely to occur in the phoneme middle compared to other sounds /ʤ/ and /θ/, but only in the initial position (estimate = 1.49 and 0.67, z-score = 2.79 and 1.33, p-value < 0.005 and 0.18, respectively). The sound /ʤ/ is significantly less likely to occur in the phoneme middle compared to sound /θ/, but only in the middle position (estimate = -3.83, -1.93, z-score = -5.69, -2.98, p-value = <0.001, 0.002, respectively).

In contrast, the results from the mixed-effects model analysis for the "Hwaiti Bedouin" group offer valuable insights into how the placement of words affects the pronunciation of English sounds. Specifically, the estimates highlight unique patterns for different sounds within this group. There is a noticeable decrease in the production of the /ð/ sound, indicated by an estimate of -2.45 and a p-value of 0.001. On the contrary, there is a significant and substantial increase in the production of the /θ/ sound, reflected by an estimate of 3.56 and a highly significant p-value of less than 0.001, when compared to the Hijazi Urban group. This is suggesting that individuals from the Hwaiti Bedouin group produce this sound more frequently than the Hijazi Urban group.

Concerning the exploration of the impact of the position of phonemes within words, table 24 shows that the sound /ð/ is significantly less likely to occur in the middle of a word compared to the beginning (estimate = 3.09, 4.03, z-score = 2.71, 3.66 p-value = 0.006, <0.001). The same is observed for the sound /θ/ (estimate = -2.97, -0,01 z-score = -2.48, -0.01 p-value 0.01, 0.98), but this result is significant only in the middle position. As for sound /ʤ/, it is significantly more likely to occur in initial position (2.09 z=1.88 p-value=0.05).

As for the effect of a specific phoneme compared to another, the results show that the sound /ð/ is significantly more likely to occur in the phoneme middle compared to sound /ʤ/ in initial position, and /θ/ in middle position (estimate = 3.09, 2.09, and-2.97 z-score = 2.71, 1.88 and -2.48, p-value = 0.006. 0.05 and 0.01, respectively). Also, the sound /θ/ is significantly less likely to occur in the middle position (estimate = -2.97, z-score = -2.48, p-value 0.01), compared to sound /ð/ for both positions: middle and initial (3.09, 4.03 z=2.71, 3.66 p-value = 0.006, <0.001), and sound /ʤ/ for the initial position only (2.09 z =1,88 p-value = 0.05). The sound /ʤ/ is more likely to occur in the phoneme initial compared to /θ/ for both positions: middle and initial (estimate = 2.09, -2.97 and -0.01 z-score = 1.88, -2.48, and -0.01 p-value = 0.05, 0.01 and 0.98). However, this result is significant with /θ/ phoneme middle only. The sound /θ/ is

significantly less likely to occur in the phoneme middle compared to other phonemes for both positions (estimate = -2.97, z-score = -2.48 and p-value 0.01).

Overall, the results suggest that there are significant dialectal differences in the pronunciation of certain sounds and their position in words. In particular, at the level of the specific sounds, the two groups show significant differences when producing /ð/ and /θ/; however, /ʤ/ sound was statistically significant for Hijazi group compared to the Hwaiti Bedouin group. As for the occurrence of these specific phonemes in specific positions, the Hijazi Urban dialect group shows significant differences in the position of /ʤ/ and /θ/ sounds, while the Hwaiti Bedouin dialect group only shows significant differences in the position of /ð/ and /θ/. Both Hijazi Urban and Hwaiti Bedouin speakers are more likely to use the sound/ð/ in the middle position compared to the other phonemes /ʤ/ and /θ/; however, Hwaiti group was more likely to use /ð/ in the initial and middle positions than the Hijazi group.

Furthermore, Hijazi Urban speakers are less likely to use the sound /ʤ/ in the middle position compared to the Hwaiti Bedouin speakers. As for the sound /θ/, Hwaiti Bedouin speakers are significantly less likely to use /θ/ in the middle compared to Hijazi speakers. Furthermore, Hijazi Urban speakers are more likely to use it in the initial position compared to Hwaiti Bedouin speakers, but this result is not significant. In conclusion, the study provides a detailed look at how different speaker groups pronounce certain English sounds, shedding light on the diversity within language. The findings contribute to our understanding of linguistic variations without implying any judgments about which way of speaking is better or worse.

5.3.3 Analysis of Data on the Effect of the Consonantal Variation in the Speakers' Dialects on their Productions of the Sounds

In this section, the results linked to the third research question are presented. The research question inquired whether or not the Hwaiti Bedouin and Hijazi Urban speakers are affected in their pronunciation of the English phonemes /ʤ/, /θ/, /ð/, and /v/ by the Arabic variants used in their own dialect consonant inventory. For this purpose, the participants were recorded reading word lists in Arabic that included these sounds. The statistical significance of differences in the

sound production between Hwaiti Bedouin and Hijazi Urban groups were assessed using two-tailed Chi square tests. P values of 0.05 were considered significant. After presenting the results of the speakers' Arabic variants productions, I introduced the number and percentage of speakers who produced the English phonemes /ʤ/, / θ/, /ð/, and /v/ (see table 26).

The study analysed the two groups' productions of four Arabic phonemes: /ʒ/, /θ/, /ð/, and /f/ to make sure that the Hijazi Urban speakers and Hwaiti Bedouin speakers are using the common Arabic variants of the four Arabic phonemes. This analysis was also required to guarantee that their productions exist in their own dialects: Urban Arabic dialect and Bedouin Arabic dialect. Table 25 below presents the results of comparing the productions of Arabic phoneme variants produced by the two groups of participants: Hijazi Urban (n=1440) and Hwaiti Bedouin (n=1440):

SA Phoneme	**Arabic Variants of a phoneme**	**Hijazi Urban n=1440**	**Hwaiti Bedouin n=1440**	**P-value**
1- / ʒ /, n (%)	[ʒ]	360 (25.00)	0 (0.0)	NA
	[ʤ]	0 (0.0)	360 (25.00)	
	[g]	0 (0.0)	0 (0.0)	
2- /θ/, n (%)	[θ]	0 (0.0)	360 (25.00)	**<0.001**
	[t]	249 (17.29)	0 (0.0)	
	[s]	111 (7.70)	0 (0.0)	
3- /ð/, n (%)	[ð]	0 (0.0)	319 (22.15)	**<0.001**
	[z]	176 (12.22)	0 (0.0)	
	[d]	184 (12.77)	0 (0.0)	
	[θ]	0 (0.0)	41 (2.84)	
4- / f /, n (%)	[f]	360 (25.00)	360 (25.00)	1

Table 25: The Productions of Arabic Phoneme Variants Produced by the Two Groups

Table 25 displays the Arabic variants of each phoneme produced by speakers in the two groups, the number and percentage of speakers who produced each variant, and the P-value of the statistical significance of the differences between the two groups. The table shows that all speakers in the Hwaiti Bedouin group produced the first phoneme, /ʒ/ as [ʤ], the same variant

of the phoneme. In contrast, it demonstrates that all the speakers in the Hijazi Urban group produced the [ʒ] variant. It can be seen that none of both groups produced the [g] variant. The P-value indicates that there is a significant difference between the two groups regarding the production of the /ʒ/ phoneme. Furthermore, regarding the second phoneme, /θ/, the table reveals that none of the speakers in the Hijazi Urban group produced the [θ] variant, while all speakers in the Hwaiti Bedouin group did. The majority of speakers in Hijazi group produced either [t] or [s] variants. The P-value shows that there is a significant difference between the two groups in terms of the production of the /θ/ phoneme.

Concerning the third phoneme, /ð/, table 25 demonstrates that none of the speakers in the Hijazi Urban group produced the [ð] variant, while 22.15% of the speakers in the Hwaiti Bedouin group did. The majority of speakers in Hijazi Urban group produced either [z] or [d] variants, with a similar percentage for each variant. Unlike Hijazi group, none of the Hwaiti Bedouin speakers produced [z] or [d] variants, and instead only 2.84 % of them produced the [θ] variant. The P- value indicates that there is a significant difference between the two groups in terms of the production of the /ð/ phoneme. The table also illustrates that all speakers in both groups produced the fourth and final phoneme /f/ as the variant of the phoneme [f]. The P-value indicates that there is no significant difference between the two groups regarding the production of the /f/ phoneme.

In conclusion, the table highlights the differences and similarities between the Arabic phoneme variations produced by speakers in the Hijazi Urban and Hwaiti Bedouin groups. The results of the study illustrate that there are significant differences between the two groups regarding the production of the /ʒ/, /θ/, and /ð/ phonemes in Arabic, while there are no significant differences regarding the production of the /f/ phoneme. These differences explain the differences attested in the two groups' English pronunciations of the phonemes /ʤ/, /θ/, /ð/, and /v/.

After analysing the productions of the Arabic words pronounced by the two groups, I examined their pronunciation of the English phonemes. Table 26 below provides the results of

comparing the productions of the four phonemes /ʤ/, /θ/, /ð/, and /v/ by the two groups of participants: Hijazi Urban (n=1440) and Hwaiti Bedouin (n=1440):

Participants' Productions	**Hijazi Urban n=1440**	**Hwaiti Bedouin n=1440**	**P-value**	**Degree of freedom (df)**
1. /ʤ/, n (%)				
[ʤ] correct	184 (12.77	297 (20.62)	**0.03**	2
[g]/[ʒ] expected WA	176 (12.22)	62 (4.30)		
[k] unexpected WA	0 (0.0)	1 (0.06)		
2. /θ/, n (%)				
[θ] correct	211 (14.65)	340 (23.61)	**0.02**	1
[t]/[s]/Deletion expected WA	140 (9.72)	10 (0.69)		
[ð]/[p]/[z]/[l] unexpected WA	9 (0.62)	10 (0.69)		
3. /ð/, n (%)				
[ð] correct	101 (7.01)	230 (15.97)	0.42	1
[z]/[d]/Deletion expected WA	190 (13.19)	1 (0.06)		
[s]/[t]/[θ]/[b] unexpected WA	69 (4.79)	129 (8.95)		
4. /v/, n (%)				
[v] correct	319 (22.15)	250 (17.36)	0.09	1
[f] expected WA	41 (2.88)	110 (7.63)		

Table 26: Results of the Levels of Expectedness of the Hijazi and Hwaiti Students' Productions of the Selected Sounds

Table 26 displays the frequency of correct productions of each phoneme by each group, as well as the frequency of the [8]expected and [9]unexpected phonetic variants of each phoneme. A p-value is also given for each phoneme to indicate the statistical significance of the difference between the two groups. In regard to the voiced post alveolar affricate /ʤ/ sound, the results

[8] The expected wrong answers for the /ʤ/ sound are: [ʒ] or [g]; the expected wrong answers for the /θ/ sound are: [t], [s], or deletion; the expected wrong answers for the /ð/ sound are: [z], [d], or deletion, and finally the expected wrong answer for the /v/ sound is [f] only.

[9] The unexpected wrong answers for the /ʤ/ sound are: [k]; the unexpected wrong answers for the /θ/ sound are: [ð], [p], [z], and [l]; the unexpected wrong answers for the /ð/ sound are: [s], [t], [θ], [b], and finally the participants did not produce unexpected answers for the sound /v/.

show that Hawiti group produced /ʤ/ sound correctly at higher frequencies than Hijazi group (12.77% for Hjazi urban and 20.62 % for Hwaiti Bedouin). However, Hijazi Urban participants produced the expected WA (/g/ or /ʒ/) more frequently than Hwaiti Bedouin participants (12.22% vs. 4.30%). This difference is considerably significant $\boldsymbol{X^2}$(2, N=1440) =6.98, p<.03.

Concerning the voiceless dental fricative /θ/ sound, Hwaiti Bedouin group produced the correct /θ/ sound relatively more frequently than Hijazi group (14.65% for Hijazi Urban and 23.61% for Hwaiti Bedouin). However, Hijazi Urban participants produced the expected WA (/t/, /s/, or deletion) more frequently than the Hwaiti Bedouin participants (9.72% vs. 0.69%). This difference is also statistically significant $\boldsymbol{X^2}$(1, N=1440) =5.19, p<.02. As for the voiced dental fricative /ð/ sound, Hwaiti Bedouin group produced the correct /ð/ sound at relatively higher frequencies than Hijazi group (7.01% for Hijazi Urban and 15.97% for Hwaiti Bedouin). However, the Hwaiti Bedouin participants produced the expected WA (/z/, /d/, or deletion) less frequently than Hijazi Urban participants (0.06% vs. 13.19%). This difference is not statistically significant $\boldsymbol{X^2}$(1, N=1440) =0.68, p<.42.

In the fourth sound /v/, both groups produced the correct /v/ sound at similar frequencies (22.15% for Hijazi Urban and 17.36% for Hwaiti Bedouin). Hwaiti Bedouin participants produced the expected WA /f/ more frequently than Hijazi Urban participants (7.63% vs. 2.88%). This difference is not statistically significant $\boldsymbol{X^2}$(1, N=1440) =2.91, p<.09. Overall, the results suggest that there are some differences in the production of these phonemes between the two groups, with Hijazi Urban participants exhibiting more expected WA in some cases and less in others. However, the differences are not consistent across all phonemes and not all of them are statistically significant.

The levels of expectedness of the productions of the selected sounds by Hijazi Urban and Hwaiti Bedouin groups are presented in graphs. Each graph presents a specific sound. Figure 30 below shows the levels of expectedness of the two groups' productions of the sound /ʤ/:

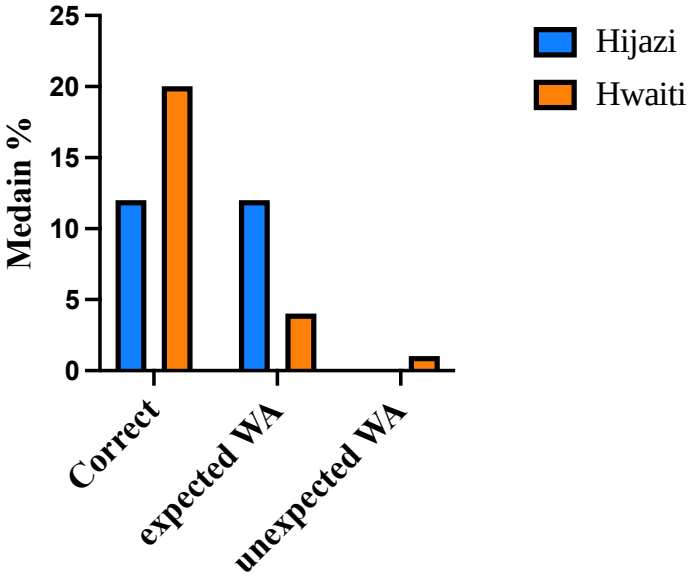

Figure 25: The Levels of Expectedness of the Hijazi and Hwaiti Students' Productions of the Sound /ʤ/

Figure 25 shows that the median percentage of the Hijazi Urban speakers, who correctly pronounced the target sound /ʤ/ was about 12%. The median of Hijazi Urban speakers, who gave expected wrong pronunciation was about 11% compared to 0% of Hijazi Urban speakers, who gave unexpected wrong pronunciation. On the other hand, the graph shows that the median percentage of the Hwaiti Bedouin speakers was about 20% for those who pronounced the /ʤ/ sound correctly. While the median percentage of Hwaiti Bedouin speakers, who gave expected wrong pronunciation reached about 4%, in comparison to 1% only for those, who responded with unexpected wrong answers. In terms of the expected wrong pronunciation, Hijazi Urban speakers produced non-target-like sounds more often. Figure 26 below shows the levels of expectedness of the two groups' productions of the sound /θ/:

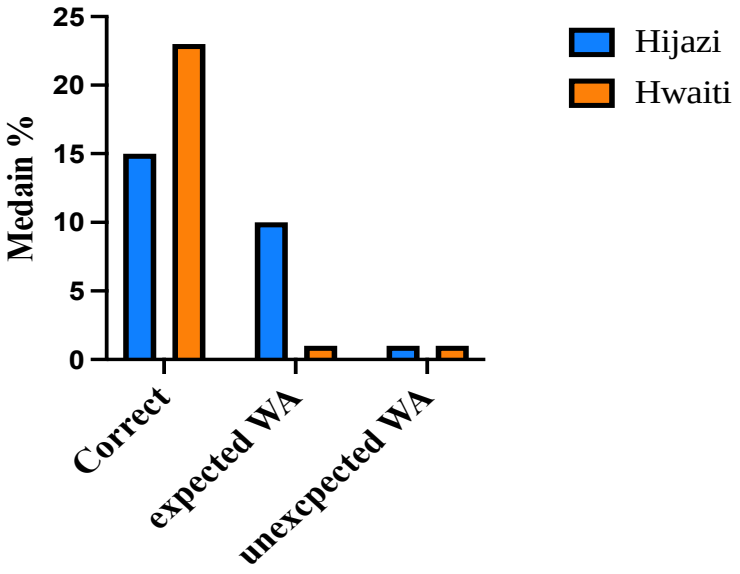

Figure 26: The Levels of Expectedness of the Hijazi and Hwaiti Students' Productions of the Sound /θ/

Figure 26 demonstrates that the median percentage of the Hijazi Urban performants accounted for 15 % for participants who correctly pronounced the voiceless dental fricative/θ/ sound. While the median percentage reached about 10% for Hijazi speakers, giving expected wrong pronunciation, the percentage was 1% for Hijazi speakers producing unexpected wrong pronunciation. Furthermore, the figure shows that the median percentage of the Hwaiti Bedouin speakers was about 23% of participants, who correctly pronounced this phoneme. Like the Hijazi Urban speakers, the Hwaiti Bedouin speakers gave unexpected pronunciations reaching 1%; however, the median percentage was only 1% for the Hwaiti Bedouin speakers, who gave expected pronunciation. Thus, figure 31 highlights the fact that the Hijazi Urban speakers produced a significantly higher percentage of expected wrong pronunciation than the Hwaiti Bedouin students: 10% to 1%. Figure 27 below shows the levels of expectedness of the two groups' productions of the sound /ð/:

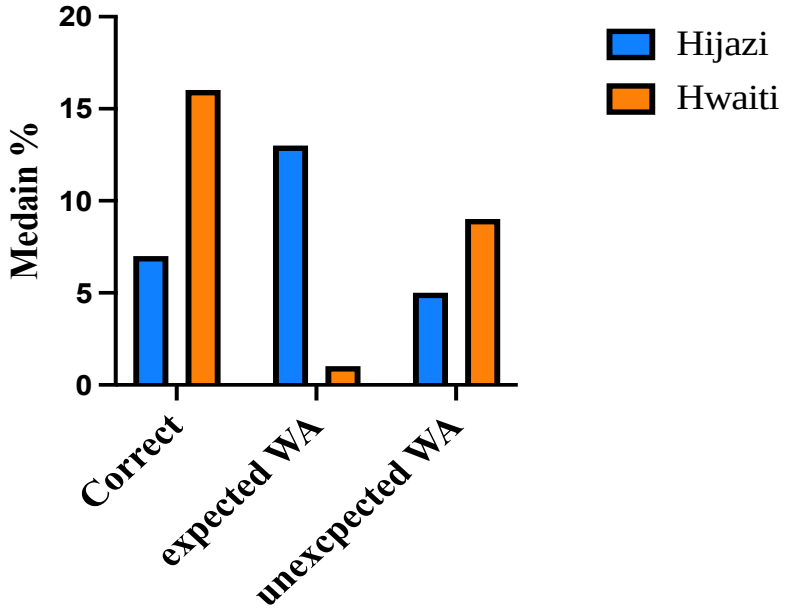

Figure 27: The Levels of Expectedness of the Hijazi and Hwaiti Students' Productions of the Sound /ð/

Figure 27 demonstrates that the median proportion of the Hijazi Urban speakers indicates that about 6% participants correctly pronounced the sound /ð/. While the median percentage of about 14% of the Hijazi Urban informants gave the expected wrong pronunciation, 5% of the Hijazi Urban speakers produced the unexpected pronunciation. Nonetheless, the graph shows that the median ratio of the Hwaiti Bedouin speakers denotes that about 16 % participants correctly pronounced this phoneme, 1% uttered it as expected wrong pronunciation, 8% gave unexpected wrong pronunciation. Like the /θ/ sound, of the two groups of speakers, the Hijazi Urban group reached a higher percentage in producing expected wrong pronunciation. Figure 28 below shows the levels of expectedness of the two groups' productions of the sound /v/:

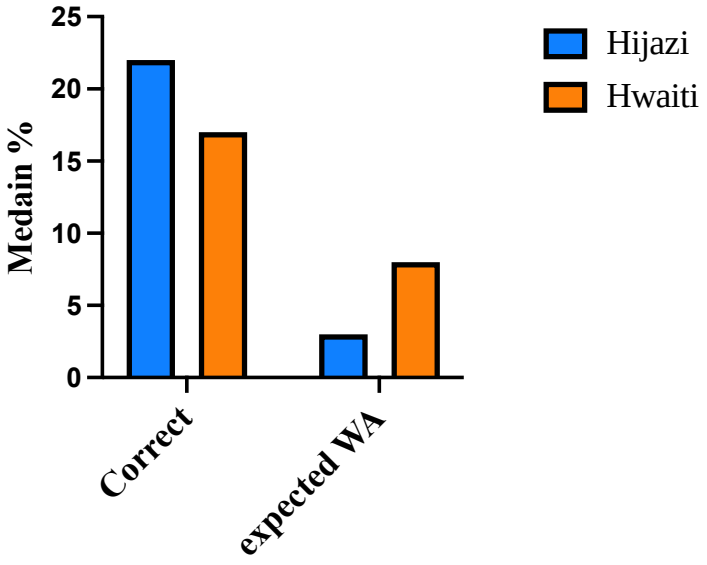

Figure 28: The Levels of Expectedness of the Hijazi and Hwaiti Students' Productions of the Sound /v/

Figure 28 reveals that the median percentage of the Hijazi Urban speakers indicates that about 22% of the participants correctly pronounced the sound /v/. While the median proportion of about 3% Hijazi Urban speakers gave expected wrong pronunciation, the median ratio of the Hwaiti Bedouin speakers displays that about 17% of the participants correctly pronounced /v/ sound, and about 7% gave expected wrong pronunciation. The Hijazi Bedouin speakers reached a slightly higher percentage than the Hwaiti Bedouin speakers, but this is not statistically significant difference compared to the other three phonemes.

5.4 Discussion

The aim of this dissertation was to examine the ratings of two groups of Saudi-speaking English learners pronouncing a specific set of English consonant sounds: /ʤ/, /θ/, /ð/, and /v/ across different positions within the word: Hwaiti Bedouin and Hijazi Urban Arabic speakers. Hwaiti Bedouin and Hijazi Urban Arabic dialects differ with respect to these phonemes. The participants were asked to complete two production tasks: an Arabic production task (reading word list) that included four Arabic sounds: /ʒ/, /θ/, /ð/ and /f / in three different word positions (initial, middle, and final), to test for dialectal differences, and an English production task (reading word list) that elicited the four English phonemes under study: /ʤ/, /θ/, /ð/, and /v/ also

in the three word positions, to test acquisition of English phonemes. In addition, the research participants were asked to complete a short language background questionnaire and an English proficiency test. The results of the data analyses were offered above in the result section. The following sections discuss the results of each of the research question in the light of the given hypotheses, previous studies, and theories.

5.4.1 The Productions of /ʤ/, /θ/, /ð/, and /v/ by Hijazi Urban and Hwaiti Bedouin Speakers, as Evaluated by the Raters

The current research examined the ratings of Hwaiti Bedouin and Hijazi Urban speakers' productions of the English consonant sounds /ʤ/, /θ/, /ð/, and /v/ as either target-like or non-target-like. Previous research has found that English language learners in general, such as Indonesian (Rustiba, 2009; Bui, 2016; Kurniawan, 2016; Umantari et al., 2016), Turkish (Demirezen, 2021), and Arabic-speaking learners of English, in particular, such as Palestinian (Jabali and Abuzaid, 2017; Farah & Halahlah, 2020), Saudi (Ahmed, 2011; Alzinaidi & Abdel Latif, 2019) confronted difficulty producing the English affricate and fricative sounds. The current study anticipated that Hwaiti Bedouin students would not have difficulty producing /ʤ/, /θ/, and /ð/ because these phonemes exist in the Bedouin Arabic dialect. The Hijazi speakers, in contrast, were expected to experience difficulty pronouncing these three sounds because they are not part of the Urban Arabic dialect inventory. However, it was predicted that both groups would find it difficult to produce the /v/ sound, as this phoneme is absent from the phonological systems of both the Hwaiti Bedouin and Hijazi Urban dialects. This hypothesis was confirmed by the results of the current study, as manifested in the participants' productions of these four inspected sounds: the voiced post-alveolar affricate /ʤ/, the voiceless dental fricative /θ/, the voiced dental fricative /ð/, and the voiced labio-dental fricative /v/. More specifically, the two groups experienced significant differences in their productions of the first three speech sounds: /ʤ/, /θ/, and /ð/. However, the Hwaiti Bedouin group was rated as producing significantly more target-like sounds than the Hijazi Urban group when pronouncing /ʤ/, /θ/, and /ð/ sounds, whereas Hijazi Urban speakers had a high average rating of non-target-like responses when

producing these three sounds. The dialectal variation in the phonological systems of both groups contributes to these differences between them. More specifically, the presence of these sounds in the Hwaiti Bedouin dialect accounts for the observed high average of target-like sounds among Hwaiti Bedouin speakers compared to Hijazi Urban speakers. Although Hwaiti Bedouin speakers were rated as producing more target-like productions than Hijazi Urban speakers, they were also rated as producing some non-target-like productions, though at a lower rate than Hijazi Urban speakers. This suggests that the issue is not only the presence or absence of the phonemes in the L1's dialects consonant inventory, but the transfer of L1's dialects coarticularly patterns into L2 contexts. Consequently, it can be predicted that Hwaiti Beouin speakers might be able to produce the target English phonemes: the voiced post-alveolar affricate /ʤ/, the voiceless dental fricative /θ/, and the voiced dental fricative /ð/ as target-like productions in the form of isolated phonetic segments, as they take part in the phonological system of the Hwaiti Bedouin dialect; however, the transitions into and out of these phonetic units do not always match the target-like production. In other words, the occurrence of these phonetic segments in context reduced the pronunciation accuracy of these phonetic units among the Hwaiti Bedouin speakers due to either unfamiliar phonotactic environment or coarticulatory environments, according to the raters' evaluations. Overall, this helped to answer the first research question which investigated the production of the English consonant sounds/ʤ/, /θ/, /ð/, and /v/ by Hwaiti Bedouin and Hijazi Urban speakers.

The results of the first research question are in line with the findings of previous literature. More specifically, the literature review illustrated that Palestinian (Jabali and Abuzaid, 2017), Saudi (Ababneh, 2018), and Yemeni (Hamza *et al.*, 2020) Arabic-speaking English learners encountered difficulty producing the sound /ʤ/. Similarly, studies of speakers of other languages such as Javanese, Indonesian (Rustiba, 2009), and Turkish-English learners (Demirezen, 2021) demonstrated the relative difficulty of producing /ʤ/ compared to its voiceless counterpart /ʧ/. Furthermore, the previous literature demonstrated that the sounds /θ/ and /ð/ were challenging for Arabic and non-Arabic-speaking English learners (Rustiba, 2009;

Bui, 2016; Kurniawan, 2016; Mulyadi *et al.*, 2018; Alzinaidi and Abdul Latif, 2019). When looking at the average of the target-like responses of the two groups when producing /θ/ and /ð/, it was observed that the English voiced dental fricative /ð/ was more difficult to pronounce for the two groups of speakers compared to the voiceless dental fricative sound /θ/. This supports the results reported in the literature review which indicated that both Arabic- non-Arabic-speaking English learners encountered greater difficulty in producing the voiced dental fricative /ð/ than its voiceless counterpart /θ/ (e.g., Rustiba, 2009; Kurniawan, 2016; Alzinaidi and Abdul Latif, 2019), unlike Irianto *et al.* (2018) who reported no significant differences among Indonesian speakers in terms of error production when producing the sounds /ð/ and /θ/.

With regards to the voiced labio-dental fricative sound /v/, there was no significant difference between the Hijazi Urban and Hwaiti Bedouin speakers when producing the voiced labio-dental fricative sound /v/ because it was difficult to pronounce for both groups. The absence of a significant difference between the two groups reflects similarity in performance rather than ease of acquisition. In other words, both groups experienced comparable difficulty with this sound. This difficulty can be explained by the fact that neither of the speakers' L1 varieties contains this sound. As a result, the speakers mapped this sound onto the closest one in their dialects. Further, the speakers' intermediate proficiency level was likely to have increased the magnitude of this difficulty. In addition, the cross-linguistic markedness of this sound might further increased its articulatory difficulty. The difficulty of pronouncing the /v/ sound was also detected in the previous literature. For instance, studies of Saudi (e.g., Ahmed 2011; Alzinaidi and Abdul Latif, 2019) and Palestinian (e.g., Farah and Halahlah, 2020) Englih learners indicated that the participants faced difficulty producing the sound /v/.

In general, the results of the first research question indicated that Hijazi Urban and Hwaiti Bedouin speakers confronted difficulty producing the sound /ʤ/. Further, the results showed that both groups exhibit asymmetrical patterns when producing the voiceless dental fricative /θ/ and the voiced dental fricative /ð/. The two groups were more likely to be rated as target- like in their production of /θ/ than /ð/. According to Shariatmadari (2006), voiceless

obstruents are more common than voiced ones because keeping voicing during a complete closure requires greater articulatory effort. Voiceless consonants at front places of articulation are easier to acquire than those at back places because they need a larger oral cavity volume (Fellbaum, 1986; Shariatmadari, 2006). This result appears to be consistent with the MDH, which states that those features that are found in a few languages or specific to particular languages are marked (Eckman, 1985; Fellbaum, 1986; Van Patten, 1992). Hence, it can be assumed that the typological rarity of voiced obstruents cross-linguistically would affect L2 leaners' accuracy in producing them (Fellbaum, 1986; Shariatmadari, 2006; Mehrdad & Ahghar, 2015), a prediction that is consistent with the results of the current research.

However, the findings of the current study revealed that the difficulty associated with producing the sounds /ʤ/and /θ/ was not as great as that associated with the production of the the sound /ð/. The results indicate that the speakers exhibited significantly greater difficulty in producing the sound /ð/ manifested in a higher average error frequency, compared to /ʤ/ and /θ/, which showed similar average error frequencies, indicating a comparable markedness level. Regarding /v/, the results for both groups were not significant (see Table 23); However, the speakers experienced difficulty producing this sound, a result that indicates the phoneme is marked. Hence, based on the results for the first reseach question, and in the light of MDH, the markedness of these sounds can be summarised as ranging from more marked to less marked, as shown in Table 27 below:

Target Sounds	**Markedness Level for Hijazi Urban and Hwaiti Bedouin Speakers**	**Difficulty of Pronunciation**
/ð/	More Marked	Very Difficlut
/v/	More Marked	Very Difficult
/ʤ/ and /θ/	Less Marked (comparable level)	Less Difficult

Table 27: Markedness-Based Difficulty Levels of the Four Target Sounds for Hiajzi Urban and Hwaiti Bedouin speakers

As shown above in Table 27, the voiced dental fricative sound /ð/ and the voiced labio-dental fricative sound /v/ posed greater pronunciation difficulty for both Hwaiti Bedouin and Hijazi Urban speakers due to their higher markedness levels, whereas the voiced post-alveolar affricate /dʒ/, the voiceless dental fricative /θ/ were comparatively less difficult as they were considered less marked. Whilst it is possible that such sounds could be regarded as being globally marked, it may be that the L1 phonological background of the L2 speakers determines their degree of markedness. Therefore, if one group of learners finds certain sounds to be lowly marked and easy to learn, it may be considerably more difficult for another group to learn. As can be seen in Table 27, the voiceless dental fricative /θ/ and the voiced post-alveolar affricate /dʒ/ were relatively easy for the Hijazi Urban and Hwaiti Bedouin speakers to learn because they were less marked within these groups' phonological backgrounds. Previous studies have similarly indicated the relatively less markedness of /θ/ among L2 learners from different L1 backgrounds (e.g., Rustiba, 2009; Bui, 2016; Kurniawan, 2016; Mulyadi et al., 2018; Alzinaidi and Abdul Latif, 2019). However, although earlier literature have discussed the markedness of /dʒ/ for L2 learners, limited attention has been given to comparing its degree of markedness in relation to the voiceless dental fricative /θ/. Thus, the findings of the present study contribute to previous research by providing a comparative perspective on the relative markedness and pronunciation difficulty of these sounds (i.e., the voiceless dental fricative /θ/ and the voiced post-alveolar affricate /dʒ/) among speakers from various L1 backgrounds. On the other hand, the voiced labio-dental fricative /v/ and the voiced dental fricative /ð/ were more highly marked and, therefore, these groups found them more challenging to pronounce.

Furthermore, the results indicated how learners use their existing knowledge to acquire new phonetic categories in the L2. This is demonstrated in the learners' attempt to map the target sounds onto their L1 dialects. For instance, Hwaiti Bedouin learners were affected by the phonetic resemblance between L1 and L2 sounds. They tended to transfer knowledge between sounds that share identical phonetic features. This was apparent in their production of the English sounds /dʒ/, /θ/, and /ð/ that share the same place and manner of articulation. On the other

hand, Hijazi Urban speakers tended to transfer the phonetic knowledge of their dialect to the target sounds. This was manifested in producing the sounds /θ/, /ð/, and /ʤ/ that are similar, but not identical to their counterparts in their L1, resulting in higher average of non-target like productions. This result aligns with the SLM which provides insight into the complex process of L2 speech acquisition and the factors that influence it. Furthermore, the result of the first research question reflect the prediction of CLI phenomena resulting in the positive and negative influence of the speakers' dialects on their productions. The sounds that are present in Hwaiti Bedouin dialect (i.e., /θ/, /ð/, and /ʤ/) contribute to more target-like productions by Hwaiti Bedouin speakers compared to Hijazi Urban speakers.

Overall, the results for the first research question indicated that not all Arabic-speaking English language learners encounter the same difficulties when producing the English consonants. As explained in the literature review chapter, previous researchers investigated these sounds amongst Arabs and, accordingly, they identified them as the most problematic sounds for all Arabic speakers generally. The results of the current research align with the findings of the previous research regarding the difficulties of producing the English sounds /ʤ/, /θ/, and /ð/, and the relative ease with which /θ/ is produced compared to /ð/. Nonetheless, the current study showed differences in terms of the difficulty of producing these sounds by the Hwaiti Bedouin group and the Hijazi Urban. This is attributed to the fact that Arabic-speaking English language learners speak different Arabic dialects. Hence, the current research provides more specific results regarding the production of these speech sounds made by Saudi Arabic- speaking learners.

5.4.2 The Effect of the Phoneme Positions in Words on the Production of the English Phonemes /ʤ/, /θ/, /ð/ and /v/ by Hijazi Urban and Hwaiti Bedouin Speakers

The second question inquired about the effect of the phoneme positions in words on the production of the English phonemes /ʤ/, /θ/, /ð/, and /v/ by Hijazi Urban and Hwaiti Bedouin speakers. Previous studies undertaken using other speakers of Arabic as English language learners regarding this area of research remain scarce and underexplored (Hamza et al., 2020;

Alzinaidi & Abdel Latif, 2019; Jabali & Abuzaid, 2017). However, the literature review concerning speakers of various modern English varieties and learners of English who speak other languages (e.g., Vietnamese and Indonesian) suggested that there are specific positions that are difficult for the production of the English sounds/ θ/ and /ð/. For instance, Mathisen (1999), Green (2002), Clark (2004), Bui, (2016), Kurniawan, (2016), and Irianto et al. (2018) argued that middle positions of /θ/, as in [something] /sʌmθɪŋ/, and /ð/, as in [mother] /mʌðə/, were difficult to produce for speakers of various modern English varieties. In contrast, initial / θ / remains easier to produce in many English vernaculars (e.g., AAVE) (Green, 2002). In the current study, it was anticipated that the participants would encounter greater difficulty pronouncing the sound/ʤ/ in middle and final positions of words than in the initial position. This prediction is based on previous research concerning the impact of phoneme position in the word on the productions of L2 learners (e.g., Hamza *et al.*, 2020; Alzinaidi & Abdel Latif, 2019; Jabali & Abuzaid, 2017). Hence, it was anticipated that these positions would be challenging for Hijazi Urban speakers, but not for Hwaiti Bedouin speakers. With regards to the phonemes /θ/, /ð/, and /v/, the findings of the previous literature (e.g., Alzinaidi and Abdul Latif, 2019) were inconclusive when identifying the specific positions in which Arabic-speaking English learners encountered difficulty when producing these phonemes. This was an important area of the research to explore which phoneme positions within words are more challenging for both groups. As explained in Chapter 5, Subsection 5.3.2, a mixed effect model was used to establish the effect of phoneme positions in words on the productions of the English phonemes /ʤ/, /θ/, /ð/, and /v/ by Hijazi Urban and Hwaiti Bedouin speakers.

The results of the current research indicated that, at the level of the specific sounds, the two groups exhibited significant differences when producing the /ʤ/, /θ/, and /ð/ sounds. More specifically, it was found that producing /ʤ/, /θ/ and /ð/ was difficult for both Hijazi Urban and Hwaiti Bedouin speakers in the middle position but Hwaiti Bedouin speakers were more likely to correctly produce them in the initial position, particularly for the sounds /ʤ/and /ð/ compared to Hijazi Urban speakers. The difficulty observed for both Hijazi Urban and Hwaiti Bedouin

speakers in articulating middle /ʤ/, /θ/ and /ð/ may be attributed to their absence in the Hijazi Urban phonological system, and the limited use of these patterns in the dialectal phonological system of the Hwaiti Bedouin speakers, especially in non-initial contexts. The middle position may require more robust phonological representations and greater articulatory control, abilities that intermediate learners may not yet have fully developed. Conversely, the better performance of Hwaiti Bedouin speakers in initial position, particularly for the sounds /ʤ/and /ð/, may reflect greater exposure to or use of these sounds in word-initial contexts in their dialect, where they are more salient and perceptually prominent. Accordingly, this reflects an increased perceptual cues and stronger lexical representations of these sounds in those contexts for Hwaiti Bedouin speakers. These findings suggest that both the position of a phoneme as a factor and dialect-specific phonological patterns account for the difficulty of these sounds for both groups and the group-based differences observed in initial position. Additionally, even though Hwaiti Bedouin dialect has the target phonemes: the voiced post-alveolar affricate /ʤ/, the voiceless dental fricative /θ/, and the voiced dental fricative /ð/ that are phonetically equivalent to English in terms of place, manner, and voicing, their production by Hwaiti Bedouin speakers deviates considerably. It may be that this deviation does not result from the segments, but rather from distinctions in the surrounding environment and phonological distribution. In other words, the occurrence of these sounds within the Bedouin phonological context might not be influenced by surrounding sounds in the same way observed in English phonological context. Therefore, it is possible that the difficulties in pronunciation result from the distinct phonological and phonetic environments that the sounds occur in rather than from the sounds themselves.

Overall, the result is in accordance with the findings of Jabali and Abuzaid (2017), where it was reported that Palestinian Arabic speakers mispronounced the sound /ʤ/ in the middle position. Additionally, the findings are consistent with the results for speakers of various English varieties and learners of English who speak other languages, who also mispronounce /θ/ and /ð/ when they occur in middle positions, whereas they tend to correctly produce /θ/ in the initial position (e.g., Mathisen, 1999; Green, 2002; Clark, 2004; Bui, 2016; Kurniawan, 2016; Irianto

et al., 2018).

In general, the results for the second research question are consistent with the MDH (Eckman, 1977), which contends that the dental fricatives /θ/ and /ð/ have different markedness depending on their positions in a word. The preservation of/ θ/ in word-initial position across many English varieties (Green, 2002) reveals that this position is less marked than the middle position. Furthermore, Mathisen (1999), Green (2002), and Clark (2004) argued that middle positions are marked for the production of / θ/ and /ð/, in accordance with the current data where the productions of the /θ/ and /ð/ phonemes were more challenging for both groups of speakers in the middle position.

Taken together, although there are two different Arabic-speaking dialect groups, the results illustrated that both the Hijazi Urban and Hwaiti Bedouin speakers encountered difficulties, particularly with middle /θ/ and /ð/, and with middle /ʤ/ sounds. This confirms how the typological rarity of these phonemes, particularly /θ/ and /ð/ sounds, cross-linguistically, as shown in the previous studies, contributes to their markedness in different positions in a word. This helps when attempting to understand and analyse the however the current tudy indicated that errors. Nevertheless, it is important to recognise that groups of speakers that have distinct L1 backgrounds can each have a different degree of markedness. As shown when answering the first research question (see Subsection 5.4.1), the two groups featured in the current study found certain sounds (i.e., the voiceless dental fricative /θ/ and the voiced post-alveolar affricate /ʤ/) to be less marked, despite the fact that those same sounds had been found to be marked in the previous studies (cf. Rustipa, 2009; Ababneh, 2018; Irianto et al., 2018; Hamza et al., 2020; Demirezen, 2021). Therefore, it would appear that the pronunciation difficulty of certain phonemes and perceptions of markedness are affected by the linguistic background and L1 phonological system of the learner and not merely by universal phonological factors. It may also be that the occurrence of these sounds across various phonological positions reflects this variation. Therefore, further research is required using a larger sample representing speakers of Arabic (Urban and Bedouin dialects). This may help to examine the relationship between

markedness, phonological context, and pronunciation difficulty across speakers from different L1 backgrounds.

5.4.3 The Impact of the Phonological Consonantal Variations in the Participants' Spoken Dialects on Their Production

The third research question investigated whether or not the Hwaiti Bedouin and Hijazi Urban speakers' pronunciation of the English phonemes /ʤ/, /θ/, /ð/, and /v/ was affected by the phonological consonantal variations in their spoken dialects. It explored the substitutions used by the speakers instead of the target sounds. Previous studies concerning other Arabic speaking learners of English have indicated that Arab learners of English as a second language substitute their production of the sounds /ʤ/, /θ/, /ð/, and /v/ with other variants found in their L1 (SA) (e.g., Hamza *et al.*, 2016; Jabali and Abuzaid, 2017; Ababneh, 2018; Alzinaidi and Abdul Latif, 2019). The same was observed in the previous research concerning non-Arabic-speaking English learners (Bui, 2016; Kurniawan, 2016; Umantari *et al.*, 2016; Irianto *et al.*, 2018 Mulyadi *et al.*, 2018; Rustiba, 2019; Demirezen, 2021).

In the current research, it was predicted that Hwaiti Bedouin students were expected to be positively affected by their Bedouin Arabic consonantal variations when producing /ʤ/, /θ/ and /ð/ sounds, whereas Hijazi speakers are expected to deaffricate the sound /ʤ/ and replace other variants when producing /θ/ and /ð/. With regards to /v/, it was predicted that both groups would devoice this phoneme by pronouncing it with the closest Arabic sound /f/ (Ahmed, 2011) used in their Bedouin and Urban Arabic dialects.

The results of the current study indicate that the two groups displayed different patterns of productions when pronouncing the target sounds, which may relate to the influence of the consonantal variations in the Hijazi Urban and Hwaiti Bedouin dialects. The productions of /ʤ/, /θ/, /ð/, and /v/ by the Hijazi Urban and Hwaiti Bedouin groups were classified into target-like answers, expected non-target like answers, and unexpected non-target like answers. The target-like answers imply the accurate production of the target sounds, the expected non-target-like answers imply the expected inaccurate pronunciation of these four sounds and, finally, the

unexpected non-target-like answers entail the unexpected inaccurate productions of these phonemes. Table 28 shows how the participants' productions were classified:

Target Sounds	**Target-Like Productions**	**Expected Non-Target-Like Productions**
/ʤ/	[ʤ]	[ʒ], [g] or deletion
/θ/	[θ]	[t], [s] or deletion
/ð/	[ð]	[z], [d] or deletion
/v/	[v]	[f] or deletion

Table 28: [10]Classification of the Target and Non-target Productions of the Examined Sounds

The results suggest that the two groups exhibit significant differences when producing /ʤ/, /θ/, and /ð/ in relation to the influence of the consonantal variations in the phonological system of their spoken dialects. The Hwaiti Bedouin group exhibited higher frequencies when pronouncing the target form of these sounds, compared to the Hijazi Urban group, whereas the Hijazi Urban speakers produced the expected non-target-like answers more frequently than the Hwaiti Bedouin speakers. There were differences across the sounds with respect to unexpected errors, which were largely infrequent (see Chapter 5).

In general, the results of the current research support the findings of previous studies concerning Arabic-speaking English learners with regards to the most common substitutions. For example, Hamza *et al.* (2016) and Jabali and Abuzaid (2017) reported the substitution of /ʤ/ with [ʒ] by Yemeni and Palestinian participants; however, other infrequent substitutions attested in the literature review were not recorded in the current data, such as substituting /ʤ/ with [j] (Hamza *et al.*, 2016). On the other hand, some of the infrequent substitutions, which were not reported in the previous literature, were attested in the current data. For example, one participant substituted /ʤ/ with [k] in one instance with the word 'cage' and another substituted /θ/ with [z] in the word 'cloth.'

[10] I designed this table earlier before conducting the experiment to organise the levels of the target and non-target learners' productions.

Regarding the voiceless dental fricative /θ/, Hwaiti Bedouin and Hijazi Urban speakers exhibited significant differences when substituting the sound /θ/ with different expected and unexpected variants. The production of the expected non-target-like answers ([t], [s], or deletion) was considerably higher amongst Hijazi Urban speakers than Hwaiti Bedouin speakers. Cases of /θ/ being substituted with [t] or [s] were demonstrated in the previous literature by non-Arabic-speaking English learners, as in the words 'teeth' and 'bath' which were produced as [ti:t] and [bɑ:t] (Rustiba, 2009; Bui, 2016; Kurniawan, 2016; Irianto *et al.*, 2018, Mulyadi *et al.*, 2018). This was attested in the current data, where Hijazi Urban speakers frequently substituted /θ/ with [t] or [s] compared to Hwaiti Bedouin speakers (see Appendix M).

With reference to the unexpected non-target-like answers, both Hijazi Urban and Hwaiti Bedouin participants achieved similar results when producing unexpected non-target-like productions. For instance, Hijazi speakers tended to substitute /θ/ with [z]. However, there were no cases of producing /θ/ as [z] amongst the Hwaiti Bedouin speakers. On the other hand, there was only one Hwaiti Bedouin student who produced /θ /as [ð] frequently. Similarly, only three Hijazi Urban speakers pronounced /θ /as [ð]. Such substitutions were reported in previous studies (e.g., Bui, 2016; Irianto *et al.*, 2018). However, the current data displayed some infrequent substitutions that were not attested in the previous literature. This was evident when producing /θ /as [l] by a Hwaiti Bedouin speaker or [p] by two Hijazi Urban speakers (see Chapter 5). Similarly, other infrequent substitutions were reported in the previous studies (e.g., substituting /θ /with [d], Kurniawan, 2016; Mulyadi *et al.* 2018; and Rustiba, 2009), but were not recorded in the current data.

With regards to the voiced dental fricative sound /ð/, Hwaiti Bedouin and Hijazi Urban speakers exhibited differences when substituting the sound /ð/ with various expected and unexpected variants. The productions of the expected non-target-like answers ([z], [d], or deletion) were remarkably higher amongst Hijazi Urban speakers than Hwaiti Bedouin speakers. The substitution of this sound with [z] or [d] were also evident in the previous literature (Rustiba, 2009; Bui, 2016; Irianto *et al.*, 2018; Mulyadi *et al.*, 2018).

With reference to the unexpected non-target-like answers, both Hijazi and Hwaiti Bedouin participants had infrequent substitutions when producing unexpected non-target-like productions. For instance, the data indicated unexpected substitutions of /ð/ with [s] or [t], particularly amongst Hijazi speakers. However, the substitution of /ð/ with [θ] was demonstrated more clearly across Hwaiti Bedouin speakers compared to Hijazi Urban speakers. With reference to other studies involving Arabic- and non-Arabic-speaking English learners (e.g. Rustiba, 2009; Bui, 2016; Mulyadi *et al.*, 2018; Alzinaidi & Abdul Latif, 2019), the substitution of /ð/ with [θ] was attested. However, other infrequent substitutions reported in the current data were not evident in the previous literature, such as substituting /ð/ with [b] by one Hwaiti Bedouin speaker only (see Chapter 5). Other infrequent substitutions reported in the previous studies were not observed in the current data, such as the substitution of /ð/ /with [dʒ] (Bui, 2016) or with [nd] (Rustiba, 2009). The authors attributed these new kinds of substitutions to the students' influence by their local dialects (see Chapter 3, Subsection 3.5.1). This result is consistent with the findings in the current data, where /ð/ was more clearly substituted with [θ] in different words and different positions, particularly by Hwaiti Bedouin speakers. After investigating the consonantal variation of the Bedouin Arabic dialect, this unexpected substitution among Hwaiti Bedouin speakers was attributed to the influence of their Bedouin dialect. The literature concerning Arabic indicated that the voiced dental fricative /ð/ used to be pronounced differently in old Arabic poetry, where /ð/ was substituted with [θ] (see Subsection 3.4.2). Hence, this would probably explain why Hwaiti Bedouin speakers maintain the old version of this sound.

Regarding the English voiced labio-dental fricative /v/, it can be seen that Hwaiti Bedouin and Hijazi Urban speakers showed similar frequencies in producing the target form of the sound /v/. However, at the level of the expected non-target-like answers, it was noticed that the majority of Hwaiti Bedouin participants produce the expected non-target-like form [f] repeatedly more than Hijazi Urban speakers. In general, the production differences between the two groups are not statistically significant, as shown in the results section (see Chapter 5, Table

23). Neither the Hijazi Urban nor Hwaiti Bedouin dialects' consonant inventory system includes the English voiced labio-dental fricative sound /v/. This means that the two groups are adversely affected by the absence of this sound in their Arabic dialects, where the closest Arabic sound [f] is used instead. The data do not indicate any deletion cases or unexpected non-target-like answers of this sound amongst the two groups. Below are examples of /v/ being produced as [f] by Hijazi Urban and Hwaiti Bedouin speakers:

Item	**Target Production**	**Hijazi and Hwaiti Speakers' Productions**
Five	faɪv	faɪf
Vine	vaɪn	faɪn

Table 29: Examples of Hijazi and Hwaiti Speakers' Productions of /v/

This result aligns with previous studies which attested to the devoicing of this phoneme by Saudi-speaking English learners (e.g., Ahmed, 2011; Alzinaidi and Abdul Latif, 2019). However, Alzinaidi and Abdul Latif (2019) did not suggest the alternative sounds used by the speakers but the replacement sound would probably be /f/, as suggested by the present study. Meanwhile, studies concerning other speakers of Arabic dialects pointed to the pronunciation problems that Arabs face when producing the /v/ sound (e.g., Farah & Halahlah, 2020).

Overall, the results confirmed the proposed hypothesis of the current research, which imply the positive effect of Hwaiti Bedouin consonant inventory on the Hwaiti Bedouin speakers' productions, unlike the Hijazi speakers. The Hwaiti Bedouin speakers exhibited a higher frequency of the correct forms of the sounds /ʤ/, /θ/, and /ð/ than the Hijazi speakers. Furthermore, the Hijazi Urban participants demonstrated more expected wrong answers when producing /ʤ/, /θ/, and /ð/ compared to the Hwaiti Bedouin speakers. This was evident in their employment of non-target variants of the target sounds.

The findings of the third research question support the SLM's prediction (Flege and Bohn, 2021), which proposes that when sounds in L1 and L2 are partially similar in certain phonetic features, L2 learners will experience difficulties acquiring L2 sounds. It also suggests

that when sounds in L1 and L2 are very different or identical, L2 learners may be able to acquire them easily (Flege and Bohn, 2021). Hence, the degree of sound similarity with L2 sounds affects L2 learners' ability to map and categorise speech patterns from both L1 and L2. In the current research, it can be seen that the target English sounds (/ʤ/, /θ/, and /ð/) are identical to those found in the Hwaiti Bedouin consonant inventory and partially similar to those found in the Hijazi Urban consonant system. For Hijazi Urban speakers, this is manifested in how they produce (/ʤ/, /θ/, and /ð/). Hijazi Urban speakers are guided by the phonetic knowledge of their native Arabic Urban dialect where these three sounds are similar but not identical. For instance, Hijazi Urban speakers use [ʒ] or [g] for /ʤ/, [s] or [t] for/θ/, and [d] or [z] for /ð/. Such non-standard allophones may not cause communication barriers between speakers of other languages since they are occur in different English varieties (see subsection 2.1.13); however, they are considered deviations from British English, which serves as the institutional target norm for assessment. Consequently, they are treated as errors and require pedagogical intervention, as they do not have institutional status within educational settings (Topper, 2001; Holt, 2012; Darvin and Norton, 2015). The frequencies of these expected non-target-like substitutions are considerably higher amongst Hijazi Urban speakers compared to the Hwaiti Bedouin participants.

However, the expected non-target-like production [ʒ] that occurred amongst Hwaiti Bedouin participants can be attributed to the SA variety's influence on their productions. The sound /ʤ/ does not form part of the phonological consonant system of SA and [ʒ], which is presented by the Arabic letter ج /*'jeem*,' is used instead. Hence, the speakers were trying to map the closest sound from their L1 to L2, a phenomenon which can be explained by the PAM (Best, 1995). Related studies in the literature review show that researchers deal with the Arabic sound ج/*'jeem*' as the counterpart of the English sound /ʤ/. However, the Arabic sound /ج/ is pronounced differently where the tip and blade of the tongue are down in the mouth. This is explained by Huthaily (2003) who refers to the difference between the Arabic sound /ج/ and the English sound /ʤ/ by considering the former as a voiced-palato alveolar fricative and the latter

as a voiced post alveolar affricate. Hence, learners should be able to differentiate between L2 sounds accurately before they can start to produce them.

Furthermore, the results of the third research question align with the MDH (Eckman, 1977). This was reflected in the speakers' substitutional patterns with less marked and more common sounds, such as [ʒ] or [g] for /ʤ/, [t] or [s] for /θ/, and [d] or [z] for /ð/, indicating that the sounds /ʤ/, /θ/, and /ð/ are typologically marked. Additionally, interlanguage phenomena are reflected in the participants' productions. For instance, the use of [g] instead of [ʤ] was more frequently demonstrated amongst Hijazi speakers than Hwaiti Bedouin speakers. This could be a form of fossilisation which is a key feature of interlanguage phenomena. L2 learners are creating sounds that are due to the internalised system of the target language. They unconsciously overgeneralise a phonetic feature of an L2 sound to other L2 target sounds. Below are examples of [ʤ] being substituted with [g] by the Hijazi and Hwaiti Bedouin participants:

Sound /ʤ/	**Target Production**	**Hijazi and Hwaiti speaker's production**
Wager	ˈweɪʤə	ˈweigər
Sager	ˈseɪʤə	ˈsegər
Pager	ˈpeɪʤə	peɪgər

Table 30: Examples of Hijazi and Hwaiti Speakers' Productions of /ʤ/ as /g/

The findings of the third research question are consistent with the proposed hypothesis which implies the influence of the two groups' Arabic dialect consonantal variations on their productions. This is noticeable in the expected non-target-like answers given by the Hijazi Urban participants when producing /ʤ/, /θ/, and /ð/ generally, compared to the Hwaiti Bedouin speakers. With regards to /v/, the results do not indicate any significant differences between the two groups when producing this sound at the level of the expected and unexpected non-target-like productions. However, based on the results of the third research question, the actual productions of Hijazi Urban and Hwaiti Bedoin speakers can be summarised in Table 31 below:

Target Sounds	Target-Like Productions	Hijazi Urban Speakers' Productions	Hwaiti Bedouin Speakers' Productions
/ʤ/	[ʤ]	[ʤ], [ʒ] or [g]	[ʤ], [ʒ], [g] or [k]
/θ/	[θ]	[θ], [t], [s] [ð], [p] or deletion	[θ], [t], [s] [ð], [l] or deletion
/ð/	[ð]	[ð], [θ], [z], [d] or deletion	[ð], [θ], [z], [d] or [b]
/v/	[v]	[v] or[f]	[v] or[f]

Table 31: A Summary of the Actual Prodcutions of Hijazi Urban and Hwaiti Bedouin Speakers

Table 31 indicates that both groups showed, besides their target-like productions, similar substitutional patterns including [ʒ] or [g] for /ʤ/, [t] or [s] for /θ/, [z] or [d] for /ð/, and [f] for /v/. Using similar substitutions implies that the speakers' dialects have undergone a change, particularly for Hwaiti Bedouin speakers who used the same substitutions used by Hijazi Urban speakers and which are parts in their Hijazi Urban dialect's consonant inventory. Furthermore, the two groups of speakers used substitutions that are not presented in their spoken dialects, such as the substitution of /ʤ/ with [g], which takes place in the Egyptian Arabic dialect's phonological system (Chouchane, 2016). This change may be assigned to language contact or mass media which results in influence by other speakers' dialects. In general, this result reflects the expected non-target-like productions which were previously proposed in Table7 and suggested based on the literature review (see Section 3.8). However, the two groups of speakers demonstrated additional substitutional patterns such as [ð] for /θ/ and [θ] for /ð/, which were attested in the previous literature (e.g., Rustiba, 2009; Bui, 2016) and were attributed to the confusion between the phonemes /θ/ and /ð/ because they are both represented by the letters 'th.' Furthermore, other new kinds of substitutions were detected in the current results, but were not attested in the previous research (e.g., substituting /ʤ/ with [k] and/ ð/ with [b] by Hwaiti Bedouin speakers or /θ/ with [p] by Hijazi Urban speakers). Such new kinds of substitutions may be due to the limited exposure to the items that included these sounds or to the influence of the phonological environment in which the target sounds were produced. Additionally, such new kinds of substitutions may reduce intelligibility between speakers and listeners in

communicative contexts by eliminating essential phonological distinctions, thereby increasing ambiguity and disrupting the listeners' ability to recognise the intended lexical item. On the other hand, the expected non-target-like productions (e.g., [t] and [s] for /θ/ or [d] and [z] for /ð/) may not affect intelligibility in communicative situations, unlike unexpected non-target-like productions, because the former are common substitutional patterns among English learners from different linguistic backgrounds, as reflected in the literature review (see Section 3.5). Furthermore, the realisation of the dental fricatives as stops or alveolar fricatives is not restricted to Arabic-speaking learners of English, but is also attested in certain English varieties. According to Wells (1982), the dental fricatives show wide dialectal variation in many English varieties. For instance, Hickey (2007) reports that in Irish English, the dental fricatives /θ/ and /ð/ are frequently realised as [t]and [d], respectively (e.g., think → tink, this → dis). This supports the view that these sounds are unstable segments and typologically marked, which may encourage substitution with less marked and more common sounds, such as [t] or [s] for /θ/ and [d] or [z] for /ð/. Overall, further investigation is required using a larger sample size to explore the new substitutional patterns observed in the present study.

5.5 Summary of the Chapter

This chapter presented the results of the main study that examined the productions of the English affricate and fricative sounds from two Saudi groups. The first group was the Hijazi Urban speakers, and the second one was the Hwaiti Bedouin speakers. Firstly, the descriptive statistical summary was presented in cross-tabulation tables that introduced the used items, the perfectly correct and completely wrong responses rated amongst each group of speakers. Secondly, the chapter moved to introducing the results of the inferential statistical analyses. These results implied the answers of the three research questions.

The results of the first research question showed that there were significant differences between the two groups when producing the three speech sounds /ʤ/, /θ/, and /ð/. Furthermore, it was found out that the Hwaiti Bedouin group was rated as pronouncing /ʤ/, /θ/, and /ð/ sounds more correctly than Hijazi group. As for the voiced labiodental fricative sound /v/, there is no

significant difference of the proportion of this phoneme when the Hijazi Urban and Hwaiti Bedouin groups were compared.

The results of the second research question displayed that there were significant dialectal differences in the pronunciation of /ʤ/, /θ/, and /ð/ sounds and in the occurrence of these three sounds in specific positions between the two groups. The Hijazi group showed significant differences in the positions of all the three sounds /ʤ/, /θ/, and /ð/; in contrast, the Hwaiti Bedouin group showed significant differences in the positions of /ð/ and/ / sounds only. In reference to the /ð/ sound, both groups were less likely to be rated as pronouncing it correctly in the middle position compared to the other phonemes /ʤ/ and /θ/ for the other two positions.

However, the Hwaiti Bedouin group was more likely to be rated as producing it correctly in the initial position than the Hijazi Urban group. As for /ʤ/ sound, Hijazi group was less likely to be rated as pronouncing it correctly in the middle position compared to the Hwaiti Bedouin group who did not show any significant difference in either position when pronouncing this phoneme Finally, concerning the /θ/ sound, Hwaiti Bedouin group was less likely to be rated as pronouncing it correctly in the initial position, and more likely to be rated as producing it correctly in the middle position; however, this was not the case with Hijazi Urban group who was more likely to produce it correctly in the initial position compared to the middle position.

Regarding the third research question, the results indicated that Hijazi Urban and Hwaiti Bedouin groups were affected by the phonological system of their own spoken Arabic dialect when producing the English sounds /ʤ/, /θ/, /ð/, and /v/. The productions of each group were classified as correct, expected wrong answers (WA), and unexpected wrong answers. Hijazi group exhibited more expected WA when producing /ʤ/, /θ/, /ð/, whereas these expected WA decreased when producing the sound /v/ sound. On the other hand, the two groups showed similar results regarding their productions of the unexpected WA for /ʤ/, /θ/, /ð/ sounds.

Then, this chapter discussed the results derived from the conducted experiment. It illustrated how the study answered the research questions and supported the proposed hypotheses. Furthermore, the discussion revealed that the results of the current study were aligned with the

reviewed studies and were consistent with the key theoretical frameworks discussed in the current thesis. Moreover, this chapter displayed significant differences between Hijazi Urban and Hwaiti Bedouin speakers in different patterns of productions when pronouncing the target sounds /ʤ/, /θ/, /ð/, and /v/. For the first research question, the results indicated that these sounds were challenging for both groups of speakers. This result is consistent with the findings of the previous literature (e.g., Rustiba, 2009; Jabali & Abuzaid 2017; Ababneh 2018; Hamza *et al.*, 2020; Demirezen, 2021), which indicated difficulty producing these sounds by Arabic and non-Arabic English learners. However, the results of the current research demonstrated a high average rating of target-like productions by Hwaiti Bedouin speakers compared to Hijazi Urban speakers, particularly when producing /ʤ/, /θ/, and /ð/. Furthermore, this result aligns with the first hypothesis which predicted greater difficulty for Hijazi Urban speakers when producing these sounds and this may be assigned to the presence of these sounds in the Hwaiti Bedouin dialect and the absence of these sounds in the Hijazi Urban dialect. However, both groups exhibited difficulty when producing the sound /v/, but this result did not show any significant differences between them and that may be attributed to the absence of this sound in both speakers' dialects. Additionally, the results indicated that the two groups faced greater difficulty when producing the sound /ð/ than its voiceless counterpart /θ/, reflecting the findings of previous studies (Rustiba, 2009; Bui, 2016; Kurniawan, 2016; Mulydai *et al.*, 2018; Alzinaidi and Abdul Latif, 2019) and confirming Fellbaum (1986) and Shariatmadari's (2006) assumption regarding the acquisition of voiceless sounds earlier than voiced sounds. The result for the first research question is in accordance with the predictions for the CLI phenomenon, highlighting positive and negative transfer from the speakers' dialects, MDH indicating greater difficulty with sounds that are marked cross-linguistically, and SLM demonstrating that sounds which are perceived differently by the two groups of speakers result in varying levels of production accuracy and difficulty. Regarding the second research question, the results indicated that both groups had difficulty pronouncing the sounds /θ/, /ð/, and /ʤ/, particularly in the middle position, and this result is consistent with the findings of previous studies (Jabali and Abuzaid, 2017;

Mathissen, 1999; Green, 2002; Clark; 2004; Bui, 2016; Kurniawan, 2016; Irianto *et al.*, 2018). This result supports the second hypothesis which predicted greater difficulty for the speakers when producing these sounds in the middle position. However, whereas it was expected that this would only be difficult for Hijazi Urban speakers, the findings indicated difficulties for both groups of speakers in the middle position. The result for the second research question coincides with the predictions of MDH, which accounts for the markedness of these sounds in specific positions cross-linguistically, particularly for the sounds /θ/ and /ð/, with their markedness depending on their positions in a word. Finally, the result for the third research question showed that unlike Hijazi Urban speakers' productions, Hwaiti Bedouin speakers' productions reflected the positive influence from their dialect, supporting the prediction of the third hypothesis. However, both groups exhibited substitution patterns which were attested in the previous literature (e.g., [t] for / θ / or [d] for / ð /) (Rustiba, 2009; Bui, 2016), with a higher average frequency amongst Hijai Urban speakers. Additionally, infrequent substitutions were detected amongst the two groups. The finding for the third research question aligns with the predictions of SLM, which accounts for how L1 sounds are mapped onto L2 categories based on Flege and Bohn's (2021) classification of sounds: new, similar, or identical sounds. Furthermore, the results can be explained within the CLI phenomena.

Overall, the current results go beyond the descriptive contrast of the phonemic inventories of SA, Bedouin, and Urban Arabic for the phonemes /ʤ/, /θ/, /ð/, and /v/ explored in the literature review (see Chapter 3, Table 7). The speakers showed phonological differences reflected in their actual productions. Specifically, the findings of the current study demonstrated that the target phonemes absent in the Hijazi Urban dialect are associated with greater production difficulty and higher error frequencies, thereby indicating the negative influence manifested in systematic substitution patterns used in the Hijazi Urban dialect. For instance, Hijazi Urban speakers frequently substituted the phonemes /ʤ/ with [ʒ], /θ/ with [s] or [t], and /ð/ with [d] or [z]. As for the Hwaiti Bedouin speakers, the target phonemes present in their dialect are associated with the positive influence exhibited in their productions, facilitating more target-like

productions. However, the Hwaiti Bedouin speakers used similar substitution patterns that are not used in their spoken dialect, but only in the Hijazi Urban dialect, although they were less frequent compared to the Hijazi Urban speakers. This could be attributed to external factors such as geographical proximity, resulting in influence from other neighbouring spoken dialects or the influence of mass media where various Arabic dialects are used (see Chapter 2). Furthermore, the Hwaiti Bedouin speakers tended to substitute the phoneme /ð/ with [θ] in different contexts, demonstrating specific phonetic characteristics of their spoken dialect. Regarding the phoneme /v/, both groups substituted it with [f]. Also, the two groups of speakers used substitutions that were attested in the previous literature, but are not used in the Hwaiti Bedouin and Hijazi Urban dialects (e.g., the substitution of /ʤ/ with [g]). Additionally, the speakers' productions showed new kinds of substitutions that are not used in their spoken dialect and are not detected in the previous studies (e.g., the substitution of /ʤ/ with [k], and /θ /with [p] by Hwaiti Bedouin speakers), which may substantially affect mutual intelligibility between speakers and listeners. This could be assigned to the influence of the linguistic context where the sound occurs. Thus, these results do not merely restate the contrast presented in Table 9, but validate and extend them through production data revealing new kinds of substitutions and other substitutions which are not used in the speakers' dialects, particularly when producing /ʤ/, /θ/, and /ð/.

To sum up, this chapter provided individual analysis of various items produced by the participants in order to give recommendations for future research. Additionally, this chapter has helped to identify the limitations of the current study, thereby paving the way for future investigations. Furthermore, discussing the findings provides insight into specific recommendations that educators and researchers can benefit from. The limitations of the study and recommendations are introduced in the next chapter.

CHAPTER 6

CONCLUSION

L1 DIALECTAL VARIATIONS' INFLUENCE ON THE ACQUISITION OF ENGLISH AFFRICATE AND FRICATIVE SOUNDS

CONTRIBUTIONS AND DIRECTIONS FOR FUTURE RESEARCH

6.1 Introduction

The Arabic language, a Semitic language, started its evolution with the revelation of the Qur'an and the eighth century witnessed the rebirth of CA (Farghaly, 2010). CA has undergone changes over time and developed to create the form of SA, the language of education. Furthermore, SA has witnessed simplifications which paved the way for the birth of other vernacular dialects, with each of these dialects having diverse linguistic properties. Some of these properties are dissimilar to those of SA. The Arabic dialects are distinguished from the SA language through their phonological, lexical, morphological, and syntactic features (see Chapter 2). These Arabic dialects could be acquired within the borders of a community, tribe or family. In Saudi Arabia, the Bedouin Arabic dialects extend from the northwest region, including the northern areas and Najd, towards the northeast region, whereas the Hijazi dialect, known as the Hadari dialect, is prevalent in Makkah, Madinah, Jeddah, Taif, Yanbu, Rabigh, and Alwajh (Alhazmi, 2018). Each of these dialects has special linguistic characteristics that distinguish them from each other. For example, Hijazi consonant inventory does not include the dental fricative phonemes /θ/ or /ð/ and they are instead pronounced as stops, [t] for /θ/ and [d] for /ð/ (Mousa, 2014), whereas Bedouin speakers preserve the old version of these sounds /θ/ and /ð/ (Albdairat, 2021).

This empirical study investigated L2 English learners' production of four English phonemes. It explored the impact of the L1 dialectal variations on the acquisition of English affricate and fricative sounds. An extensive literature review has explored the acquisition of some of the affricate and fricative sounds of English but the impact of Saudi Arabic dialects on

learners' production of these sounds had not been previously addressed. Therefore, the aim of this thesis was to explore the effect that dialectal differences have on the accuracy of the pronunciation of certain English consonants in different word positions (initial, middle, and final) amongst groups who speak different Saudi dialects. To achieve this goal, the following objectives were established:

1. To compare the productions of the English consonant sounds /ʤ/, /θ/, /ð/, and /v/ by Hwaiti Bedouin and Hijazi Urban speakers.
2. To explore the most problematic linguistic position of the English affricate /ʤ/ and the English fricatives /θ/, /ð/, and /v/ for Hwaiti Bedouin and Hijazi Urban speakers as a phonological error pattern.
3. To determine whether the existence of the affricate /ʤ/ and the fricatives /θ/, and /ð/ in the Hwaiti Bedouin dialect would be a positive reference for the Hwaiti Bedouin participants when they produce these sounds, whereas the absence of these sounds in the Hijazi Urban dialect may lead their speakers to make mispronunciations, thereby potentially affecting intelligibility.

These objectives informed the selection of the participants and the design of the methodology. A total of 40 senior undergraduate Saudi learners of English as a second language at Tabuk University, Saudi Arabia (20 Hwaiti Bedouins and 20 Hijazi Urbans) were recorded while reading words in Arabic and English in order to examine the effect of L1 dialect and the phoneme positions on the learners' production of the English phonemes /ʤ/, /θ/, /ð/, and /v/. This chapter brings the current research together by connecting all of the chapters, recapping the research questions, showcasing the research's contribution to the fields of applied linguistics and teaching English as a second language, acknowledging the research limitations, and making recommendations for future research.

As established in the literature review chapter, no studies have previously addressed the differences between the acquisition of the affricate and fricative sounds of English by speakers of Bedouin and Urban Saudi Arabic dialects. Evidence of dialectal differences between these

groups is reported in the studies of El Salman (2016) and Al Suwaiyan (2018) (see Section 3.4). The significance of the differences pointed out in El Salman and Al Suwayin's work paved the way for examining the effect of these dialectal differences on the acquisition of English, the aim of the current dissertation. The way in which such SA sounds are perceived and categorised in different Arabic dialects, as shown in the previous studies, has significant implications for understanding the challenges encountered by Arabic speakers-English learners in acquiring certain English phonemes. This relationship emphasises the importance of considering dialectal variation in L2 acquisition research. Dialectal variation may lead to different acquisition patterns amongst L2 learners and this helps to explain the differences detected between the two groups of speakers in the current study.

Previous literature has examined the acquisition of challenging phonemes in English by SA speakers (e.g., Alfehaid, 2015). These findings helped to identify certain sounds that speakers of the Arabic language mispronounce and underscored the impact of speakers' dialects on their pronunciation of English words, including sounds that are not in their dialects. Additionally, Alzinaidi and Abdel Latif (2019) investigated the impact of a sound's position on its production. The scholars sought to diagnose the difficulties that Saudi (L2) learners confront when they produce English consonants (see Section 3.6). Alzinaidi and Abdel Latif identified the sounds and clusters that students have difficulty pronouncing. This study confirmed that the positions of the sounds in words are likely to influence pronunciations difficulties. However, as demonstrated in the literature review (see Sections 3.6; 3.8), there is a need for further analysis in this area (Jabali & Abuzaid, 2017; Alzinaidi and Abdel Latif, 2019; Hamza *et.al*, 2020) and, therefore, the current study thoroughly investigated the impact of the phoneme position on the speakers' production.

The previous literature helped to enrich the existing body of the knowledge by providing a more nuanced understanding of the most problematic sounds for Arabic speaking-English learners, the effect of the phoneme position on its production, and the role that dialectal

variations play in the acquisition of English phonemes. However, the current research extends the previous work by identifying more specific fricative and affricate sounds that pose a challenge for English learners from specific Arabic-speaking dialects and how these sounds present varying degrees of difficulty depending on their acoustic, articulatory, and perceptual characteristics. Furthermore, the current study expands the scope of the existing studies concerning Arabic-speaking English learners by revealing consistent trends in how the phoneme position in a word influences the production of sounds. Additionally, the current research shows how the consonantal variations in the speakers' dialects lead them to use different substitutions or allophones, some of which were not reported in the previous literature. Some of these substitutions were derived from the speakers' L1 dialects and some were identified as new types of substitutions.

For a better understanding of the research problem and to give grounded findings, the current study adopted a quantitative methods approach, with tools chosen based on the research questions, aim, and hypotheses. The participants were 40 female senior English major students studying in the department of languages and translation at Tabuk university, Saudi Arabia: 20 Hwaiti Bedouins and 20 Hijazi Urbans. Based on the theoretical and conceptual frameworks, the research methods were selected to align with the study's objectives. The first method was a questionnaire consisting of 31 questions to provide general information about the participants' demographic status (name, age, sex/gender) and language background. The second method was a five-minute vocabulary proficiency level test, LexTALE, containing 60 words. The learners were asked to determine whether or not each of the words was an existing English word. The third method was an empirical test involving words in Arabic and English to determine the learners' phonological traits in both the L1 and the L2 and the effect of the learners' dialects on their pronunciation of the English phonemes /ʤ/, /θ/, /ð/, and /v/. The test included 84 English words and 84 Arabic words (72 correct words plus 12 distractors in each list) (see Subsections 4.4.3; 4.4.4). In this diagnostic production test, the words were classified according to three

different linguistic positions of the selected phonemes (initial, middle, and final). The raters were two English native speakers who work as English language instructors at Tabuk university: one American and one British.

6.2 Summary of the Findings and Answers to the Research Questions

The thorough thematic literature review highlighted a gap in the field, as discussed in Chapter 3 (see Sections 3.5, 3.7, and 3.8) helped form the research questions. These questions are restated below and each is followed by a summary of the key findings arrived at by the current study:

1. How do Hwaiti Bedouin and Hijazi Urban students produce the English consonant sounds /ʤ/, /θ/, /ð/, and /v/?

This study found that the two groups exhibit significant differences in their production of the first three speech sounds: /ʤ/, /θ/, and /ð/. The Hwaiti Bedouin group pronounced more correct words than the Hijazi Urban group who had a higher percentage producing non-target-like responses when pronouncing these three sounds. However, the results indicated that the two groups have greater difficulty pronouncing the voiced dental fricative /ð/ than the voiceless dental fricative /θ/. They had less completely correct productions of /ð/ than /θ/. Consequently, voiceless sounds are easier to acquire compared to voiced sounds manifesting in the sound /θ/. Furthermore, there was no significant difference between the Hijazi Urban and Hwaiti Bedouin speakers when producing the voiced labiodental fricative sound /v/ because this sound is absent in the two groups' spoken dialects. Both groups pronounced the phoneme /v/ as [f], regardless of its position in the words. This replacement illustrates that Arab learners of English as a second language are affected by their L1, mainly their dialects, when acquiring English sounds. Consequently, it can be generalised that the absence of a sound in a language predicts errors of production by native speakers of this language. Overall, the result for the first research question identifies how Hwaiti Bedouin and Hijazi Urban students produce the English consonant sounds /ʤ/, /θ/, and /ð/, demonstrating the differences in their productions (see Subsection 5.3.1). The differences between the two groups in the acquisition of affricate and fricative sounds /ʤ/, /θ/,

and /ð/ vary based on their dialects.

2. What is the effect of word position on learners' productions of the English phonemes /ʤ/, /θ/, /ð/, and /v/?

The Hwaiti Bedouin and Hijazi Urban speakers exhibited lower ratings in the production of the sound /ʤ/, /θ,/ and /ð/ when they were in the middle of the word. This could be assigned to the absence of these sounds in the phonological system of the Hijazi Urban dialect, and the lower exposure to these phonological patterns in the Hwaiti Bedouin dialect. As a result, the production of these sounds in middle position requires elaborate phonological awareness, and refined articulator skills, capacities that may be underdeveloped in intermediate-level learners. However, Hwaiti Bedouin speakers were better in producing these sounds in intial position, particularly for the sounds ʤ/ and /ð/, indicating greater use of these patterns in initial position in their dialect. Overall, these results demonstrate that in addition to the position of a phoneme as a factor, dialect-specific phonological characteristics explains the challenges both groups faced when producing these sounds in middle position, and why they struggled differently with sounds in initial position, reflecting group-based differences.

3. To what extent are Hwaiti Bedouin and Hijazi Urban speakers' substitutions of the English phonemes /ʤ/, /θ/, /ð/, and /v/ influenced by the consonantal variation in their own dialects?

The Hijazi and Hwaiti Bedouin speakers' productions of the target English sounds /θ/, /ð/, and /ʤ/ were influenced by the features of the phonological systems of their dialects. These sounds are not included in the Hijazi phonology and, therefore, Hijazi speakers use the sounds [s] or [t] for /θ/, [d] or [z] for /ð/, and [g] or [ʒ] for [ʤ]. They use such substitutions more frequently compared to Bedouins (see Subsection 5.3.3). On the other hand, these sounds are key features in the Hwaiti Bedouin dialect. Furthermore, the sound /θ/ was pronounced with unexpected non-target-like answers by the two groups. It was uttered as [l] one time by a Hwaiti Bedouin speaker in the middle position (e.g., in pronouncing the word "truthful"). Additionally, one Hijazi student produced the sound /θ/ as [p] two times when pronouncing the words "think" and "thick." Furthermore, Hwaiti Bedouin speakers used different substitutions than those

uttered by the Hijazi Urban speakers in their attempt to pronounce /ð/. For instance, Hwaiti Bedouin speakers substituted the sound /ð/ with [s] five times, particularly in the final position in words such as "with, loathe, breathe, and seethe," whereas they replaced the sound /ð/ with [b] one time in a final position when pronouncing the word seethe. Additionally, the sound /ʤ/ was pronounced as [k] one time by Hwaiti Bedouin Arabic speakers when the phoneme appeared in a final position in the word cage. This is a new kind of substitution, which has not been mentioned in previous studies because the reviewed works confirmed substitutions such as [ʒ], [g], and [j]. These new replacements show that, in their attempt to produce problematic sounds in L2, speakers might utter new phones with characteristics that are different to those of the target sound. Further, such new substitutions might be due to limited exposure to the target items or to the influence of surrounding sounds in which a sound occurs. Nevertheless, these unexpected non-target-like answers suggest that further research is necessary (see Appendix M).

The data also indicated that Hwaiti Bedouin speakers pronounce [θ] instead of [ð] in all positions but Hijazi urban speakers frequently pronounced it as [θ] when it had a final position. In the Bedouin dialect, the sound /θ/ is used instead of /ð/, as shown in Arabian poetry, especially the pre-Islamic odes (Mu'allaqāt). Thus, Hwaiti Bedouins' replacement of [ð] with [θ] may be because they are influenced by the use of [θ instead of ð] in old poetry (and this is a key feature). However, for Hijazi speakers, this type of incorrect production can be a common linguistic problem, as has been shown in the literature review (see Chapter 3, Subsection 3.5.2). Hence, the production of the sound /ð/ differs among Arabs based on the common dialect in each geographical area. Overall, the consonantal variations in the phonological systems affect the speakers' productions of L2 sounds.

Taken together, the findings indicated that the research objectives were successfully addressed: comparing the production of /v/, /θ/, /ð/, and /ʤ/ by Hwaiti Bedouin and Hijazi Urban speakers, identifying the most problematic word-phoneme position for the two groups of speakers, and examining the influence of the consonantal phonological system of the speakers'

dialects on their productions of /ʤ/, /θ/, /ð/, and /v/. Specifically, although the results illustrated that the two groups of speakers face difficulties when pronouncing /ʤ/, /θ/, /ð/, and /v/, the productions of Hwaiti Bedouin speakers were rated more highly than those of Hijazi Urban speakers, particularly when producing /ʤ/, /θ/, and /ð/. Furthermore, the findings showed that middle /ʤ/, /θ/, and /ð/ were generally the most problematic positions for both groups of speakers. Finally, it was apparent that the Hwaiti Bedouin speakers were positively affected by the presence of /ʤ/, /θ/, and /ð/ in the consonant inventory system of their Bedouin dialect, as evidenced by the lower number of /ʤ/, /θ/, and /ð/ substitutions compared to Hijazi Urban speakers.

Overall, based on these results, it is possible to conclude that the learners' limited exposure to the English language and native English speakers in their environment resulted in their production of less accurate sounds of the phonemes /ʤ/, /θ/, /ð/, and /v/ in various positions. The 40 participants were female senior English major students studying in the department of languages and translation at Tabuk University. They had never visited any English-speaking countries and they had not been exposed to a native English language setting. Thus, this highlights the fact that the speakers' lack of exposure to L2 may increase their percentage of incorrect productions of problematic sounds.

6.3 Testing the Research Hypotheses

In accordance with the objectives of the study, the research hypotheses were tested in light of the collected data, yielding results that were consistent with the theoretical assumptions presented in earlier chapters:

i) The first hypothesis predicted that, unlike the Hijazi urban speakers, Hwaiti Bedouin students would not experience difficulties pronouncing the selected phonemes /ʤ/, /θ/, and /ð/ because these phonemes exist in the Bedouin Arabic dialect yet both groups were assumed to experience difficulties in pronouncing the phoneme /v/ because it is not present in their own dialects. The data were consistent with our hypothesis concerning the production of the

phoneme /v/ because both groups pronounced /v/ as /f/ in all positions. The frequency of Hijazi urban speakers' production of /f/ instead of /v/ was 4% in comparison to 7.7% by the Hwaiti Bedouin speakers. However, both groups demonstrated lower ratings when pronouncing the sounds /ʤ/, /θ/, and /ð/. The percentages of incorrect responses for the sound /ʤ/ were 12.2% to 4.7%, the sound /θ/ 9.5% to 1.4%, and the sound /ð/ 17.7% to 8.2% by Hijazi urban speakers and Hwaiti Bedouin speakers, respectively. These figures illustrate that Hijazi urban speakers have greater difficulty pronouncing these sounds than Hwaiti Bedouin speakers, mainly in their productions of the sounds /ʤ/ and /θ/.

ii) The second hypothesis anticipated that, unlike Hwaiti Bedouin speakers, Hijazi speakers' productions of the English phonemes /ʤ/, /θ/, /ð/, and /v/ would be affected by the positions of the phonemes in the words with difficulty in the middle and final positions. Although previous studies involving other Arabic speaking-English learners showed that the speaker's utterance of a word was affected by the position of the phoneme in the word, the results of these studies were inconclusive. Therefore, the study sought to investigate the most problematic positions of these three sounds, particularly for Arabs. The results of the current study were consistent with this hypothesis with the sounds /ʤ/, /θ/, /ð/ but not /v/, which was pronounced as /f/ by Hijazi Urban and Hwaiti Bedouin speakers in most positions. The results regarding the sound /v/ did not show any significant difference between the two groups. Furthermore, the results indicate that both groups produce more incorrect productions when the phonemes /ʤ/, /θ/, and /ð/ are in middle positions than initial positions (see Chapter 5, Table 24). One notable difference between the groups, with respect to the most challenging sound in the middle position was /ʤ/ for the Hijazi group and /θ/ for the Hwaiti Bedouin group.

iii) The third hypothesis anticipated that Hwaiti Bedouin participants would be considerably positively affected by the consonantal variations in their spoken dialect when producing the phonemes /ʤ/, /θ/, and /ð/, whereas the Hijazi speakers were expected to deaffricate the sound /ʤ/ and replace other variants when pronouncing /θ/ and /ð/. The results

were consistent with this hypothesis. Hwaiti Bedouin speakers made fewer substitutions when producing these sounds compared to the Hijazi Urban speakers. It is also assumed that both groups would devoice the phoneme /v/ by pronouncing it as /f/ because the latter is used in their own dialects. Hijazi Urban speakers provided more correct productions than Hwaiti Bedouin speakers (319 to 250) but this difference is insignificant (0.09).

6.4 Theoretical Framework Underpinning the Research Questions

Key theoretical milestones provided a general view of the research problem and how it was discussed in the established theories. The most appropriate theories for this study were cross-linguistic influence (CLI) (Bild & Swain, 1989; Tati *et al.*, 2015; Odlin, 1989, 2012; De Angelis and Selinker, 2001), Eckman's (1985) markedness differential hypothesis (MDH), Flege and Bohn's (2021) speech learning model (SLM), and Best and Tyler's (2007) perceptual assimilation model (PAM) (see Chapter 3, Subsection 3.9.4). These theories helped to interpret the findings of the current study. The PAM was not applied in the current study because this study focused on the production of individual English sounds when reading a list of words that contain the target sounds in different phonological environments for a purpose of investigating English-Arabic speaking learners' production ability and accuracy. Nonetheless, a summary of the main tenets of PAM were included in the present study to provide the necessary background on an important aspect of L2 phonology acquisition. Based on the PAM, examining L2 learners' perceptual assimilation accuracy requires a specific discrimination test to determine how L2 learners perceptually assimilate the target sounds according to their existing L1 categories (McGuire, 2010). However, the current study did not employ perception tasks (e.g., discrimination tests or minimal pair drills). The aim of introducing this model, thus, is to provide insight into other speech perception theories which explain how L2 learners initially categorise non-native speech sounds based on their similarity to their existing L1 phonemes. It contributes to a clearer understanding and enhanced insight into how L2 phonetic categories are perceptually mapped onto the speakers' existing L1 knowledge, manifesting in the patterns of substitutions

detected in their productions (see Subsection 3.9.4). Furthermore, PAM contributes to language teaching L2 phonology by addressing not only on the phonological categories of the target language but also the articulatory gestures required to produce the target sounds. Teachers can provide explicit instruction regarding the placement and movement of the articulators for each sound, as well as providing opportunities for practice to help learners acquire and develop the necessary motor skills (Gilbert, 2012). Further, this approach suggests that teachers should be aware of the learners' L1 categories when introducing new phonetic categories in the L2. Grasping the process of perceptual assimilation can help to inform language teaching practices by identifying causes of errors or difficulties in the perception of L2 sounds, assisting the development of pronunciation pedagogy (Wagner, 2012; Li *et al.*, 2022). In L2 teaching, this approach suggests that learners should be provided with optimised instruction which includes accent training and effective listening methods in the target language (Best *et al.*, 2009). Teachers can focus on providing learners with exposure to language in natural communicative contexts such as in listening and reading activities, conversations and real-life situations (Best & Taylor, 2007). By engaging learners in meaningful language use, teachers can help them to develop more accurate and fluent language skills that are more closely tied to their communicative needs. This can be through explicit instructions including exercises such as contrastive analysis tasks, auditory discrimination training, and minimal pair drills, which may enable L2 learners to identify non-native phonemes that can be challenging for them to discriminate due to differences between their L1 and L2 (Pennington & Richards, 1986; Derwing & Munro, 2005; Best & Tyler, 2007; Offerman, 2020). Hence, PAM is included in the current study as an interpretive framework rather than a predictive model, providing a theoretically grounded account of phonological transfer effects drawing up on the production-focused analysis.

The MDH was relevant to the results for the first research question, which explored the way in which the two groups of speakers produce the English phonemes /ʤ/, /θ, /ð/, and /v/ (see

Subsection 5.4.1), the second research question, which examined the effect of phoneme positions on the productions of these phonemes (see Subsection 5.4.2), and the third research question which examined the effect of the dialectal consonantal variation on the speaker's productions (see Subsection 5.4.3). It helped to define the marked sounds and their marked positions for the speakers in the current study. In accordance with the universal markedness hierarchy (Eckman, 1977), the findings of the current study supported the predictions of the MDH because they reinforced the idea that phonological challenges are rooted in typological markedness. According to universal grammar (UG), such phonological constraints can be regarded as universal generalisations because they are common to most languages (Smith, 2002; Jervring, 2015). Overall, MDH is significant in language teaching; it can help both teachers and learners to develop effective strategies for learning and teaching a new language. It provided a valuable framework for this study and it gave thorough insight into the problem that was being addressed.

Furthermore, the results for the first research question were best understood through the lens of SLM. This model helped to describe how the speakers in the current study map L2 sounds to their existing L1 dialect's phonetic categories and how the degree of sound similarity with L2 sounds influenced their classification of L2 sounds, resulting in their way of producing the target sounds (see Subsection 5.4.1). Additionally, this model supported the results of the third research question which investigated the influence of consonantal variation in the speakers' dialects on their productions. It explained that when the sounds in L1 and L2 are partially similar in specific phonetic features, learners experience difficulties acquiring the target sounds. This was evident in the high frequency of the substitutions used by the Hijazi speakers when producing /ʤ/, /θ/, and /ð/. They were guided by the phonetic knowledge of their Hijazi Urban dialect where these sounds were similar but not identical. Additionally, it illustrated that whether the sounds in L1 and L2 are different or identical, L2 learners may be able to acquire them easily (Flege and Bohn, 2021). This was clear from the low frequency of substitutions used by Hwaiti Bedouin speakers when producing /ʤ/, /θ/, and /ð/, which were identical (see Subsection 5.4.3). The phenomenon

of CLI was noted in the attested data, revealing in native language transfer where the speakers transferred a range of phonetic variants used in their dialects in their attempt to introduce the target phonemes. Furthermore, interlanguage features were also detected in the speakers' productions. These were reflected in the characteristics of fossilisation, overgeneralisation, and simplification as processes employed by the participants when producing the target sounds (see Subection 5.4.3). The interlanguage phenomenon has also important implications for language teaching and learning because it provides teachers with valuable insights into the learners' current level of proficiency as well as areas that requiring improvement. Learners' individual differences, motivation, and learning strategies also influence their interlanguage development, resulting in variation in interlanguage systems. These factors help to explain variance in interlanguage system. Furthermore, this system is continually changing as learners receive feedback and input in the target language (Osman *et al.*, 2022). By identifying and addressing issues in the interlanguage system, teachers and learners can work together to prevent errors and promote continued language learning and development (Chen & Zhao, 2013). Without a clear understanding of interlanguage characteristics, both teachers and learners may struggle to effectively communicate, leading to frustration and limited progress in language learning.

While this study confirms the theoretical claims made by CLI, MDH, and SLM, it also extends these frameworks by informing empirical insights that contribute to these theoretical frameworks by investigating the role of the dialectal variations in L1 on the acquisition of L2 sounds. This was mediated by the new patterns of substitutions produced by the participants. These substitutions yield sounds that are quite distant from the target L2 sounds, indicating significant dialect-specific effects which extend the predictions of the applied theoretical frameworks and which require further exploration and interpretation. The findings indicated that the dialectal background of L2 learners affects the nature and extent of L1 transfer, reinforcing the principles of CLI while illustrating that such influence can vary across speakers of different dialects of the same language. This proposes that in L2 acquisition of phonology research, CLI

should account for not only inter-language differences (e.g., SA vs. English) but also intra-language variation (variation within a language).

The study also extends MDH by revealing that the definition of what is marked may vary depending on the learners' L1 dialectal characteristics. The sounds that are considered to be marked from the perspective of a standard language may be less marked for learners of a specific dialect. This calls for a more nuanced interpretation of MDH, which accounts for dialect-specific phonological systems. Also, the findings of the study refine the SLM by emphasising the effect of dialectal variation and exposure of learners' L1 on their ability to form new phonetic categories. This highlights that the perceived similarity and mapping between L1 and L2 sounds must not be treated as monolithic because L1 dialectal differences could change how L2 sounds are perceived.

6.5 Research Contributions

This thesis has made important contributions in the field of applied linguistics. This interdisciplinary field incorporates ideas from various fields including linguistics, sociology, education, and languages. The inclusion of these various disciplines in applied linguistics makes it a distinct field contributing to language-related issues, including the learning and teaching of second languages. Thus, the contributions of the current research can be beneficial for teachers of English as a second language.

The first contribution to the body of knowledge is that learners incorporate certain features of their L1's dialect in their learning process of a second language, so, when learning English as a second language, the learners' dialects can affect their pronunciation of problematic consonant phonemes such as /ʤ/, /θ/, /ð/, and /v/. As a result, the teachers' identification of the learners' dialects can help them to prepare activities that will enhance learners' English pronunciation, in particular, and language pedagogy in general. Because the literature review shows that the production of [ʤ] for /q/ provides an indication that the speaker is a Bedouin, the results, discussion, and findings of this study demonstrate that the participants' dialects reflect

their identities because their correct utterance of the sounds /ʤ/ and /θ/ in most positions along with their use of [θ] for /ð/ indicates that the speaker is a Bedouin. On the other hand, the pronunciation of [t] or [s] for /θ/ and [d] or [z] for /ð/ implies that the speaker is Hijazi. Other studies have also indicated that this is the case (e.g., Rustiba, 2009; Bui's 2016), albeit not with the languages examined in this project (see Chapter 3, Section 3.5). However, the results indicated that Hwaiti Bedouin used substitutions similar to those used by Hijazi Urban speakers. This illustrates that Hwaiti Bedouin dialect might have undergone changes manifested in their production of specific items, a result which suggests that language contact played a role in shaping the phonological patterns of Hwaiti Bedouin speakers.

These findings illustrate that learners' dialects are important aspects not only in language and communication but also in language teaching and learning. When teachers are aware of the different dialects that their students speak and the phonological systems of these dialects, they can easily identify their learners' sources of pronunciation difficulties and design activities that can help to overcome these difficulties. While recognising that learners' L1 dialects may inform targeted pronunciation instructions, its application may be limited in heterogeneous classrooms unless teachers tailor effective methods for diverse L1 backgrounds.

When teaching English as an L2, students require phonological training about producing English sounds (Aliaga-García & Mora, 2009; Prefors & Dunbar, 2010; Cebrian & Carlet, 2014; Oslon, 2019). Providing individualised and differentiated instructions to address each learner's specific needs can enhance not only students' pronunciation but also reading, speaking, and spelling. In this training, students' phonological systems should be taken into consideration because identifying the principles that govern the way sounds are produced in these systems can help teachers to determine the sounds that the students have problems articulating. Teachers can also make use of similar characteristics of the students' dialect phonological system and those of the L2. Consequently, they can provide learners with more activities to eliminate the phonological problems that they encounter and improve their pronunciation.

Based on the insight gleaned from the existing literature, this thesis is the first to examine dialectal differences in the pronunciation of the sounds /ʤ/, /θ/, /ð/, and /v/ in two Arab groups: Hijazi Urban and Hwaiti Bedouin speakers, revealing that students' dialects affect their pronunciation of various English phonemes in different positions. This widens the field of inquiry and draws attention to the effects of dialectal diversity on communication. These dialects affect the speakers' communication with other people in English and impacts the listeners' understanding. For example, the impact of Hijazi Urban and Hwaiti Bedouin speakers' dialects on their pronunciation of the sound /v/ makes them pronounce the word *van* as *fan* and these two words are a minimal pair with different meanings. Hence, incorrect articulation of words may cause misunderstanding between the speaker and the listener which, in turn, hinders the communication process.

Additionally, the quantitative methods applied in the current research can be used for purposes beyond this thesis. Based on the quantitative approach, information about the participants' language background was gathered and data were collected from the participants' phonological production. A detailed description of their productions of phonemes in Arabic and English words was undertaken to determine the impact of their dialects on their pronunciation of the selected phonemes. The frequency of the participants' utterance was measured. Overall, the quantitative methods approach used to gather information helped to answer the research questions of the current study by providing numerical data regarding the speakers' language backgrounds and performance, making it possible to conduct a systematic analysis of the speakers' pronunciation accuracy and error patterns. This approach provides a replicable framework for analysing L1 dialectal variation's influence on the acquisition of L2 sounds in other learner populations.

Moreover, this thesis has provided new insights into the body of knowledge by revealing that, despite differences in the participants' pronunciation of certain phonemes, the Hijazi Urban and Hwaiti Bedouin female speakers use similar phonological substitutions as a result of dialect

contact.

These two dialects are the products of geographical locations that have influenced their formation and evolution. The geographical proximity between the places of these dialects results in dialect resemblance. This is apparent in the pronunciation of /ʤ/ as [g] or [ʒ], /θ/ as [s] or [t], and /ð/ as [θ] or [z] by both Hijazi Urban and Hwaiti Bedouin speakers. This raises an important question: what makes a Hwaiti Bedouin speaker substitute specific sounds such as /θ/ as [s] and /ð/ as [z]? This similarity confirms that these dialects have undergone alterations over time because the people speaking them are not isolated as before; the participants are students at the same university. Thus, the Hijazi Urban and Hwaiti Bedouin dialects they use are different from those of the older generation of Hijazi Urban and Hwaiti Bedouin dialect speakers with the formation of dialects being dramatically influenced by two main factors: time and isolation. Hence, addressing sound variations in Arabic dialects will help to attract the attention of educators and promote the inclusion of more effective teaching strategies that consider linguistic diversity.

6.6 Research Limitations and Recommendations for Future Research

The scope of this study was to examine the production task with no focus on perception. The difficulty with the pronunciation of phonemes was decided based on the frequency of inaccurate productions, as indicated by lower pronunciation ratings, without incorporating perception data to determine how the participants hear or distinguish these phonemes. Therefore, further research could include perception components. This could include identification, discrimination or listening tasks. This would provide more direct insight into how L1 dialectal variation could affect the perceptual mapping of L2 sounds.

The current study employed a quantitative methods approach but qualitative and quantitative methods could be combined in the field of applied linguistics to fully explore the research question(s). Qualitative methods could include learners' perspectives on language use and variation. This can be achieved by inspecting the speakers' opinions about Saudi Arabic

dialects and how they would be influenced by their Arabic vernaculars when producing different English phonemes. Interviewing Arab speakers can enhance our understanding of the impact of their dialects on their production of specific sounds in their process of learning English as an L2. Qualitative research can answer questions by providing in-depth insight into the underlying processes, whereas quantitative research can answer questions about measurable frequencies, distributions and patterns within the data. Thus, the two approaches can supplement each other and enhance the validity and reliability of research.

Furthermore, the limited number of raters constitutes another limitation associated with the current study. At the time of the data collection, the raters were selected during the summer course period, a time when many instructors were unavailable due to holiday travel. Therefore, only two English native speakers of different ages, genders, and linguistic backgrounds were available and willing to participate. As a result, differences in age, gender, nationality, and variety of English may have influenced how the raters evaluated the speakers' pronunciation. Therefore, future research could control for this by choosing raters with comparable linguistic and sociolinguistic backgrounds.

Another limitation is that the participants were all women. Gender differences may affect people's phonological productions of the same phonemes and result in diverse phonological productions. Thus, including male and female participants may highlight the influence of gender on the speakers' productions. Also, this study investigated the CLI within Bedouin and Hijazi respondents who were of the same age and had the same education level but it did not consider diverse social groups who might have dissimilar linguistic variations due to their diverse ages, socioeconomic status or occupation. Hence, it is recommended that future studies investigate other factors that may influence the speakers' productions of the target phonemes. Identifying other factors, such as age, could help to better interpret the difficulties that Arabic speakers experience when they pronounce English phonemes because older participants may reflect the dialect of the older generation.

Furthermore, this study is limited to investigating the impact of the speakers' Hijazi Urban and Hwaiti Bedouin dialects on pronouncing the four English consonants /ʤ/, /θ/, /ð/, and /v/ in initial, middle, and final positions in the selected words based on a sample of 40 participants. Another potential future avenue of research could be to explore the influence of these dialects on the production of additional L2 sounds with a larger sample. Exploring the production of more phonemes using a larger sample of participants may produce valid findings because when the sample size is larger, the average values are more accurate. Additionally, it is recommended that future scholars investigate the pronunciation of dialects in Saudi Arabia other than Hijazi Urban and Hwaiti Bedouin, as well as different phonemes than those selected in this study.

References

Ababneh, I. (2018) English pronunciation errors made by Saudi students. *European Scientific Journal, ESJ*, [online]. 14(2), 244-261. Available at: https://core.ac.uk/ (accessed 14 February 2023)

Abd Elwahab, W. (2020) The Effect of Local Arabic Dialects on Learning English Language Pronunciation. *Arab World English Journal*[online], 11(1),489–499. Available at: https://dx.doi.org/10.24093/awej/vol11no1.33 (accessed 12 January 2026)

Abdelgadir, E. M. (2021) A Contrastive Study of English and Arabic Vowel Phonemes. *English Language Teaching*, [online].14(5), 58-76. Available at: https://eric.ed.gov/?id=EJ1296817 (accessed 8 February 2025)

Abdelhadi, M. (2018). Arabic is the language of 'Ahlul-Jannah' (people of paradise): The religious status of Arabic language contributes to its maintenance. *Asia Pacific Institute of Advanced Research Journal of Advanced Business and Social Studies (APJABSS)*[online], 4(1SS), 300–309. Available at: https://doi.org/10.25275/apjabssv4i1ss5 (accessed 20 December 2025)

Abdel-Monem, A., Shaalan, K., Rafea, A., & Baraka, H. (2009) Generating Arabic text in multilingual speech-to-speech machine translation framework. *Machine Translation* [online]. 22(4), 205-258. Available at: https://doi.org/10.1007/s10590-009-9054-9(accessed 1 November, 2021)

Abohajar, A.F., Alwejwaj, E.A., Alakkari, F.F., Gammou, N.S.B., Krim, S.A. and Salem, M.M. (2023) *The influence of local Arabic dialects on English pronunciation among EFL learners*. In: Proceedings of the Annual Scientific Conference for Undergraduate and Postgraduate Students. Misurata: Al-Asmarya Islamic University, 458–472.

Abu-Absi, S. (1986) The modernization of Arabic: Problems and prospects.Anthropological Linguistics, 28(3), 337-48.

Abuata, A. and Alomari, B. (2015) A rule-based stemmer for Arabic Gulf dialect. *Journal ofKing Saud University – Computer and Information Sciences*[online]. 27, 104-112. Available at: file:///C:/Users/USER/Downloads/A%20rulebased%20stemmer%20for%20Arabic%20Gulf%20dialect.pdf (accessed 19 October2021)

Abu Shareah, A., Mudhsh, B., Al-Takhyneh, B., & Al-Shboul, Y. (2015). Dialectal variation in Arabic: A sociolinguistic study. *International Journal of Humanities and Social Science, 5*(5), 68–77

Afonso Funke, E. (2021) The Importance of Teaching English Pronunciation in Spanish Schools.
Unpublished MA. thesis, Universidad de la Laguna.

Adefoged, P., & Johnson, K. (2015). *A Course in Phonetics* (7th ed.). Stamford, CT: Cengage Learning.

Afshar, N., & van Heuven, V. (2022) Perceptual assimilation of American English vowels by monolingual and bilingual learners in Iran. *Argumentum, 18*, 172–191.

Ahmed, J. (2011) Pronunciation Problems among Saudi Learners: A Case Study at the Preparatory Year Program, Najran University Saudi Arabia. *Language in India* [online], 11, 22-36. Available at: http://www.languageinindia.com/july2011/jalalsaudilearnersfinalpaid.pdf (accessed 19 February 2023)

Al-Abed Al-Haq, F. and Oqlah S. (1996) "The Status of English in the Kingdom of SaudiArabia (KSA) from 1940-1990" In Fishman, J., Conrad, A. and Lopez, A. (Eds.) *Post- Imperial English: Status Change in Former British and American Colonies,* 1940-1990.Berlin: Mouton de Gruyter. 457-84.

Alahmadi, S. (2015) Loanwords in the Urban Meccan Hijazi dialect: AnAnalysis of Lexical Variation according to Speakers' Sex, Age and Education. *International Journal of English Linguistics* [online], *5*(6), 34–58. Available at https://pdfs.semanticscholar.org/4c11/327058483eaeb889495a9f9d68bb114133dd.pdf (accessed

5 March 2022).
Al-Allaq, W. (2014). Arabic language in a globalized world: Observations from the United Arab Emirates. *Arab World English Journal (AWEJ)*, 5(3), 113–123
Alankari, A. (2004) *Technology Transfer: A Case Study Analysis of the Saudi Oil and Petrochemical Sectors.* Ph.D. thesis. Cranfield University.
Alansari, A. (1970) *Tuhfat Almuhbin wa Alashab Fi Marefat ma Lelmadaneen min Ansab[e-book]*. Tunisia: Almaktaba Alateeqa. Available at: https://ebook.univeyes.com/27122/pdf-%D8%AA%D8%AD%D9%81%D8%A9-%D8%A7%D9%84%D9%85%D8%AD%D8%A8%D9%8A%D9%86-%D9%88%D8%A7%D9%84%D8%A3%D8%B5%D8%AD%D8%A7%D8%A8-%D9%81%D9%89-%D9%85%D8%B9%D8%B1%D9%81%D8%A9-%D9%85%D8%A7-%D9%84%D9%84%D9%85%D8%AF%D9%86%D9%8A%D9%8A%D9%86-%D9%85%D9%86-%D8%A7%D9%84%D8%A3%D9%86%D8%B3%D8%A7%D8%A8-%D8%A7%D9%84%D8%A3%D9%86%D8%B5%D8%A7%D8%B1%D9%8A-%D8%AA-%D8%A7%D9%84%D9%85%D8%B7%D9%88%D9%8A-%D8%B7-%D8%A7%D9%84%D8%B9%D8%AA%D9%8A%D9%82%D8%A9 (accessed 6 March 2022)
Albalawi, H. (2015) *Changes in the Balawi Bedouin Arabic dialect of Saudi Arabia*.Unpublished MA thesis, University of Adelaide.
Al-Batal, M. (1995) Issues in the teaching of the productive skills in Arabic. In Al-Batal, M.(Ed.), *The teaching of Arabic as a foreign language: Issues and directions*, 115-133. Provo,Utah: American Association of Teachers of Arabic.
Al-Batal, M and Belnap, R. K. (2006) The teaching and learning of Arabic in the UnitedStates: Realities, needs, and future directions. In Wahba, K., Taha, Z., & England, L., eds. *Handbook for Arabic language teaching professionals [e-book]*. Mahwah, New Jersey: Lawrence Erlbaum, 389-399. Available at: 080585102X 9780805851021 9780805851014 080585101. (accessed 24 November 2021).
Albdairat, I. S. (2021) *Sociolinguistic Study of Phonological Variation in Jordanian Arabic in Al-Karak*. Unpublished Ph.D. thesis, Indiana University.
AlBzour, N. N., & AlBzour, B. A. (2015) Arabic uniglossia: Diglossia revisited. *Studies in Literature and Language*, 10(3), 7-12.
Al-Essa, A. (2022) Arabic Interdentals: Variation and Linguistic Change. Semitic dialects and dialectology [online], 45, 45-63. Available at: https://library.oapen.org/bitstream/handle/20.500.12657/57543/1/heiup_OAPEN_Klimiuk_book.pdf#page=65 (accessed 1st April 2023)
Alfehaid, M. (2015) Pronunciation problems Arab speakers encounter while learning English. *International Journal of Scientific & Engineering Research* [online], *6*(10), 581-582. Available at: https://www.ijser.org/researchpaper/Pronunciation-Problems-Arab-Speakers-Encounter-While-Learning-English.pdf (accessed 25 February 2023)
Al-Gamdi, N. (2018) Linguistic Variation of Paradigmatic Sound Change in Gulf Arabic. *Dar Almandouma, Journal of Fikr waIbda, Modern Literature Association* [online], 122, 1-85. Available at: http://search.mandumah.com/Record/925550(accessed 7 October 2021)
Algeo, J. (1992). *The origins and development of the English language* (4th ed.). Harcourt Brace Jovanovich.
Al-Ghamdi, A., & Al-Saddat, I. (2002) *The development of the educational system in Saudi Arabia.* Tarbiat Al Ghad: Riyadh.
Alharbi, K. N. (2013) *Saudi learners' pronunciation difficulties with the English voiceless bilabial stop/p*. Unpublished MA thesis, Southern Illinois University: Carbondale.
Al-Hattami, A. A. (2010) A phonetic and phonological study of the consonants of English and Arabic. *Language in India*, 10(5), 242-365.
Alhawsawi, S. (2016) English Education Policy in Saudi Arabia: English Language Education Policy in the Kingdom of Saudi Arabia: Current Trends, Issues and Challenges. In Kirkpatrick,

R. ed. (2017) *English Language Education Policy in the Middle East and North Africa* [e-book]. DeGruyter: Mouton.199-222. Available at: file:///C:/Users/USER/Downloads/the%20presence%20of%20English%20in%20the%20%20Saudi%20education%20system2.pdf (accessed 3 January 2022)

Alhazmi, L. (2018) *Perceptions of Hijazi Arabic Dialects: An attitudinalapproach*. Unpublished Ph.D. thesis: University of Sheffield.

Alhuri, I. (2015) Arabic Language: Historic and Sociolinguistic Characteristics. *EnglishLiterature and Language Review* [online]. 1(4), 28-36. Available at: http://arpgweb.com/?ic=journal&journal=9&info=aims (accessed 11 October 2021)

Aliaga-García, C., & Mora, J. C. (2009) Assessing the effects of phonetic training on L2 sound perception and production. *Recent research in second language phonetics/phonology: Perception and production* [online], 231, 10-27. Available at: https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=2d3fce7c0a4d96ea0179a4b0393038774d1e6a0a (accessed 9 February 2025)

Ali, M. (2003) *The Holy Quran*. Islamabad: Islam InternationalPublications Ltd.

Alinei, M. (1980) "Dialect. A dialectical approach", In: J; Ivić, P. & Kehy, K.,eds. *Dialektand Dialektologie, Göschel,*. Wiesbaden: Franz Steiner, 11-42.

Aljabouri, M. (2019) *Arabic Language Allophones.* In: Proceedings of the Language Conference (Linguistics and Literature), L3 2013, Singapore.

Aljarf, R. (1994) English and Arabic Phonology: *Translation Studies,* University of Iwa, Department of Translation, unpublished.

Al-Jehani, N. (1990) Color terms in Mecca: A sociolinguistic perspective. *Anthropological Linguistics*[online], *32*(1-2), 163–74. Available at:https://www.jstor.org/stable/30028145 (accessed 6 March 2022)

Aljumeiah, A. (2005) Executive regulations of the Saudi citizenship system. Alriyadh[online] 23rd April 2005. Available at: https://web.archive.org/web/20181002233041/http://www.alriyadh.com:80/59064 (accessed 1 April 2023)

Al-Ken, A. (1995) *The Hajj: Past, present and future: the communicationAspect.* Unpublished thesis: University of Leeds. Available at: https://etheses.whiterose.ac.uk/523/1/uk_bl_ethos_341805.pdf (accessed 5 March 2022)

Almadani, W. (2021) *How Hijazi Men and Women Say "NO": A Pragmatic and Discourse Analysis Study of the Speech Act of Refusal, Gender and Culture in Saudi Arabia*. Unpublished Ph.D. thesis, University of Sunderland.

Almeman, K., Lee, M. (2013) *Automatic building of Arabic multi dialect text corpora by bootstrapping dialect words.* In: Editor, Communications, Signal Processing and their Applications (ICCSPA), 1st International Conference on 12–14 Feb. 1–6.

Almtairi, N. (1985) *Development of oil and societal change in Saudi Arabia.* M.A. thesis. Denton, Texas: North Texas State University.

Alomeri, H, Sanoudaki, E., Tamburelli, M., & Kotzoglou, G. (2016) *Diglossia and EFL: the case of Arabic prepositions*. Paper presented at: the International Conference on Bilingualism in Education. Bangor University, 10-12 June 2016.

Alqadasi, A. M. A., Abdulghafor, R., Sunar, M. S. & Salam, M. S. (2023) Modern Standard Arabic speech corpora: A systematic review. *IEEE Access*[online], 11,55771–55796. Available at: Modern Standard Arabic Speech Corpora: A Systematic Review | IEEE Journals & Magazine | IEEE Xplore (accessed 1 February 2026)

Alrashidi, W. (2022) Diglossic Code-Switching between Standard Arabic and Najdi Dialect on Twitter. *British Journal of English Linguistics*, 10(3), 37-60.

Alrashidi, O. Phan, H. (2015) Education Context and English Teaching and Learning in the Kingdom of Saudi Arabia: An Overview. *English Language Teaching*[online], 8(5), 33-44. Available at: https://files.eric.ed.gov/fulltext/EJ1075240.pdf (accessed March 2022)

Al-Rawi, A. (2012) *Media Practice in Iraq* [e book]. Palgrave Macmillan: London. Available at:

https://www.researchgate.net/publication/277816548_Media_Practice_in_Iraq(accessed 2 December 2021)
Al-Rawi, M. (2012). Four grammatical features of Saudi English: Charting the influence of Arabic on the syntax of English in Saudi Arabia. *English Today*[online], 28(2), 32–38. Available at: https://doi.org/10.1017/S0266078412000132 (accessed 19 December 2025)
Al-Rubaat, A. M. (2022). The relationship between the morphological phenomena of the current Sakakan dialect and Modern Standard Arabic. *Eurasian Journal of Applied Linguistics*[online], 8(1), 1–12. Available at: https://doi.org/10.32601/ejal.911515 (accessed 23 December 2025)
Alshahrani, M. (2016) A Brief Historical Perspective of English in Saudi Arabia. *Journal of Literature, Languages and Linguistics[Online]*. 26, 43-47. Available at: file:///C:/Users/USER/Downloads/the%20presence%20of%20English%20in%20the%20%20Saudi%20education%20system.pdf (accessed 18 December 2021)
Alshalaan, K. (2020) A Comparison between English and Arabic Sound Systems Regarding Places of Articulation. *Open Access Library Journal* [online], 7: e5679. Available at: https://doi.org/10.4236/oalib.1105679 (accessed 11 December 2023)
Alsuhaibani, Y., Mahdi, H. S., Al Fadda, H. A., & Alkadi, H. (2024) Web-based pronunciation training and learning consonant clusters among EFL learners. *Acta Psychologica*[online], *249*, 104459. Available at: https://www.sciencedirect.com/science/article/pii/S0001691824003366 (accessed 29 September 2024)
Alsuwaiyan, L. A. (2018) Diglossia in the Arabic language. *International Journal of Language and Linguistics* [online], *5*(3), 228-238. Available at: doi:10.30845/ijll.v5n3p22 (accessed 27 February 2023)
Altaha, F. M. (1995) Pronunciation errors made by Saudi university students learning English: Analysis and remedy. *ITL-International Journal of Applied Linguistics*[online], 109(1), 110-123. Available at: https://www.jbe-platform.com/content/journals/10.1075/itl.109-110.05alt (accessed 19 July 2025)
Altakhaineh, A. R. M., Alsaraireh, M. Y., & Alhendi, H. (2022) The impact of incidental learning on the acquisition of the sound /p/ by Arabic-speaking EFL learners. *ExELL: Explorations in English Language and Linguistics*, *10*(1), 51–65. https://doi.org/10.2478/exell-2022-0010 (accessed 12 January 2025)
Alwabari, S. (2013) *Non-native production of Arabic pharyngeal and pharyngealized consonants.*
Unublished MA. Thesis, Carleton University.
Alwer, E. and Horesh, U. (2019) Arabic sociolinguistics: Principles and epistemology InAlwer, E. and Horesh, U. (eds) *The Routledge Handbook Of Arabic Sociolinguitics [e.book]*. Routledge: London. 1-11. Available at: file:///C:/Users/USER/Downloads/Al- Wer_Horesh.pdf
Al Yaqoobi, Z. M., Ali, F., & Sulan, N. (2016) An analysis of errors caused by Omani EFL learners in pronouncing certain consonant sounds. *International Journal of Language Education and Applied Linguistics*[online], 5, 59-71. Available at https://journal.ump.edu.my/ijleal/article/view/501 (accessed 26 February 2023)
Alzinaidi, M. H., & Abdel Latif, M. M. M. (2019) Diagnosing Saudi Students' English Consonant Pronunciation Errors. *Arab World English Journal*[online], 10 :4, 180-193. Available at: https://dx.doi.org/10.24093/awej/vol10no4.14 (accessed 17 February 2023)
Alzoubi, M. (2018) The Impact of Exposure to English Language on Language Acquisition. *Journal of Applied Linguistics and Language Research*[online], *5(4), 151-162. Available at h*ttps://www.jallr.com/index.php/JALLR (accessed 2 June 2023)
Amalia, F. N., Rambe, S. S., & Lubis, Y. (2023) Literature Review on English Consonant Pronunciation Problems Encountered by Indonesian Students. *Khatulistiwa: Jurnal Pendidikan dan Sosial Humaniora*, 3(3), 175-184.

Amara, M.H. and Mar'I, A. (2002) *Language Education Policy: The Arab Minority in Israel[e-book]*. Dordrecht: Kluwer Academic Publishers. Available at: https://books.google.ie/books?hl=ar&lr=&id=aZIRBwAAQBAJ&oi=fnd&pg=PR11&dq=Language+Education+Policy,+The+Arab+Minority+in+Israel,+Springer+Science+%26+Business+Media&ots=AWToDSrean&sig=PgM10hglkzRYbytpX-VPUXUSYX8&redir_esc=y#v=onepage&q&f=false (accessed 24 March 2023)

Andi-Pallawa, B., & Alam, A. F. A. (2013). A comparative analysis between English and Indonesian phonological systems. *International Journal of English Language Education*[online], *1*(3), 103-129. Available at: https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=ea59b8bc74cdb5883b04e724620383f20b4e7668 (accessed 20 September 2024)

Anggraini, R. (2018) Learning strategy and interlanguage errors: A case study of SMPN 5 Padang Panjang students. *English Language Teaching and Research*, *2*(1).

Annette Lareau & Elliot B. Weininger (2003) Cultural capital in educational research: A critical assessment. In J. T. Richardson (ed.), *Handbook of Theory and Research for the Sociology of Education* (105–144). New York: Greenwood Press.

Ansari, A. (2012) The Languages of the Arab Revolutions. *Journal of Democracy* [online]. 23(2), 5-18. Available at: file:///C:/Users/USER/Downloads/political%20terms.pdf (accessed 28 October 2021).

Archila-Suerte, P., Zevin, J., Bunta, F., & Hernandez, A. E. (2012) Age of acquisition and proficiency in a second language independently influence the perception of non-native speech. *Bilingualism: Language and Cognition*, *15*(1), 190-201.

Ashby, M., & Maidment, J. (2005). *Introducing phonetic science*. Cambridge University Press.

Asma, T. (2010*) Transfer of Simple Prepositions from Standard Arabic into English: The Case of Third Year LMD Students of English Language at Mantouri University – Constantine*. Unpublished MA thesis, Mantouri University.

As-Sammer, M. (2010) Phonological Variation in Modern Standard Arabic: The Case of the Affricate / ʤ /: Oman as a Sample. *Journal of Basrah Researches (Humanities Series)* [online]. 36(4), 29-57. Available at: file:///C:/Users/USER/Downloads/omani%20dialect.pdf (accessed 28 February 2022)

Atlas, S., & Qadir, A. (2024). Chiefdom, vassalage and empire: The political structures of Arabia from the first CE to the advent of Islam. *Social Evolution & History*[online], 23(2), 1. Available at: https://doi.org/10.30884/seh/2024.02.01 (accessed 21 December 2025)

Avellón Mayor, L. (2021) Overcoming segmental difficulties in English pronunciation in Spanish 3-ESO bilingual students through the use of SpeechAce. Unpublished MA thesis. Universidad de Valladolid.

Avesani, C., Galatà, V., Best, C. T., Vayra, M., Di Biase, B., & Ardolino, F. (2017) Phonetic details of coronal consonants in the Italian spoken by Italian-Australians from two areas of Veneto. *Book series Studi AISV*[online], 3, 281-306. Available at: https://www.studi.aisv.it/index.php/home/article/view/191 (accessed 14 October 2024)

Bahrani, T., Tam, S. S., & Zuraidah, M. D. (2014) Authentic language input through audiovisual technology and second language acquisition. *SAGE Open*[online], *4*(3), 2158244014550611.1-8. Available at: https://journals.sagepub.com/doi/full/10.1177/2158244014550611 (accessed 18 September 2024)

Barber, C. L. (1993). *The English language: A historical introduction*. Cambridge University Press.

Barber, C. (2003). *The English language: A historical introduction* (2nd ed.). Cambridge: Cambridge University Press.

Barzilai, M. L. (2021) Phonetic & Phonological Salience Effects in Different Speech Processing Tasks. In *Proceedings of the Annual Meetings on Phonology*[online], 8, 1-12. Available at: http://journals.linguisticsociety.org/proceedings/index.php/amphonology/article/view/4898 (accessed 31 May 2023)

Bassiouney, R. (2020) *Arabic sociolinguistics* (2nd ed.). Washington, DC: Georgetown University Press.
Basu, B. L. (2013) The global spread of English,"Linguistic Imperialism", and the "Politics" of English Language Teaching: A reassessment of the role of English in the world today. *Spectrum*, *8*, 185-198.
Baugh, A. C., & Cable, T. (2002) *A history of the English language* (5th ed.). London: Routledge.
Behnstedt, P. and Woidich, M. (2013) Arabic Dialectology In: Owens, J. ed. *The Oxford Handbook of Arabic Linguistics* [e- book]. New York: Oxford University Press. 301-325. Available at: Oxford Hand books online https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199764136.001.0001/oxfordhb-9780199764136 (accessed 14 October 2021)
Benders, T., Escudero, P., & Sjerps, M. J. (2012) The interrelation between acoustic context effects and available response categories in speech sound categorization. *Journal of the Acoustical Society of America* [online], 131(4), 3079-3097. Available at: https://pubs.aip.org/asa/jasa/article-abstract/131/4/3079/831230/The-interrelation-between-acoustic-context-effects (accessed 1 April 2025)
Benkharafa, M. (2013) The Present Situation of the Arabic Language and the Arab World Commitment to Arabization. *Theory and Practice in Language Studies* [online]. 3(2), 201-208. Available at: https://www.researchgate.net/publication/276020796 (accessed 13October 2021)
Benson, B. (1988) Universal preference for the open syllable as an independent process in interlanguage phonology. *Language Learning*, 38, 221–242.
Berg, T. (1993) Against complementary distribution. *Word*[online], 44(2), 295-302. Available at: https://www.tandfonline.com/doi/pdf/10.1080/00437956.1993.11435905 (accessed 19 July 2025)
Bergman, M., & Engström, A. (2023) *A Literature Review of Trends, Attitudes and Multilingual Learning in Research on Cross-Linguistic Influence*. Published BA thesis, Göteborgs universitet. Available at: https://gupea.ub.gu.se/handle/2077/79204 (accessed 25 January 2025)
Best, C. T. (1994) The emergence of native-language phonological influences in infants: A perceptual assimilation model. In J. C. Goodman & H. C. Nusbaum eds. (1994) *The development of speech perception: The transition from speech sounds to spoken words.* Cambridge, Mass.: MIT Press.167–224.
Best, C.T. (1995) A direct realist view of cross-language speech perception. *Speech perception and linguistic experience*: *Issues in Cross-language Research*, 171-204.
Best, C. T., Goldstein, L., Tyler, M. D., & Nam, H. (2009) Articulating the Perceptual Assimilation Model (PAM): Perceptual assimilation in relation to articulatory organs and their constriction gestures. *The Journal of the Acoustical Society of America*[online], *125*(4), 2758–2758. Available at: https://pubs.aip.org/asa/jasa/article/125/4_Supplement/2758/712703/Articulating-the-Perceptual-Assimilation-Model-PAM (accessed 14 October 2024)
Best, C. T., McRoberts, G. W., & Goodell, E. (2001) Discrimination of non-native consonant contrasts varying in perceptual assimilation to the listener's native phonological system. *The Journal of the Acoustical Society of America*, *109*(2), 775-794.
Best, C. T., & Tyler, M. D. (2007) Nonnative and second-language speech perception: Commonalities and complementarities In: Bohn, O. & Munro, M., eds. (2007) *Language experience in second language speech learning: In honour of James Emil Flege.* Amsterdam, Netherlands: John Benjamins. 13–34.
Betu, G. M. K. (2020) The Fossilized Pronunciation of the /æ/ Sound in the Speech of Advanced U.P.KAN English Students. *International Journal of Language and Linguistics*[online],7(3),60-68. Available at: https://www.ijllnet.com/journals/Vol_7_No_3_September_2020/5.pdf (accessed 15 September2024)
Bhatia, T. and Richie, W. (2004) *The handbook of bilingualism.* Blackwell Pub.: Malden, MA.

Bhela, B. (1999) Native language interference in learning a second language: Exploratory case studies of native language interference with target language usage. *International Education Journal*, 1(1), 22–31.
Bichani, S. (2015) *A study of language use, language attitudes and identities in two Arabic speaking communities in the UK*. Unpublished Ph.D. thesis, University of Sheffield.
Bilal, H. A., Shahid, A., Iqbal, Z., & Asghar, I. (2023). Beyond the standard: Exploring models and dynamics of World Englishes. *Linguistic Forum – A Journal of Linguistics*[online], 5(1), 56–72. Available at: https://doi.org/10.5281/zenodo.14789018 (accessed 27 December 2025)
Bild, E.R. and Swain, M. (1989) Minority language students in a French immersion programme: their French proficiency. *Journal of Multilingual and Multicultural Development*, 10, 255-74.
Binasfour, H. (2018*) Investigating the Perception and Production of the Arabic Pharyngealised Sounds by L2 Learners of Arabic*. Unpublished Ph.D. thesis, University of Reading.
Bingjun, M. A. (2013) What is the role of L1 in L2 acquisition. *Studies in Literature and Language*[online], 7(2), 31-39. Available at: https://core.ac.uk/download/pdf/236303476.pdf (accessed 6 October 2024)
Blake, N. F. (1991). *A history of the English language*. London: Macmillan.
Blevins, J. (2004) *Evolutionary phonology: The emergence of sound patterns*. Cambridge University Press.
Boersma, P., & Van Heuven, V. (2001) Speak and unSpeak with PRAAT. *Glot International*[online], *5*(9/10), 341-347. Available at: https://www.fon.hum.uva.nl/paul/papers/speakUnspeakPraat_glot2001.pdf (accessed 6 April 2022)
Boersma, P. & Weenink, D. (2018) *Praat: doing phonetics by computer* (Version 6.1.39) [Computer program]. Available at: http://www.praat.org (accessed 5 April 2022)
Bohn, O. S., & Flege, J. E. (1993) Perceptual switching in Spanish/English bilinguals. *Journal of Phonetics*[online], *21*(3), 267-290. Available at: https://doi.org/10.1016/S0095-4470(19)31339-7 (accessed 2 June 2023)
Bokhari, H. (2020) *A comprehensive analysis of coda clusters in Hijazi Arabic: An optimality-theoretic perspective*. Unpublished Ph.D. thesis: Indiana University.
Bourdieu, P. (1991) *Language and symbolic power*. Cambridge: Polity Press.
Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*[online], *1*(3), 185–216. Available at: https://doi.org/10.1177/135910457000100301 (accessed 25 January 2026)
British Council. (2025). *English in the world today: The global number of English learners*. London: British Council.
Broselow, E. and Kang, Y. (2013) Phonology and speech In: Herschensohn, J. and Young-Scholten, M. eds (2013) *The Cambridge Handbook of Second Language Acquisition*. Cambridge: Cambridge University Press. 529–554.
Bui, T. (2016) Pronunciation of Consonants / ð/ and /θ/ by Adult Vietnamese EFL Learners. *Indonesian Journal of Applied Linguistics*[online], 6(1), 125-134. Available at: file:///C:/Users/USER/Downloads/2744-5040-1-PB%20(1)pdf (accessed 24 January 2023)
Bucholtz, M., & Hall, K. (2005) Identity and interaction: A sociocultural linguistic approach. *Discourse Studies, 7*(4–5), 585–614.
Budiarsa, I. M. (2015). Language, dialect and register in a sociolinguistic perspective. *RETORIKA: Jurnal Ilmu Bahasa* [online], 1(2), 379–387. Available at: https://doi.org/10.22225/jr.1.2.42.379-387 (accessed 10 December 2025)
Burns, A., & Seidlhofer, B. (2019). Speaking and pronunciation. In Schmitt, N. & Rodgers, M. P. H.(eds.), *An introduction to applied linguistics* (3rd ed). London: Routledge. 240–258
Burrows, L., Jarmulowicz, L., & Oller, D. K. (2019). Allophony in English language learners: The case of tap in English and Spanish. *Language, speech, and hearing services in schools*[online], 50(1), 138-149. Available at: https://pubs.asha.org/doi/abs/10.1044/2018_LSHSS-17-0081 (accessed 8 July 2025)

Byrd, D., & Krivokapić, J. (2021) Cracking prosody in articulatory phonology. *Annual Review of Linguistics*, *7*, 31–53.
Carpenter, F. C. (1945*) Teaching and Learning English as a Foreign Language*. University of Michigan Press, Ann Arbor, Mich.
Carroll, J. 1953. T*he Study of Language: A Survey of Linguistics and Related Disciplines in America*[e-book]. Cambridge, MA and London, England: Harvard University Press. Available at: http://booksgoogle.com (accessed 30 November 2023)
Castino, J. M. (1991) *Markedness as a predictor of difficulty in the second language acquisition of Spanish phonology*. Unpublished Ph.D. thesis, University of Pittsburgh.
Cebrian, J. & Carlet, A. (2014) Second-language learners' identification of target-language phonemes: A short-term phonetic training study. *Canadian Modern Language Review*[online], 70(4), 474-499. Available at: https://utppublishing.com/doi/10.3138/cmlr.2318 (accessed 14 June 2025)
Census Data (2010) *General Authority for Statistics*[online] Available at: https://database.stats.gov.sa/beta/dashboard/indicator/99999390 (accessed 5 March 2022)
Celce-Murcia, M. (1991) *Teaching English: as a second or foreign language.* Newbury House Publication.
Chakrani, B. (2012) Arabic standardization. *The Encyclopedia of Applied Linguistics*[online]. Available at: https://www.academia.edu/3245356/Arabic_Standardization (accessed 3 January 2022)
Chakrani, B. (2007). *Cultural context and speech act theory: A socio-pragmatic analysis of bargaining exchanges in Morocco*. In Proceedings of the Fifteenth Annual Symposium About Language and Society. *Austin*: Texas Linguistics Forum, 51, 43–53.
Chambers, J. K., & Trudgill, P. (1998) *Dialectology* (2nd ed.). Cambridge: Cambridge University Press.
Chandrasegaran, A. (1979) *Problems of learning English in national schools in Johor, Malaysia: an investigation of attitudinal-motivational variables, learning strategies and exposure to English*. Unpublished MA thesis, University of Singapore.
Chatterjee, S. (2025) Language Varieties — Standard and Non-standard Languages, *General CBCS: L1-English*, Abhedananda Mahavidyalaya, Dept. of English, unpublished.
Chelli, S. (2013) *Interlingual or intralingual errors in the use of prepositions and articles. The case of first-year students of English at Biskra University*. Unpublished paper presented at: International colloquium 'Coherence Configurationnelle des sujets de memoires et de théses: positions estimologique et preoccupations métodologiques. University of M'sila, April 12-13.
Cheng, X. (2015). Interlanguage-based error analysis in higher vocational and technological college EFL education in China. *Journal of Language Teaching and Research*[online], *6*(3), 639. Available at: https://www.academypublication.com/issues2/jltr/vol06/03/jltr0603.pdf#page=175 (accessed 23 September 2024)
Chen, C. (2020) A study on positive transfer of native language and second language teaching methods. *Theory and Practice in Language Studies*, *10*(3), 306–312.
Chen, J., Best, C. T., & Antoniou, M. (2020) Native phonological and phonetic influences in perceptual assimilation of monosyllabic Thai lexical tones by Mandarin and Vietnamese listeners. *Journal of Phonetics*, *3*, 101013.
Chen, S., & Fon, J. (2007). The effects of phonetic distance, learning context and learner proficiency on L2 perception of English liquids. *Procs. ICPhS XVI. Saarbrüken*, 6(10),1721-1724.
Chen, S. & Mok, P. (2021) *Articulatory and Acoustic Features of Mandarin /ɻ/: A Preliminary Study.* Unpublished paper presented at: The 12th International Symposium on Chinese Spoken Language Processing.
Chen, H. & Zhao, B. (2013) *A Study of Interlanguage Fossilization in Second Language Acquisition and Its Teaching Implications*. Unpublished paper presented at: International

Conference on Educational Research and Sports Education (ERSE 2013). August2013.
Chen, W., & van de Weijer, J. (2022) The role of L1-L2 dissimilarity in L2 segment learning–Implications from the acquisition of English post-alveolar fricatives by Mandarin and Mandarin/Wu speakers. *Frontiers in Psychology[online]*, *13*, 1017724. Available at: https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1017724/full (accessed 30 November 2023)
Chouchane, A. (2016) Pronunciation difficulties for Arab learners of English. *Global English-Oriented Research Journal (GEORJ)*[online], *2*(2), 205-2015. Available at: http://researchenglish.com/wp-content/uploads/issues/201609/33.pdf (accessed 25 February 2023)
Chomsky, N. (1995) Language and nature. *Mind*[0nline], *104*(413), 1-61. Available at: https://www.jstor.org/stable/2254605 (accessed 21 January 2025)
Clarke, S. (2004) Newfoundland English: phonology. In: Kortmann, B. and Schneider, E. ed. (2004) *A Handbook of Varieties of English: A Multimedia Reference Tool*. Berlin, Boston: De Gruyter Mouton. 366-382.
Crossley, S. A., Louwerse, M. M., McCarthy, P. M., & McNamara, D. S. (2007) A linguistic analysis of simplified and authentic texts. *The Modern Language Journal*[online], *91*(1), 15-30. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1540-4781.2007.00507.x (accessed 18 September 2024)
Comrie, B. (2008) *The world's major languages*. New York: Routledge.
Corder, S. P. (1967) THE SIGNIFICANCE OF LEARNER'S ERRORS. International Review of Applied Linguistics in Language Teaching[online], Vol. 5 (Issue 1-4), 161-170. Available at: file:///C:/Users/USER/Downloads/Corder%201968%20(1)%20errors.pdf (accessed 23 September 2024)
Corder, S. P. (1981) *Error analysis and interlanguage*. Oxford University Press, USA.
Costa, D., & Serra, R. (2022) Rhoticity in English, a journey over time through social class: a narrative review. *Frontiers in Sociology*[online], 7, 902213. Available at: https://www.frontiersin.org/journals/sociology/articles/10.3389/fsoc.2022.902213/full (accessed 19 October 2024)
Cote, A. (2009) Choosing one dialect for the Arabic speaking world: a status planningdilemma. *Arizona Working Papers in SLA &Teaching*. 16, 75–97.
Coupland, N. (2010). *Language, society and change*. Cambridge: Cambridge University Press.
Cruttenden, A. (2008) *Gimson's Pronunciation of English*. 7th edition. London: Hodder Education.
Crystal, D. (2003) *English as a global language* (2nd ed.) Cambridge University Press.
Crystal, D. (1976). *Prosodic systems and intonation in English*. Cambridge: Cambridge University Press.
Crystal, D. (1985). *The Cambridge encyclopedia of the English language*. Cambridge: Cambridge University Press.
Crystal, D. (1992). *An encyclopedic dictionary of language and languages*. Oxford: Blackwell.
Crystal, D. (2003). *English as a global language*. Cambridge university press.
Crystal, D. (2004). *The stories of English*. London: Penguin Books.
Crystal, D. (2008). *A Dictionary of Linguistics and Phonetics* (6th ed.). Oxford: Blackwell Publishing.
Crystal, D. (2019). *The Cambridge Encyclopedia of the English Language* (3rd ed.). Cambridge: Cambridge University Press
Cummins, N., Scherer, S., Krajewski, J., Schnieder, S., Epps, J., & Quatieri, T. F. (2015) A review of depression and suicide risk assessment using speech analysis. *Speech communication*[online], *71*, 10-49. Available at: https://www.sciencedirect.com/science/article/pii/S0167639315000369 (accessed 5 January 2025)
Curzan, A., Queen, R.M., VanEyk, K. and Weissler, R.E. (2023) Language standardization and

linguistic subordination, *Daedalus*[online], 152(3), pp. 18–35. Available at: https://doi.org/10.1162/daed_a_01920 (accessed 15 December 2025)
Dailey, M. M., Straboni, C., & Peperkamp, S. (2024). Using allophonic variation in L2 word recognition: French listeners' processing of English vowel nasalization. *Second Language Research* [online], 40(4), 865-886. Available at: https://journals.sagepub.com/doi/abs/10.1177/02676583231181472 (accessed 8 July 2025)
Dakwar, R. and Gordon, P. and Froud, K. (2011) Acquiring diglossia: Mutual influences offormal and colloquial Arabic on children's grammaticality judgments. *Journal of child language* [online]. 39(1), 61-89. Available at: 10.1017/S0305000910000784 (accessed 21 November 2021)
Dalyop, B. D. (2012) An Acoustic Study of the Phoneme as a Physical Reality: Aspects of Segmental Phonology in View. *AFRREV LALIGENS: An International Journal of Language, Literature and Gender Studies*, *1*(2), 213-223.
Darcy, I., Park, H., & Yang, C. L. (2015) Individual differences in L2 acquisition of English phonology: The relation between cognitive abilities and phonological processing. *Learning and Individual Differences* [online], 40, 63-72. Available at: https://www.sciencedirect.com/science/article/abs/pii/S1041608015000928 (accessed 8 February 2025)
Davis, L. (1973) The Diafeature: An Approach to Structural Dialectology. *Journal of English Linguistics* [online]. 7 (1) Available at Maynooth University Library website: https://doi.org/10.1177/007542427300700101 (accessed 24 December 2021)
De Angelis, G., & Selinker, L. (2001) Interlanguage transfer and competing linguistic systems in the multilingual mind In: Censoz, J., Hufeisen, B., & Jessner, U., eds. (2001) Cross-linguistic influence in Third Language Acquisition, Psycholinguistic Perspectives. Great Britain: Cromwell Press Ltd. 42-58.
De Bel-Air, F. (2018) *Demography, migration and labour market in Saudi Arabia* [e- Book]. Available at: https://gulfmigration.grc.net/media/pubs/exno/GLMM_EN_2018_05.pdf (accessed 6 March 2022)
Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. Journal of Personality and Social Psychology[online], 18, 105–115. Available at: https://psycnet.apa.org/record/1971-22190-001 (accessed 18 September 2024)
DeKeyser, R. M. (2013) Age effects in second language learning: Stepping stones toward better understanding. *Language learning*[online], 63, 52-67. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-9922.2012.00737.x (accessed 8 February 2025)
Demirezen, M. (2021) The production and pronunciation problems of English /dʒ/ phoneme of Turkish English majors. *Eurasian Journal of Language Teaching and Linguistic Studies[online]*, 1:2, 142-157. Available at: eajltls.com (accessed 16 February 2023)
de Queiroz Barretto, C. A. (2021) *The interlanguage in the process of learning english as a foreign language: Interphonological mistakes and errors*. Editora Dialética.
Derwing, T. M., & Munro, M. J. (2005) Second language accent and pronunciation teaching: A research-based approach. *TESOL quarterly*[online], *39*(3), 379-397. Available at: https://onlinelibrary.wiley.com/doi/abs/10.2307/3588486 (accessed 24 December 2024)
Derwing, T. M., & Munro, M. J. (2015). *Pronunciation fundamentals: Evidence-based perspectives for L2 teaching and research*. Amsterdam/Philadelphia: John Benjamins Publishing Company
Dheef, S. (1968) *Al-Madaris An-Nahawiyyah*. Dar Al-Ma'arif, Cairo.
Di Dona, G., Mantione, F., Alber, B., Sulpizio, S., & Vespignani, F. (2022) Allophonic familiarity differentiates word representations in the brain of native speakers of regional linguistic varieties. *Brain and Language*[online], 227, 105085. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0093934X22000153 (accessed 8 July 2025)

Djajaningrat, I. (2011) T*he Mapping of Pronunciation Error*. Jakarta: Universitas Darma Persada.
Djurayeva, Y. (2014). Variety of language social networks and their application in the study of foreign languages. *Academic Research in Educational Sciences*, 4(3), 20–29
Dörnyei, Z. (2010) *Questionnaires in Second Language Research.* Routledge.
Dong, H. (2020). *A history of the Chinese language*. Routledge.
Durán, M. O. (2016) *Crosslinguistic influence in L2 English oral production: The effects of cognitive language learning abilities and input*. Unpublished Ph.D. thesis, Universitat de Barcelona.
Echoroukonline (2015) *Algerian Dialect* [online]. Available at: https://www.echoroukonline.com/%D8%A7%D9%84%D9%84%D9%87%D8%AC%D8%A9-%D8%A7%D9%84%D8%AC%D8%B2%D8%A7%D8%A6%D8%B1%D9%8A%D8%A9-%D9%85%D9%86-%D8%A3%D8%B5%D8%B9%D8%A8-%D8%A7%D9%84%D9%84%D9%87%D8%AC%D8%A7%D8%AA-%D9%81%D9%8A-%D8%A7%D9%84/amp (accessed 10 November 2021)
Eckman, F. R. (1977) Markedness and the Contrastive Analysis Hypothesis. *Language Learning*[online], 27, 315-330. Available at: http://dx.doi.org/10.1111/j.1467-1770.1977.tb00124.x (accessed 19 December 2023)
Eckman, F. R. (1985) Some theoretical and pedagogical implications of the markedness differential hypothesis. *Studies in Second Language Acquisition*, 7(3), 289–307.
Eckman, F.R. (2008) Typological markedness and second language phonology In: Hansen Edwards, J and Zampini, M., eds (2008) *Phonology and Second Language Acquisition.* John Benjamins B.V. Ch. 4.
Eckman, F. R. (2012) Markedness differential hypothesis (MDH). *Language*, *15*, 335–370.
Eckman, F. R., & Iverson, G. K. (2013) The role of native language phonology in the production of L2 contrasts. *Studies in Second Language Acquisition*[online], *35*(1), 67-92. Available at: https://www.cambridge.org/core/journals/studies-in-second-language-acquisition/article/abs/role-of-native-language-phonology-in-the-production-of-l2-contrasts/93DA4EAB1F938A0506FA0FD37F525FF8 (accessed 29 September 2024)
Edwards, J. G. H., & Zampini, M. L. (2008) *Phonology and second language acquisition*[e-book] John Benjamins Publishing.Available at: Google Books http://booksgoogle.com (accessed 29 November 2023)
El-korashy, A. (2018) *Why do Arabs confuse /f/ and /v/ sounds? [online]*. Available at: https://www.quora.com/Why-do-Arabs-confuse-f-and-v-sounds (accessed 26 December 2023)
Ellis, N. C. (2016) Salience, cognition, language complexity, and complex adaptive systems. Studies in Second Language Acquisition [online], 38(2), 341-351. Available at: https://www.jstor.org/stable/26330922 (accessed 31 May 2023)
Ellis, R. (1985) *Understanding Second Language Acquisition*. Oxford: Oxford University Press. Ellis, R. (1997) Second language acquisition, *Issues in Applied Linguistics* [online], 8(1).
Available at: https://escholarship.org/uc/item/3ch6f6tk#main (accessed 21 January 2025)
Elmahdi, O. E. H., & Khan, W. A. (2015) The pronunciation problems faced by Saudi EFL learners at secondary schools. *Education and Linguistics Research*, 1(2), 85. Available at: https://doi.org/10.5296/elr.v1i2.7783 (accessed 3 February 2023)
El Salman, M. (2016) The Linguistic and Social Aspects of the Bedouin Dialect. *Advances in Language and Literary Studies*. 7(4), 20-24.
Embark, M. (2020). Progress of the English language by the advent of the invention of printing. *Al-Mukhtar Journal of Social Sciences[online]*, 38(1), 1–13. Available at: https://doi.org/10.54172/mjssc.v38i1.665 (accessed 27 December 2025)
Escudero, P. (2007) Second-language phonology: The role of perception. In Pennington, M. (2007) *Phonology in Context*. Palgrave Macmillan. 109-134.
Evans, S., & Davis, M. H. (2015) Hierarchical organization of auditory and motor representations in speech perception: Evidence from searchlight similarity analysis. Cerebral Cortex, 25(12),

4772-4788. https://academic.oup.com/cercor/article-abstract/25/12/4772/310933
Exell, K., & Rico, T. (2016) *Cultural heritage in the Arabian Peninsula:Debates discourses and practices*[e-book]. New York: Routledge. Available at: Google Books https://books.google.ie/books?hl=ar&lr=&id=CgsGDAAAQBAJ&oi=fnd&pg=PP1&dq=map+of+the+arabian+peninsula&ots=n0dRajgipP&sig=0_JQG6p0gBhu41XbUz8cfGgFybc&redir_esc=y#v=onepage&q=map%20of%20the%20arabian%20peninsula&f=false (accessed 30 March 2023)
Fabra, L. R. (2022). Factors Affecting Pronunciation Accuracy in English as a Foreign Language.
Atlantis[online], 44(2), 45-64. Available at: https://www.atlantisjournal.org/index.php/atlantis/article/view/904/555 (accessed 29 July 2025)
Farghaly, A. (2010) Arabic computational linguistics. CSLI Publications. Gal, S. (1979)*Language shift: social determinants of linguistic change in bilingual Austria*. New York:Academic Press.
Farrah, M., & Halahlah, N. (2020) Pronunciation problems among Palestinian English major students in Hebron University. *International Journal of Arabic-English Studies (IJAES)*[online], 20(1), 203-226. Available at: https://doi.org/10.33806/ijaes2000.20.1.11 (accessed 18 February 2023)
Faruk, S. (2013) English language teaching in Saudi Arabia: A world system perspective. *Scientific Bulletin of the Politehnica University of Timişoara Transactions on Modern Languages*[online], 12(1), 73-80.
Faruk, S. (2014) Chinese and Saudi English language education policies: A world system perspective. *Romanian Journal of English Studies*[online]. *11*(1), 264-271. Available at: https://sciendo.com/pdf/10.2478/rjes-2014-0030 (accessed 20 December 2021)
Fasold, R. (1984) *The Sociolinguistics of Society*. Wiley-Blackwell: England.Fellman, J. (1975) On 'diglossia.' *Language Sciences*, 34, 38–39.
Fauzi, F. (2014) Error analysis of Sundanese English pronunciation on fricatives sound. *Buletin Al-Turas*, *20*(1), 199-218.
Fauzi, I. (2021) The Variability in Phonology of Indonesian Learner's Interlanguage: A Case Study on English Marked-Fricatives. *International Journal of Language Education*[online], *5*(4), 285-295. Available at: https://eric.ed.gov/?id=EJ1330548 (accessed 14 November 2023)
Ferguson, C. A. (1959) Diglossia. *Word, 15*(2), 325–340.
Ferguson, C. A. (2007) Diglossia. In: Wei, L., ed. (2007) *The Bilingualism Reader*. New York: Routledge. Chapter 11.
Fernandez, S. (2023) *The Impact of Regional Phonetic Variation on the Second Language Acquisition of Spanish*. Unpublished Ph.D. thesis, Arizona State University.
Fischer, J. L. (2015). Social influences on the choice of a linguistic variant. *Word*[online], 14, 47–56. Available at: https://doi.org/10.1080/00437956.1958.11659655 (accessed 13 December 2025)
Fisher, J. H. (1996). *The emergence of standard English*. Lexington, KY: University Press of Kentucky.
Flatt, J., & Esteban-Segura, L. (2021). A corpus-based study of some aspects of the Notts subdialect. *Research in Corpus Linguistics*, *9*(2), 131-151.
Flege, J. E. (1987) The production of "new" and "similar" phones in a foreign language: Evidence for the effect of equivalence classification. *Journal of Phonetics*, 15, 47-65.
Flege, J. E. (1991a) Age of learning affects the authenticity of voice onset time (VOT) in stop consonants produced in a second language. Journal of the Acoustical Society of America, 89, 395-411
Flege, J. E. (1991b) The interlingual identification of Spanish and English vowels: Orthographic evidence, *The Quarterly Journal of Experimental Psychology Section A*[online], 43(3), 701–731. Available at: https://journals.sagepub.com/doi/10.1080/14640749108400993 (accessed 5 January 2025)
Flege, J. E. (1995) Second language speech learning: Theory, findings, and problems. *Speech*

Perception and Linguistic Experience: Issues in Cross-Language Research[online], *92*, 233–277. Available at: https://www.researchgate.net/profile/James-Flege/publication/333815781_Second_language_speech_learning_Theory_findings_and_problems/links/5d071d2692851c900442d6b2/Second-language-speech-learning-Theory-findings-and-problems.pdf (accessed 12 December 2023)

Flege, J.E. (1999) Age of learning and second language speech. In Birdsong, D. ed. (1999) *Second language acquisition and the critical period hypothesis*. Routledge. 111-142.

Flege, J.E. (2021) The production and perception of foreign language speech sounds. *Human communication and its disorders*[online], 4, *224*-401. Available at: https://www.researchgate.net/publication/353556243_The_production_and_perception_of_foreign_language_speech_sounds (accessed 9 January 2024)

Flege, J. E., & Eefting,W. (1987) Production and Perception of English Stops by Native Spanish Speakers. *Journal of Phonetics*[online], 15(1), 67-83. Available at: https://www.researchgate.net/publication/232500201_The_Production_and_Perception_of_English_Stops_by_Spanish_Speakers_of_English (accessed 25 March 2025)

Flege, J. E., Frieda, E. M., Walley, A. C., & Randazza, L. A. (1998) Lex-ical factors and segmental accuracy in second language speech production. *Studies in Second Language Acquisition*[online], 20(2), 155-187. Available at: https://www.cambridge.org/core/journals/studies-in-second-language-acquisition/article/abs/lexical-factors-and-segmental-accuracy-in-second-language-speech-production/637DE05FE5E9C39C722495C0F6515311 (accessed 6 October 2024)

Flege, J. E. & Hammond, R. M. (1982) Mimicry of non-distinctive phonetic differences between language varieties, *Studies in Second Language Acquisition*[online], 5(1), 1-17. Available at: https://www.jstor.org/stable/44487249 (accessed 1 January 2025)

Flege, J. E., Munro, M., & MacKay, I. R. A. (1995) Factors affecting strength of perceived foreign accent in a second language. *Journal of the Acoustical Society of America*, 97(5), 3126-3134.

Flege, J. E., & Bohn, O.S. (2021) The Revised Speech Learning Model (SLM-r) In Wayland, R., ed. (2021) *Second Language Speech Learning: Theoretical and Empirical Progress*. Cambridge University Press. 3–83.

Flege, J. E., & Liu, S. (200I) The effect of experience on adults' acquisition of a second language.
Studies in Second Language Acquisition, 23, 527-552.

Flege, J. E., Munro, M. J., & Skelton, 1. (1992) Production of the word-final English /t/-/d/ contrast by native speakers of English, Mandarin, and Spanish. *Journal of the Acoustical Society of America*[online], 92(1), 128-143. Available at: https://pubs.aip.org/asa/jasa/article-abstract/92/1/128/959641/Production-of-the-word-final-English-t-d-contrast (accessed 28 March 2025)

Flege, J. E., Takagi, N., & Mann, V. (1995) Japanese adults can learn to produce English /ɹ/ and
/l/ accurately. *Language and Speech*[online], 38(1), 25–55. Available at: https://journals.sagepub.com/doi/abs/10.1177/002383099503800102 (accessed 17 March 2025)

F1ege, J. E., Schirru, c., & MacKay, I. R. A (2003) Interaction between the native and second language phonetic systems. *Speech Communication*[online], 40 (1), 467-491. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0167639302001280 (accessed 28 March 2025)

Flege, J. E. (2007) Language contact in bilingualism: Phonetic system Inceractions. *Laboratory phonology*[online], 9, 353-380. Available: https://www.researchgate.net/publication/353622697_Language_contact_in_bilingualism_Phonetic_system_interactions (Accessed 28 March 2025)

Flege, J. E. (2008) Give input a chance! In: Piske, T. & Young-Scholten, M. eds. (2008) *Input matters in SLA.* Bristol: Multilingual Matters. 175-190.).

Flege, J. E. (2018) It's input that matters most, not age. *Bilingualism: Language and Cognition*[online], 21(5), 919-920. Available at: https://www.cambridge.org/core/journals/bilingualism-language-and-cognition/article/its- input-that-matters-most-not-age/7733AC622889F0709C015F8D818B4DC2 (accessed 25 March 2025)

Flege, J. E., & Wayland, R. (2019) The role of input in native Spanish Late learners' production and perception of English phonetic segments. *Journal of second languagestudies*[online], *2*(1), 1-44. Available at: https://slam.lin.ufl.edu/wp-content/uploads/sites/106/2020/01/Flege_Wayand_JSLS_2019.pdf (accessed 25 March 2025)

Freeborn, D. (2006). *From Old English to Standard English: A course book in language variation across time* (3rd ed.). Basingstoke, UK: Palgrave Macmillan

Garita Sánchez, M. D. R., González Lutz, M. I., & Solís Pérez, N. (2019) English vowel sounds: Pronunciation issues and student and faculty perceptions. *Actualidades Investigativas en Educación*, *19*(3), 33-67.

Gas, S. (1979) Language transfer and universal grammatical relations. Languagr Learning, 29(2), 327-344

Gbeyonron, C. I., & Anyanwu, E. C. (2017) A Study Of Overgeneralization Errors In The Pronunciation Of Some English Words. *Awka Journal of English Language and Literary Studies*, 6(1), 153-162.

Georgiou, G. P. (2021) Toward a new model for speech perception: The Universal Perceptual Model (UPM) of Second Language. *Cognitive Processing*, *22*, 277–289.

Ghaem, A. M., Zeinali, B., & Abadi, S. A. M. (2013) "Dar-Al-Nodveh": The first experience of collective wisdom in managing Mecca city. *Asian Culture and History*[online], 5(1), 18. Available at: http://dx.doi.org/10.5539/ach.v5n1p18(accessed 28 March 2023)

Giannakopoulou, A. (2012) *Plasticity in second language (L2) learning: perception of L2 phonemes by native Greek speakers of English*. Unpublished Ph.D. thesis, Brunel University.

Gilakjani, A. (2016). English pronunciation instruction: A literature review. *International journal of research in English education*, *1*(1), 1-6.

Gilbert Judy, B. (2012) *Clear speech: pronunciation and listening comprehension in North American English, teacher's Resource and Assessment Book*. 4th ed. New York, NY: Cambridge University Press.

Graddol, D. (2003) The decline of the native speaker. In Anderman, G. & Rogers, M. (2003) eds. *Translation today: Trends and perspectives*. Celevedon, Multilingual Matters Ltd. 152-167.

Green, L. (2002) *African American English*. New York: Cambridge University Press.

Grubešić, G., & Aljović, N. (2017) L2 cross-linguistic influence on L1: A case study of students' translation assignments. *Zbornik radova Filozofskog fakulteta* [online], XIV (XV), 117-132. Available at: https://www.ceeol.com/search/article-detail?id=606596 (accessed 12 February 2025)

Gubser, P. (1973) *Politics and change in Al-Karak, Jordan: a study of a small Arab townand its district.* Routledge Taylor and Francis, London.

Hadjah, N. A. K. B., & Hamzah, M. H. (2023). Production and perception of English consonants by Yemeni EFL learners. *Indonesian Journal of Applied Linguistics*, *12*(3), 719-738.

Hafeedh, A. S., & Laskar, N. B. (2023). Triliteral roots and their transition from CA to Modern Standard Arabic. *Journal of Arabic Linguistics Tradition*, 21, 97–121.

Haleem, M.A.S. (2016) *The Quran: A new translation*. Oxford University Press.

Hall, J. (2012) *How to Run Statistical Analyses*. In: Mackey, A. & Gass, S. (eds.) Research Methods in Second Language Acquisition. London: Blackwell Publishing Ltd.

Hamam, M. (2011) *Loci and rhetorical functions of diglossic code-switching in spoken Arabic: an analysis of the corpus of homilies of the Egyptian hegumen Mattā al-Miskīn* (1919-2006). Unpublished Ph.D. thesis, Sapienza Università di Roma.

Hamdan, J. M., & Al-Hawamdeh, R. F. (2020) The Arabic/d/Revisited: A Critical Review. *KEMANUSIAN: The Asian Journal of Humanities*[online], 27(2) Available at:

https://doi.org/10.21315/kajh2020.27.2.2(accessed 27 March 2023).
Hamzah, M. H., Hadjah, N. A. K. B., & Abdullah, A. H. (2020) *The Production of English Affricates by Yemeni EFL Learners of English*. In: The Asian Conference on Language 2020 Official Conference Proceedings. Malaysia, 2020.
Hamzah, M., Ahmad, A. and Yusuf, M. (2016) *A comparative study of pronunciation among Chinese learners of English from Malaysia and China: The case of voiceless dental fricatives /θ/ and alveolar liquids /r/*. In: 10th International Language for Specific Purposes Conference 2016. UTM Kuala Lumpur, Malaysia
Hao, Y., Wang, X., & Yu, Q. (2021) Typological characteristics of interlanguage: Across native language types and L2 proficiency levels. *Lingua*[online], *257*. Available at: https://doi.org/10.1016/j.lingua.2021.103085 (accessed 2 June 2023).
Hao, Y., Wang, X., Bin, S., & Liu, H. (2023) A probability distribution of dependencies in interlanguage. *Poznan Studies in Contemporary Linguistics*.
Harada, T. (2003) *L2 influence on L1 speech in the production of VOT*. In: Proceedings of the 15th international congress of phonetic sciences, 2003. Barcelona: Causal Productions.
Harris, J. & Duibhir, P. O. (2011) *Effective language teaching: A synthesis of research.* Report number 13, Dublin: National Council for Curriculum and Assessment.
Hassan, E. M. I. (2014) Pronunciation problems: A case study of English language students at Sudan University of Science and Technology. *English Language and Literature Studies*[online], *4*(4), 31. Available at: URL: http://dx.doi.org/10.5539/ells.v4n4p31 (accessed 2 March 2023)
Hattori, K.& Iverson, P. (2009) English /r/-/l/ category assimilation by Japanese adults: Individual differences and the link to identification accuracy. *The Journal of the Acoustical Society of America*[online], 125(1), 469-479. Available at: DOI:10.1121/1.3021295 (accessed 2 June 2023)
Haugen, E. (1966) Dialect, Language, Nation. *The American Anthropological Association.* 68 (4), 922-935. Available at: Maynooth University Library website: https://www.jstor.org/stable/670407 (accessed 25 December 2021)
Haywood, J. A. (1960). *Arabic lexicography: Its history and its place in the general history of lexicography*. Leiden: Brill.
Heath, J. (2002) *Jewish and Muslim dialects of Moroccan Arabic*. London:Routledge Curzon
Herschensohn, J. (2007) *Language Development and Age*. Cambridge: Cambridge University Press.
Heydari, P., & Bagheri, M. S. (2012). Error analysis: Sources of L2 learners' errors. *Theory and practice in language studies*[online], *2*(8), 1583-1589. Available at: doi:10.4304/tpls.2.8.1583-1589 (accessed 21 September 2024)
Hilali, M. T. & Khan, M. M. (2020) *Translation of the meanings of the Noble Qur'an into the English language*. King Fahd Glorious Qur'ān Printing Complex.
Hilgendorf, E. (2003) Islamic education: History and tendency. *Peabody Journal of Education*[online], *78*(2), 63-75. Available at: https://www.tandfonline.com/doi/abs/10.1207/S15327930PJE7802_04?journalCode=hpje20 (accessed 25 March 2023)
Holes, C. (2004) *Modern Arabic: Structures, functions, and varieties*. Georgetown University Press.
Holes, C. D. (2011). *Gulf Arabic*. London: Routledge.
Holes, C. (2021) *Dialect, Culture, and Society in Eastern Arabia, Volume 1 Glossary*. Köln: Brill.
Holmes, J., & Wilson, N. (2022) *An introduction to sociolinguistics* (6th ed.). London: Routledge.
Holt, L. L., & Lotto, A. J. (2010) Speech perception as categorization. *Attention, Perception, & Psychophysics*[online], *72*(5), 1218-1227. Available at: https://link.springer.com/article/10.3758/APP.72.5.1218 (accessed 28 March 2025)
Horwitz, E. K. (2020) *Becoming a language teacher: A practical guide to second language learning and teaching*. Melbourne: Castledown Publishers.

Hoskins, H. L. (1928). *British Routes to India*. New York: Longmans, Green and Co.
Hu, R. (2016) The age factor in second language learning. *Theory and practice in language studies*, *6*(11), 2164-2168.
Huang F, Hoi CKW, Teo T. (2018) The Influence of Learning Style on English Learning Achievement Among Undergraduates in Mainland China[J]. *Journal of Psycholinguistic Research*, 47(5), 1069.
Hudson, A. (2002) Outline of A theory of Diglossia, *International Journal of the Sociologyof Language*, 157, 1-48.
Hudson, R. (1999) Subject–verb agreement in English. *English Language and Linguistics*[online], 3(2), 173–207. Available at: https://www.cambridge.org/core/journals/english-language-and-linguistics/article/abs/subjectverb-agreement-in-english/9230339BB2A646F04D151121D96D9752 (accessed 11February 2025)
Hume, E. (2011) 4 Markedness. *The Blackwell Companion to Phonology*[online], 5 (1), 79- 106. Available at: https://books.google.ie/books?hl=ar&lr=&id=3_Sp1g_QziwC&oi=fnd&pg=PA79&dq=hume+2011+markedness&ots=2_hm5oLxD8&sig=YoDFETQfpUoeb3bmcKs4NZuR2Zs&redir_esc=y#v=onepage&q=hume%202011%20markedness&f=false (accessed 30 December 2024)

Hyde-Simon, C. (2008) *Phonology and Second Language Acquisition-Edited by Jette G. Hansen Edwards and Mary L. Zampini*. Wiley Online Library.
Ibn al-Sakit, A. (1903) *Alqalb wal'iibdal* [online]. Mustafa Library. Available at: almaktabuh alshaamiluh, https://shamela.ws/book/5420 (1 March 2023)
Ibrahim, M. (1986) Standard and prestige language: A problem in Arabic sociolinguistics. *Anthropological Linguistics*, 28, 115–26.
Ibrahim, Z. (2009) *Beyond lexical variation in modern standard Arabic: Egypt, Lebanon and Morocco.*UK: Cambridge Scholars Publishing.
Inceoglu, S. (2022) Language Experience and Subjective Word Familiarity on the Multimodal Perception of Non-native Vowels. *Language and Speech*, *65*(1), 173–192.
Ingham, B. (1971) Some characteristics of Meccan speech. *Bulletin of theSchool of Oriental and African Studies*, *34*(2), 273–297.
Irianto, N., & Sabaruddin, S. (2018) An Analysis of Pronunciation Errors of English Consonants:
/ θ /and/ð/by The Students of The English Education Study Program of University of Bengkulu. *Journal of English Education and Teaching* [online], 2(3), 18-28. Available at: https://ejournal.unib.ac.id/index.php/JEET/article/view/6833 (accessed 27 January 2023)
lnosairee, A. H. A., & Sartini, N. W. (2021). A sociolinguistics study in Arabic dialects. *PRASASTI: Journal of Linguistics*[online], 6(1), 1–17. Available at: https://doi.org/10.20961/prasasti.v6i1.43127 (accessed 22 December 2026)
Irvine, J. T. (2001) "Style" as distinctiveness: The culture and ideology of linguistic differentiation. In P. Eckert, & J. R. Rickford (Eds.), *Style and sociolinguistic variation* (pp. 21–43). Cambridge: Cambridge University Press.
Irwan, M., Wilian, S., Arafiq, A., & Amin, M. (2023). Identifying the Accuracy and Comprehensibility of Students' English Word By Word Pronunciation at North Lombok Senior High School. *Jurnal Ilmiah Profesi Pendidikan*[online], 8(2), 1191-1199. Available at: https://jipp.unram.ac.id/index.php/jipp/article/view/1433 (accessed 29 July 2025)
Isleem, M. (2014) Developing Attitudes toward Learning Arabic as a Foreign Language among American University and College Students. *Bucknell digital commons* [online], 2, 81-98. Available at: https://digitalcommons.bucknell.edu/fac_books/112 (accessed 23 November 2023)
Jabali, O., and Abuzaid, Y. (2017) Pronunciation Errors Committed by Palestinian Students at An-Najah National University: An Analytical Approach. *Arab World English Journal (AWEJ)* 8(2), 119-131. Available at: https://awej.org/pronunciation-errors-committed-by-palestinian-

students-at-an-najah-national-university-an-analytical-approach (accessed 20 February 2022)

James, C. (1998) *Errors in Language Learning and Use*. London & New York: Longman.

Jaradat, A. and Al-Kawaldeh, N. (2015) Teaching Modern Standard Arabic for Non-Native Speakers as a Lingua Franca. *Mediterranean Journal of Social Sciences*[online]. 6(5), 490-499. Available at: file:///C:/Users/USER/Downloads/jaradat%20Teaching_Modern_Standard_Arabic_for_Non-Native_Spe.pdf (accessed 17 December 2021)

Javed, F. (2013) Arabic and English phonetics: A comparative study. T*he Criterion: An International Journal in English*[online], 4(4), 1-13. Available at: https://www.the-criterion.com/V4/n4/Javed.pdf (accessed 27 December 2023)

Jayaraman, S. (2010) Acquisition of pronunciation of consonant clusters by Arabic speaking ESL learners. https://www.researchgate.net/publication/278686159_Acquisition_of_Pronunciation_of_Consonant_clusters_by_Arabic_speaking_ESL_learners

Jdetawy, L. (2020) Readings in the Jordanian Arabic dialectology. *Technium Social Sciences Journal* [online], 3(2), 201-208. Available at: https://www.researchgate.net/publication/276020796 (accessed 13 October 2021)

Jehma, H., & Phoocharoensil, S. (2014) L1 Transfer in the Production of Fricatives and Stops by Pattani-Malay Learners of English in Thailand. *Asian Social Science*[online], 10(7), 67-78. Available at: http://dx.doi.org/10.5539/ass.v10n7p67 (accessed 14 November 2023)

Jenkins, J. (2000). *The phonology of English as an international language*. Oxford university press.

Jenkins, J. (2003). *World Englishes: A resource book for students*. London: Routledge.

Jespersen, O. (1972). *Growth and structure of the English language* (2nd ed.). Chicago: University of Chicago Press.

Jevring, C. (2015) *I Perceive, Therefore I Produce? A Study on the Perception and Production of Three English Consonantal Sounds by Swedish L2 learners*. Published MA thesis, Stockholm University.

Jing, C. H. U., Chunsheng, Y., & Guofa, L. I. U. (2019) Analysis of Second Language Acquisition (SLA) Speech Perception Model & the Perception of Second Language Prosody. *Revista de Cercetare Si Interventie Sociala*, 64.

Jones, D. (1998) *The pronunciation of English*. Cambridge University Press.

Jong, R. (2011) A Grammar of the Bedouin Dialects of Central and Southern Sinai. In: Hanioğlu, M. and Versteegh, C. eds. *Handbook of Oriental Studies* [e-book]. Leiden: Boston. Available at: file:///C:/Users/USER/Downloads/%D9%85%D8%B1%D8%AC%D8%B9%20%D8%AE%D8%B1%D9%8A%D8%B7%D9%87%20%D9%82%D8%A8%D9%8A%D9%84%D9%87%20%D8%A7%D9%84%D8%AD%D9%88%D9%8A%D8%B7%D8%A7%D8%AA.pdf (Accessed 20 November 2021)

Kachru, B. B. (1992) *The other tongue: English across cultures* (2nd ed.). Urbana, IL: University of Illinois Press.

Kahane, L. & Kahane, R. (1979) Decline and survival of Western prestige languages. *Language*, 55, 183–198.

Kakar, A. F., & Sarwari, K. (2022) Second language communication and interference from L1. *Journal of Business, Communication & Technology*, 1(2), 13–23.

Kalaldeh, R. (2016) English pronunciation errors by Jordanian university students. *Arab World English Journal (AWEJ)*[online], 7(2), 394-416. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2814830 (accessed 8 July 2025)

Katamba, F. (1989) *An introduction to phonology*, 48. London: Longman.

Kaye, A. (1994) Formal vs. informal in Arabic: diglossia, triglossia, tetraglossia, etc., multiglossia–polyglossia viewed as a continuum. *Journal of Arabic Linguistics*, 27, 47–66.

Kempton, T., & Moore, R. K. (2014) Discovering the phoneme inventory of an unwritten

language: A machine-assisted approach. *Speech Communication* [online], *56*, 152-166. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0167639313000320 (accessed 5 December 2024)

Keshavarz, M. H., & Keshavarz, A. (2022) The Effect of L2 Input on Young Learners' Pronunciation Performance in English. *MEXTESOL Journal*[online], 46(3). Available at: https://files.eric.ed.gov/fulltext/EJ1364984.pdf (accessed 7 October 2024)

Karakas, A., & Sönmez, E. (2011) *The teaching of [θ] and [ð] sounds in English*. Unpublished paper presented at: 1st International conference on foreign language teaching and applied linguistics. Sarajevo, 5-7 May 2011.

Khalil, S. (2012) *The evolution of the Arabic language through online writing: The explosion of 2011*. In: BRISMES 2012 Graduate Conference Papers, Change and Continuity in the Arab World.

Khan, F. (2015) Why Mecca? Abraham and the Hajj in the Islamic tradition. In Tagliacozzo, E. & Toorawa, S. (Eds.), *The Hajj: Pilgrimage in Islam (31–41)Cambridge, England: Cambridge University Press.*

Kharma, N. & Hajjaj, A. (1989) *Errors in English Among Arabic Speakers: Analysis and Remedy.* UK: Longman Group UK limited.

Khrisat, A. & Alharthy, Z. (2015) Arabic Dialects and CA Language. *Advancesin Social Sciences Research Journal*[online], 2(3), 254-260. Available at: http://dx.doi.org/10.14738/assrj.24.1048 (accessed 17 December 2021)

Kilinc, K., & Yildirim, O. (2020). The Effects of Test Type, Pronunciation, and Proficiency Level on EFL Learners' Speaking Exam Scores. *World Journal of Education* [online], 10(3), 95-105. Available at: https://files.eric.ed.gov/fulltext/EJ1265344.pdf (accessed 29 July 2025)

Kim, H. (2003) Issues of Corrective Feedback in Second Language Acquisition. *Working papers in TESOL & Applied Linguistics*[online], 4(2),1-24. Available at: https://www.researchgate.net/publication/266161518_Issues_of_Corrective_Feedback_in_Second_Language_Acquisition (accessed 16 September2024)

Kissová, O. (2020) Contrastive analysis in teaching English pronunciation. *SWS Journal of Social Sciences and Art*, *2*(1), 39-65.

Komurcu, B., & Yildiz, Y. (2011) An assessment of the auditory speech perceptual skills of young Turkish learners of English: Perceptual assimilation model. *Procedia-Social and Behavioral Sciences*[online], 15, 3511-3515. Available at: https://www.sciencedirect.com/science/article/pii/S1877042811008731 (accessed 11 October 2024)

Kroll, J., Dussias, P., Bice, K.& Perrotti, L. (2015) Bilingualism, mind, and brain. *Annual Review of Linguistics*[online], 1, 377–94. Available at: DOI: https://doi.org/10.1146/annurev-linguist-030514-124937 (accessed 4 June 2023)

Kuhl, P. K. (1991) Human adults and human infants show a "perceptual magnet effect" for the prototypes of speech categories, monkeys do not. *Perception & psychophysics*[online], *50*(2), 93-107. Available at: https://link.springer.com/article/10.3758/BF03212211 (accessed 17 March 2025)

Kurniawan, D. (2016) The Error Analysis of The Pronunciation of Dental Fricative Consonants (/θ/,/ð/) by The Students of English Education Study Program Faculty of Teacher Training and Education: Sriwijaya University. *The Journal of English Literacy Education: The Teaching and Learning of English as a Foreign Language*[online], 3(2), 157-163. Available at: https://ejournal.unsri.ac.id/index.php/jenglish/article/view/3619 (accessed 31 January 2023)

Labov, W. (1964) Phonological correlates of social stratification of social stratification. InThe ethnography of communication. Gumperz, J. and Hymes, D. eds. *American Anthropologist*, 66(6), 164-167.

Labov, W. (1966) *The social stratification of English in New York City*. Washington, DC: Center for Applied Linguistics.

Labov, W. (1972) *Sociolinguistic patterns*. University of Pennsylvania Press, Philadelphia.

Labov, W. (1972) *Language in the inner city: Studies in the Black English vernacular*. Philadelphia: University of Pennsylvania Press.
Labov, W. (2006) *The Social Stratification of English in New York City*[online]. Second ed. UK. Cambridge University Press. Available at: https://books.google.ie/books?id=bJdKY0mZWzwC&printsec=frontcover&hl=ar#v=onepage&q&f=false (accessed 28 March 2022).
Lado, R. (1957) *Linguistics across cultures: Applied linguistics for language teachers: Univ of Michigan Pr*. USA.
Lafi, N. (2014) The eighteenth century in the Arab provinces of the Ottoman Empire: perspectives for a global history[online]. In Middell,M., ed. (2014*) Cultural Transfers, Encounters and Connections in the Global 18th Century*. Leipziger Universitätsverlag, 231-260. Available at: https://shs.hal.science/halshs-01111229 (accessed 24 March 2023)
Laganà, M. (2014) *English Consonant System*. Unpublished paper presented at: AGON. Ottobre-dicembre 2014.
Lamendella, T. (1977) General principles of neuro-functional organization and their manifestation in primary and non-primary language acquisition. *Language Learning*, 27(1), 155-196.
Lanwermeyer. M, Henrich. K, Rocholl, MJ., Schnell, HT., Werth, A., Herrgen, J., and Schmidt, JE. (2016) Dialect Variation Influences the Phonological and Lexical-Semantic Word Processing in Sentences. Electrophysiological Evidence from a Cross-Dialectal Comprehension Study. *Frontiers in Psychology*, 7(739), 1-18.
Lareau, A. & Weininger, E.B. (2003) Cultural capital in educational research: A critical assessment. *Theory and Society*[online], 32, pp.567–606. Available at: https://doi.org/10.1023/B:RYSO.0000004951.04408.b0 (Accessed 14 February 2026)
Larsen-Freeman, D. (2000) Second language acquisition and applied linguistics. *Annual Review of Applied Linguistics* [online], *20*, 165-181. doi:10.1017/S026719050020010X (accessed 29 November, 2023)
Lemhöfer, K., & Broersma, M. (2012) Introducing LexTALE: A quick and valid lexical test for advanced learners of English. *Behavior Research Methods*, *44*(2), 325-343
Lenneberg, E. H. (1967) *Biological Foundations of Language*. New York: Wiley
Lesmana, M. (2019) Variations of Arabic Language in Indonesia. *IOSR Journal OfHumanities and Social Science (IOSR-JHSS)* [online]. 24(3), 70–73. Available at: https://www.iosrjournals.org/iosr-jhss/papers/Vol.%2024%20Issue3/Series- 4/H2403047073.pdf (accessed 17 October 2021)
Levis, J.M. (2006) Pronunciation and the Assessment of Spoken Language. In: Hughes, R. ed. (2006) *Spoken English, Tesol and Applied Linguistics*. Palgrave Macmillan, London. 245-270.
Levy, M. (2014). *Language and technology: Theory and practice* (in language teacher education). In J. Son & S. Windeatt (Eds.), Language teacher education and technology: Approaches and practices. London: Bloomsbury Academic, 19–34
Li, Y. (2024) The role of L1-dialect in L2 production: Acoustic measures on Xining and Leshan dialect speakers' production of English vowels. *Journal of Second Language Pronunciation* [online], *10*(2), 232-257. Available at: https://www.jbe-platform.com/content/journals/10.1075/jslp.21054.li (accessed 11 February 2025)
Li, Y., Best, C. T., Tyler, M. D., & Burnham, D. (2022) Native Beijing listeners' perceptual assimilation of Mandarin lexical tones produced by L2-Mandarin speakers from Yantai, Shanghai, and Guangzhou. *Proc. Speech Prosody*, 782–786.
Lippi-Green, R. (2012) *English with an accent. Language, ideology, and discrimination in the United States*. London: Routledge.
Litto, F. M. (1984) Noah Webster's theory of linguistic nationalism. *Acta Semiotica et Linguistica*, 5, 133-155.
Liu, T. (2021) The influence of dialect environment on second language acquisition and countermeasures. *Curriculum and Teaching Methodology*, 4, 32-46. https://clausiuspress.com/assets/default/article/2021/09/02/article_1630570429.pdf (accessed

17 November 2023)
Livingstone, K. A. (2015). Correcting errors in the L2 classroom: students' and teachers' perceptions. *Revista Electrónica del Lenguaje*[online], *2*, 1-36. Available at: https://www.revistaelectronicalenguaje.com/wp-content/uploads/2015/10/vol-02-03.pdf (accessed 23 September 2024)
Lott, D. (1983) 'Analysing and Counteracting Interference Errors'. English Language Teaching Journal (ELT), [online], 37(3),256-261. Available at: https://academic.oup.com/eltj/article-abstract/37/3/256/485307 (accessed 23 September 2024)
Ludwig, J. (1982) Native-Speaker Judgments of Second-Language Learners' Efforts at Communication: A Review. *The Modern Language Journal* [online], 66(3), 274–283. Available at: https://doi.org/10.2307/326629 (accessed 20 June 2025)
Maamouri, M. (1998) *Language education and human development: Arabic diglossia and its impact on the quality of education in the Arab region.* Unpublished paper presented at: The World Bank The Mediterranean Development Forum. Marrakech, 3-6 September 1998.
MacEinri, E. & an Oideachais, S. (2007) *Immersion Education: An overview of Theory, Research and Practice.* Unpublished paper presented at: Maoinithe ag Comhairle na Gaelscolaíochta agus COGG. Ireland, March 2007.
MacKay, I. R. A, Meador, D., & F1ege, J. E. (2001) The identification of English consonants by native speakers of Italian. *Phonetica*, 58, I03-125.
Maddieson, I. (2005) Presence of Uncommon Consonants. In: Dryer, M. S. & Haspelmath, M. eds. (2005) *The World Atlas of Language Structures*. Oxford: Oxford University Press. 82-83.
Mahboob, A. and Elyas, T. (2014) English in the Kingdom of Saudi Arabia. *World Englishes* [online]. 33 (1), 128-142. Available at: file:///C:/Users/USER/Downloads/Mhboob%20and%20Elyase.pdf (accessed 19 December 2021)
Mahmoud, A. (2000) Modern Standard Arabic vs. Non-Standard Arabic: where do Arab students of EFL transfer from? *Language culture and curriculum*[online], *13*(2), 126-136. Available at: https://www.tandfonline.com/doi/abs/10.1080/07908310008666594 (accessed 23 November 2023)
Mahmoud Jabali, O., & Abuzaid, Y. J. (2017) Pronunciation errors committed by Palestinian students at An-Najah National University: An analytical approach. *Arab World English Journal (AWEJ)*, 8(2), 119-131. Available at: https://dx.doi.org/10.24093/awej/vol8no2.8 (accessed 14 February 2023)
Main Field Work Site. *Map of Arabic Speaking World* [online]. Available at: https://www.google.com/search?q=map+of+arabic+speaking+countries+main+field+work+sites&tbm=isch&ved=2ahUKEwjX1svqrqD1AhUIJMAKHWWXDMYQ2-cCegQIABAA&oq=map+of+arabic+speaking+countries+main+field+work+sites&gs_lcp=CgNpbWcQDFCuuIUCWP3ahQJgwemFAmgDcAB4AIAB_gWIAcAUkgEMMTAuMi40LTIuMC4xmAEAoAEBqgELZ3dzLXdpei1pbWfAAQE&sclient=img&ei=R5PYYZeXM4jIgAblrrKwDA&bih=754&biw=1536 (accessed 10 November 2021)
Major, R. C. (2008) Transfer in second language phonology. *Phonology and second language acquisition*, 36, 63-94.
Marinova-Todd, S. H., Marshall, D. B., & Snow, C. E. (2000) Three misconceptions about age and L2 learning. *TESOL quarterly*[online], 34(1), 9-34. Available at: https://personal.utdallas.edu/~assmann/hcs6367/marinova_todd_marshall_snow00.pdf accessed 7 October 2024)
Marslen-Wilson, W. D. (1987) Functional parallelism in spoken word- recognition. *Cognition*, *25*(1-2), 71-102.
Mehrdad, A. G., & Ahghar, M. R. (2015) Markedness and syllabus design in SLA. Procedia-Social and Behavioral Sciences [online], 177, 104-108. Available at: https://www.sciencedirect.com/science/article/pii/S1877042815017024 (accessed 18 April 2025)

McGuire, G. (2010) A brief primer on experimental designs for speech perception research. *Laboratory Report*, 77.
McDavid, R. I. (1946). Dialect geography and social science problems. *Social Forces*, *25*(2), 168-172.
McGurk, H., Macdonald, J. (1976) Hearing lips and seeing voices. *Nature* **264**[online],746–748. Available at: https://www.nature.com/articles/264746a0#citeas (accessed 17 March 2025)

McKitterick, D. (2003). *A history of Cambridge University Press: Volume 2, Scholarship and curricular development, 1891–2002*. Cambridge: Cambridge University Press.
McMahon, A. (1994) *Understanding language change*, Cambridge University Press,Cambridge. Middlebury Language Schools-Language Schools Blog(2023) *Which Arabic Dialect Should I Learn?*[online]. Available at: https://www.middlebury.edu/language-schools/blog/which- arabic-dialect-to-learn(accessed 23 March 2023)
Mentiply, D. J. (2009, March 23). *The British invasion of Egypt, 1882. E-International Relations.* Available at*: https://www.e-ir.info/2009/03/23/the-british-invasion-of-egypt-1882/*(accessed 18 December 2026)
Mesthrie, R., Swann, J., Deumert, A., & Leap, W. L. (2009) *Introducing sociolinguistics* (2nd ed.). Edinburgh: Edinburgh University Press.
Miller, C. (2004) Variation and Changes in Arabic Urban Vernaculars In: Haak, M., Versteegh, K., and Degong, R., eds. (2007) *Approaches to Arabic Dialects: A Collection ofArticles Presented to Manfred Woidich on the Occasion of His Sixtieth Birthday* [e- book]. Amsterdam: Brill. 177- 206. Available at: halshs archives-ouvertes https://halshs.archives-ouvertes.fr/halshs-00150422/document.
Millet, J., Chitoran, I., & Dunbar, E. (2022) Predicting non-native speech perception using the Perceptual Assimilation Model and state-of-the-art acoustic models. *ArXiv Preprint ArXiv:2205.15823*.
Millward, C. M., & Hayes, M. (2012). *A biography of the English language* (3rd ed.). Boston, MA: Wadsworth Cengage Learning
Milroy, J. (2000). *Historical description and the ideology of the standard language*. In L. Wright (Ed.), The development of standard English, 1300-1800: Theories, descriptions, conflicts. Cambridge University Press, 11–28
Milroy, L. (1989) Language and Social Networks, *Language in Society* [online].18(2),275-280. Available at: Available at: Maynooth University Library website: https://www.jstor.org/stable/4168038 (accessed 22 December 2021)
Milroy, L., & Milroy, J. (1992) Social network and social class: Toward an integrated sociolinguistic model1. *Language in Society*, *21*(1), 1-26.
Milroy, J. and Milroy, L. (1999) *Authority in language: Investigating standard English*. 3rd edn. London: Routledge.
Milroy, J., & Milroy, L. (2012) *Authority in language: Investigating standard English* (4th ed.). London: Routledge.
inasyan, G. (2014) *The effect of first language transfer and age on second language acquisition*. Unpublished MA thesis, American University of Armenia.
Ministry of Interior Affairs (1953) *Saudi nationality system[online]*. Available at:https://www.moi.gov.sa/wps/portal/Home/Home/!ut/p/z1/04_Sj9CPykssy0xPLMnMz0vMAfIjo8ziLQPdnT08TIy83Q0dzQwcPc2N_A08TQ3dPY30wwkpiAJKG-AAjgZA_VFgJc7ujh4m5j4GBhY-7qYGno4eoUGWgcbGBo7GUAV4zCjIjTDIdFRUBAApuVo7/dz/d5/L0lDUmlTUSEhL3dHa0FKRnNBLzROV3FpQSEhL2Fy. (accessed 5 March 2022)
Mitterer, H., Reinisch, E., & McQueen, J. M. (2018) Allophones, not phonemes in spoken-word recognition. *Journal of Memory and Language*[online], 98, 77-92. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0749596X17300748?via%3Dihub

(accessed 27 December 2023)
Mohaidat, M. (2017) Modern Standard Arabic and Rural Palestinian Dialect: Patterns of the Active Participle. *International Education Studies*[online], 10(6), 130-134. *Available at file:///C:/Users/USER/Downloads/Palestenian%20dialect.pdf*(accesssed *28 November 2021)*
Mohamed, H. (2022) *The Influence of Algerian Arabic Variety on RP English Language: A Review Article of Algerian Students' Negative Transfer*.
Mompean, J. A. (2008, August) *Phonological free variation in English: an empirical study*. In: Proceedings of the ISCA Tutorial and Research Workshop on Experimental Linguistics. Athens, 25-27 August 2008. Greece: ISCA, University of Athens. *ExLing* 169-172.
Mora, J. (2008) Learning Context Effects on the Acquisition of a Second Language Phonology. In: Pérez-Vidal, C., Juan-Garau, M. and Bel, A. eds. (2008) *APortrait of the Young in the New Multilingual Spain.* Bristol, Blue Ridge Summit: Multilingual Matters. 241-263.
Morales Pech, D., & Izquierdo, J. (2011). L2 phonology learning among young-adult learners of English: Effects of regular classroom-based instruction and L2 proficiency. *Revista electrónica de investigación educative* [online], 13(1), 86-107. Available at: https://www.scielo.org.mx/scielo.php?pid=S1607-40412011000100006&script=sci_arttext&tlng=en (accessed 8 February 2025)
Morcillo Berrueta, M. (2015) A*nalysis of EFL speech production corpora according to the Speech Learning Model.* Unpublished Bachelor thesis, Universidad del pais vasco.
Morgan, S. (2019) *Arabic Dialects Map* [online]. Available at: https://www.importanceoflanguages.com/arabic-dialects/ (accessed 24 November 2021)
Mousa, A. (2014) Acquisition of the Inter-Dental Fricatives /θ/ and /ð/ in ESL/EFL and Jamaican Creole: A Comparative Study. *Open Journal of Modern Linguistics*[online], 4, 38-47. Available at: https://www.scirp.org/journal/paperinformation.aspx?paperid=42873 (accessed 19 November 2023)
Mousa, A. (2015) Acquisition of the Alveo-Palatal Fricative/ʒ/in L2 English and Jamaican Creole: A Comparative Study. *Open Journal of Modern Linguistics*, *5*(03), 238.
Moustafa, E. (2017) *Language variation in classical and modern standard Arabic: The caseof interrogation*. Unpublished MA thesis. The American University in Cairo. AUC Knowledge Fountain. Available at: https://fount.aucegypt.edu/etds/1359 (accessed 20 December 2021)
Muhammed, M. (2013) *Be- Longing: Fatanis in Makkah and Jawi:* Harvard University. Available at: *https://dash.harvard.edu/bitstream/handle/1/11107811/MOHAMAD_gsas.harvard_0084L_10936.pdf?isAllowed=y&sequence=3* (accessed *6 March 2022)*
Mulyadi, W. W., Ansar, F. A., & Kholid, I. (2018) An Analysis of Pattani's Students Pronunciation in Pronouncing English Fricative Consonants at Uin Lampung. *Smart, Journal of English Language Teaching and Applied Linguistics*[online], 4(1), 61-72. Available at: https://ejournal.umpri.ac.id/index.php/smart/article/view/511 (accessed 1 February 2023)
Munro, M. J., & Derwing, T. M. (1999) Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning*, *49*(1), 285-310.
Murad, T. M., & Khalil, M. H. (2015) Analysis of errors in English writings committed by Arab first-year college students of EFL in Israel. *Journal of Language Teaching and Research*, *6*(3), 475-481.
Nagle, C. (2013) *A reexamination of ultimate attainment in L2 phonology: Length of immersion, motivation, and phonological short-term memory*. In: Selected Proceedings of the 2011 Second Language Research Forum. Somerville, MA: Cascadilla Proceedings Project.
Naimi, A. (2019) Key Concepts and Terms in Second Language Acquisition (SLA): Errors's Significnace and Treatment. *ASJP* [online], 22 (1), 93- 102. Available at: https://asjp.cerist.dz/en/article/112308 (accessed 12 February 2025)
Nazary, M. (2008) The role of L1 in L2 acquisition: Attitudes of Iranian university students. *Novitas-ROYAL, Research on Youth and Language*[online], *2*(2), 138-153. Available at: https://dergipark.org.tr/en/download/article-file/111882 (accessed 12 February 2025)

Nation, I.S.P. (2013) *Learning Vocabulary in Another Language* (2nded.). Cambridge University Press.
Niestorowicz, T. (2015) The Phenomenon of Interlanguage in the Process of Second Language Acquisition. *Logopedia*, 43, 31-39.
Nima, M. (2019) *Problems of Producing Sounds Encountered by Undergraduate Students of English at Tartoos University*. Unpublished MA. thesis, AL-Baath University.
O'Brien, M. and Smith, L. (2010) Role of first language dialect in the production of second language German vowels. *International Review of Applied Linguistics in Language Teaching*[online], 48 (4), 297-330. Available at: https://doi.org/10.1515/iral.2010.013 (accessed 11 February 2025)
Ochsenwald, W. (1984) *Religion, society, and the state in Arabia: The Hijaz under Ottoman control, 1840-1908*[eBook]. Colombus, OH: The Ohio State University Press. Available at: https://kb.osu.edu/bitstream/handle/1811/24661/RELIGION_SOCIETY_AND_THE_STATE_IN_ARABIA.pdf?sequence=1&isAllowed=y (accessed 6 March 2022)
Odlin, T. (1989*) Language Transfer: Cross-linguistic Influence in Language, Learning.* Cambridge, UK: Cabridge University Press
Odlin, T. (2012) *Crosslinguistic influence in second language acquisition*[e-book]. Wiley, online Library. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1002/9781405198431.wbeal0292.pub2 (accessed 15 September 2024)
Offerman, H. M. (2020) The effects of pronunciation instruction on L2 production and L2 perception in Spanish: A comparative analysis. Unpublished Ph.D. thesis, Purdue University.
Olson, D. J. (2019) Feature acquisition in second language phonetic development: Evidence from phonetic training. *Language Learning*[online], 69(2), 366-404. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/lang.12336 (accessed 14 June 2025)
Olsen, M. K. (2012). The L2 acquisition of Spanish rhotics by L1 English speakers: The effect of L1 articulatory routines and phonetic context for allophonic variation. *Hispania* [online], *95*(1), 65-82. Available at: https://muse.jhu.edu/article/469667 (accessed 15 February 2025)
Omar, M. (1975) *Saudi Arabic, Urban Hijazi Dialect: Basic course Washington, D.C.: Foreign Service Institute[eBook]*. Available at https://books.google.ie/books?hl=ar&lr=&id=vCxjAAAAMAAJ&oi=fnd&pg=PA35&dq=Omar,+M.+K.+(1975)+Saudi+Arabic,+Urban+Hijazi+Dialect:+Basic+course.+Washington,+D.C.:+Foreign+Service+Institute.+Retrieved+from+http://eric.ed.gov/%3Fid%3DED112665&ots=miI55SW-z&sig=VdlDT_cl89oHGSWTjSfWd_O89JE&redir_esc=y#v=onepage&q&f=false. (accessed 5March 2022)
Osman, O. H., Abuoaf, M., & Al-Rahbi, A. H. (2022) Interlanguage Theory Revisited: Implications for the Classroom. *International Journal of Linguistics, Literature and Translation*, *5*(10), 30–40.
Oviogun, P. V., & Veerdee, P. S. (2020). Definition of language and linguistics: basic competence. *Macrolinguistics and Microlinguistics*, *1*(1), 1-12.
Owaida, H. (2015) *Speech sound acquisition and phonological error patterns in child speakers of Syrian Arabic: a normative study*. Unpublished Ph.D. thesis, City University London.
Owens, J. (2003) Arabic Dialect History and Historical Linguistic Mythology. *Journal of the American Oriental Society[online],* 123(4), 715-740. Available at: https://www.researchgate.net/publication/277452735_Arabic_Dialect_History_and_Historical_Linguistic_Mythology (accessed 14 November 2021)
Palva, H. (2004) Remarks on The Arabic Dialect of The Hwetat Tribe. *Jerusalem Studies in Arabic and Islam*[online], *29, 195-209. Available at: file:///C:/Users/USER/Downloads/Palva-%20hwaitat%20dialect.pdf* (Accessed 28 November 2021)
Penfield, W. and L. Roberts. (1959) *Speech and brain mechanism*. New York: Atheneum.

Pennington, M. C., & Richards, J. C. (1986) Pronunciation revisited. *TESOL quarterly*[online], *20*(2), 207-225. Available at: https://doi.org/10.2307/3586541 (accessed 28 December 2024)
Peters, F. *(1994) Mecca: A literary history of the Muslim Holy Land:* Princeton University Press.
Phillipson, R. (1992). *Linguistic imperialism*. Oxford: Oxford University Press.
Polka, L. (1991) Cross-language speech perception in adults: Phonemic, phonetic, and acoustic contributions. *The Journal of the Acoustical Society of America* [0nline], *89*(6), 2961-2977. Available at: https://pubs.aip.org/asa/jasa/article-abstract/89/6/2961/629874/Cross-language-speech-perception-in-adults (accessed 28 March 2025)
Poongodi, M., Hamdi, M., & Wang, H. (2022) Image and audio caps: Automated captioning of background sounds and images using deep learning. *Multimedia Systems*, 1–9.
Prefors, A., & Dunbar, D. (2010) Phonetic training makes word learning easier. *Proceedings of the Annual Meeting of the Cognitive Science Society* [online], 32(32), 1613-1618. Available at: https://escholarship.org/content/qt8q76w1sc/qt8q76w1sc.pdf (accessed 14 June 2025)
Purnama, S., Farikah, F., Purwanto, B. E., Wardhani, S., *et al.* (2019) The Impact of Listening Phonological Errors on Speaking: A Case Study on English Education. *Journal for the Education of Gifted Young Scientists,* 7(4), 899-913. Available at: https//doi.org/10.17478/jegys.622005 (accessed 4 March 2024)
Puspita, D. (2019) Error analysis on learners' interlanguage and intralanguage: A case study of two adolescent students. *Teknosastik*, *17*(2), 12–18.
Qiao, S. (2020) An Analysis of Interlanguage Caused by Negative Transfers in Second Language Acquisition. *International Journal of New Developments in Education*, *2*(8), 36-43. Available at: https://francis-press.com/uploads/papers/nRPnWqqrAe8ZEMGeIjkUCl5jZJF02VXMcV1FXq1P.pdf (accessed 1 March 2025)
Qiaolan, G. (2022) Interlanguage and Its Implications to Second Language Teaching and Learning. *Pacific International Journal*[online], *5*(4), 8-14. Available at: https://rclss.com/pij/article/view/223 (accessed 21 September 2024)
Qizi, Y. M. J. (2024). Influence of the development of the English language. *International Journal of Literature and Languages*[online], 4(2), 16–20. Available at: https://doi.org/10.37547/ijll/volume04issue02-04 (accessed 24 December 2025)
Quora (2009) *Why do Arabs confuse /f/ and /v/ sounds?* [online]. Available at: https://www.quora.com/Why-do-Arabs-confuse-f-and-v-sounds (accessed 26 December 2023)
Rahman, M. & Alhaisoni, E. (2013) Teaching English in Saudi Arabia: Prospects andchallenges. *Academic Research International*[online], 4(1), 112–118. Available at: http://www.savap.org.pk/journals/ARInt./Vol.4%281%29/2013%284.1-11%29.pdf. (accessed 5 January 2022)
Rahman, O. (2021). *Masāḥamat 'Ulamā' Dioband fi al-Lughah al-'Arabiyya wa-Adābihā, 1867–2013* [Contribution of Deoband scholars to Arabic language and literature, 1867–2013]. Department of Arabic, Banaras Hindu University.
Rahmani, H., & Karimi, M. I. (2025). The impact of globalization and modern technology on the English language. *International Journal of Language and Literary Studies[online],* 7(2), 31–41. Available at: https://doi.org/10.36892/ijlls.v7i2.2043 (accessed 26 December 2025)
Ramlan, R. (2018) Language Standarization in General Point of View. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)* [online], *1*(1), 27-33. Available at: file:///C:/Users/USER/Downloads/4-7-4-PB.pdf(accessed 25 March 2023)
Rasinar, S. (2010) Quantitative Methods: Concepts, Frameworks and Issues. In: Ringbom, H. (1992) On L1 Transfer in L2 Comprehension and L2 Production. Language Learning, 42, 85-112.
Rasool, B. (2010) *Qadaya wara': zahirat al'iibdal fi allahajat alearabia* [Issues and opinions: The phenomenon of substitution in Arabic dialects]. *Almothaqaf Newspaper*[online], 2nd

September 2010. Available at: https://www.almothaqaf.com/opinions-3/18191-2010-09-02-13-18-13 (accessed 28 February 2023)
R Core Team (2021) R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.
Rehman, I., Silpachai, A., Levis, J., Zhao, G., & Gutierrez-Osuna, R. (2022) The English pronunciation of Arabic speakers: A data-driven approach to segmental error identification. *Language Teaching Research*[online], 26(6), 1055-1081. Available at: https://doi.org/10.1177/1362168820931888 (accessed 23 September 2024)
Reinisch, E., Juhl, K. I., & Llompart, M. (2020) The impact of free allophonic variation on the perception of second language phonological categories. *Frontiers in Communication*[online], 5, 47. Available at: https://www.frontiersin.org/journals/communication/articles/10.3389/fcomm.2020.00047/full
Rice, K. (2007) 'Markedness in phonology' In: de Lacy, P., ed. (2016) *The Cambridge Handbook of Phonology*. Cambridge: Cambridge University Press. 79–98.
Rickford, J. R. (1999). *African American Vernacular English: Features, evolution, educational implications*. Malden, MA & Oxford, UK: Blackwell
Ringbom, H. (1987) T*he Role of the First Language in Foreign Language Learning. Clevedon*: Multilingual Matters
Rjab, M. (2006) Mamaeuni asmuk aladhi tahmiluh. *Alfaisal Newspaper* [online], 1st July 2006. Available at: https://books.google.ie/books?id=q-hiDwAAQBAJ&pg=PT137&dq=%D8%A7%D8%B3%D9%85+%D9%85%D9%8A%D8%B1%D9%81%D8%AA+%D9%81%D9%8A+%D8%A7%D9%84%D8%A7%D8%AF%D8%A8+%D8%A7%D9%84%D8%B9%D8%B1%D8%A8%D9%8A&hl=ar&sa=X&ved=2ahUKEwjZjJHg-739AhW6R0EAHQMtCCgQ6AF6BAgEEAI#v=onepage&q=%D8%A7%D8%B3%D9%85%20%D9%85%D9%8A%D8%B1%D9%81%D8%AA%20%D9%81%D9%8A%20%D8%A7%D9%84%D8%A7%D8%AF%D8%A8%20%D8%A7%D9%84%D8%B9%D8%B1%D8%A8%D9%8A&f=false (accessed 2 March 2023)
Roach, P. (2009). *English phonetics and phonology paperback with audio CDs (2): A practical course*. Cambridge university press.
RStudio Team (2020) RStudio: Integrated Development for R. RStudio, PBC, Boston, MA. URL http://www.rstudio.com
Rustipa, K. (2009) English Speech Sounds [θ ð], [ʃ ʒ], [ʧ ʤ]: How Are They Analysed? *Dinamika Bahasa dan Budaya*[online], 3(2), 152-170. Available at: https://www.unisbank.ac.id/ojs/index.php/fbib1/article/view/448 (accessed 2 February 2023)
Rutter, E. (1931) The Hejaz. *The Geographical Journal*[online], *77(2), 97–108.* Availableat: https://www.jstor.org/stable/1784385?origin=crossref (accessed 6 March 2022).
Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*[online], *25*(1), 54-67. Available at: https://www.selfdeterminationtheory.org/SDT/documents/2000_RyanDeci_IntExtDefs.pdf (accessed 18 September 2024)
Ryding, K. C. (2005) *A reference grammar of modern standard Arabic*. Cambridge University Press.
Saadane, H., & Habash, N. (2015) A conventional orthography for Algerian Arabic. In the Second Workshop on Arabic Natural Language Processing[online] (69-79) Available at: https://hal.science/hal-02012254 (accessed 24 March 2023).
Saalfeld, A. K. (2009) *Stress in the beginning Spanish classroom: An instructional study*. Unpublished Ph.D. Thesis, University of Illinois at Urbana-Champaign
Sabbatani, S. Manfredi, R. and Fiorino, S. (2012) The Justinian plague (part two) Influence of the epidemic on the rise of the Islamic Empire. *Le Infezioni in Medicina* [online], 20(3), 217-232. Available at: https://europepmc.org/article/med/22992565(accessed 25 March 2023)
Sabir, I., & Alsaeed, N. (2014) A brief description of consonants in modern standard Arabic.

Linguistics and Literature Studies [online], *2*(7), 185-189. Available at: DOI: 10.13189/lls.2014.020702 (accessed 24 February 2023)

Salama, I. (2023) *Language interference on English: A case study of a Turkish EFL Learner.* Unpublished MA. thesis, Jakarta: Syarif HidayaTullah State Islamic University.

Schlechtweg, M., Peters, J., & Frank M. (2023) L1 variation and L2 acquisition: L1 German /eː/-/ɛː/ overlap and its effect on the acquisition of L2 English /ɛ/-/æ/. *Front. Psychol* [online], 14. Available at: https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2023.1133859/full#h3 (Accessed 8 March 2025)

Salahuddin. (2025). Subdialect classification of Manggarai language using dialectometry calculation and Gabmap. *Linguistik Indonesia*[online], 43(1), 19–42. Available at: https://doi.org/10.26499/li.v43i1.704 (accessed 11 December 2025)

Saraireh, M. A. (2011). Contribution of Early Arab Grammarians to Sound Study: Classification of Speech Sounds and Distinctive Features and Phonological Terminology. *Algerian Scientific Journal Platform*[online], 2(2), 4-34. Available at: https://asjp.cerist.dz/en/article/44709 (accessed 17 December 2025)

Schneider, E. W. (2007). *Postcolonial English: Varieties around the world*. Cambridge: Cambridge University Press

Seliger, H.W. & Shohamy, E. (1989) Second Language Research Methods. Oxford: Oxford University Press.

Selinker, L. (1972) Interlanguage. *IRAL: International Review of Applied Linguistics in Language Teaching*[online], 10, 209-231. Available at: https://doi.org/10.1515/iral.1972.10.1-4.209 (accessed 20 November2023)

Selinker, L., Swain, M., & Dumas, G. (1975). The interlanguage hypothesis extended to children 1. *Language learning*[online], *25*(1), 139-152. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-1770.1975.tb00114.x (accessed 19 September 2024)

Seppänen, A. (1999) Dialectal variation in English relativization. *Lingua*[online], 109(1), 15-34. Available at: https://www.sciencedirect.com/science/article/pii/S0024384199000108 (accessed 19 October 2024)

Shah, M. H. H. (2023) Transferring as a Source of Error or Language Learning Strategy: The Way Forwar. *Journal of Policy Research*[online], 9(1), 142-149. Available at: https://jprpk.comhttps://doi.org/10.5281/zenodo.780467 (accessed 13 September2024)

Shamsuddin, S. M., & Ahmad, S. S. B. (2017). Authenticity of CA and its relation to Aristotelian logic (in the opinions of some orientalists and Arab scholars. *World Journal of Education*[online], 7(4), 122–130. Available at: https://doi.org/10.5430/wje.v7n4p122 (accessed 22 December 2025)

Shamsuddin, S., Asmad, A. & Ahmad, S. (2018) Arab dialects that formed the CA, in which the Holy Qur'an was revealed. *Advances in Social Sciences Research Journal*[online]. Available at: https://doi.org/10.14738/assrj.59.5217 (accessed 28 Mrach 2023) Sibaweh, A. (1988) *The Kitab of Sibawayh* 3rd ed. Khanji, Cairo.

Shariq, M. (2015) Arabic and English consonants: A phonetic and phonological investigation. *Advances in Language and Literary Studies* [online], *6*(6), 146-152. Available at: https://files.eric.ed.gov/fulltext/EJ1127447.pdf (accessed 18 December 2023)

Shen, K. (2023) A Study of How the First Language Interferes with the Process of Second Language Acquisition Among Chinese Learners of English–Focusing on the Speech Acts Apology and Compliment Response. *2nd International Conference on Education, Language and Art (ICELA 2022)*, 672–682.

Shomali, C. (1983) A Contrastive Study of the Two Sound Systems of English and Arabic. *Bethlehem University Journal*[online], *2*(1), 7-15. Available at: https://www.jstor.org/stable/26444488 (accessed 17 March 2024)

Shraybom-Shivtiel, S. (1999). The role of the colloquial in the renaissance of standard Arabic

language as a mirror of social change. In Izreʿel, S. & Drory, R. (eds.), *Language and culture in the Near East*. Brill. 207–215.
Simensen, A. M. (1987) Adapted readers: How are they adapted? *Reading in a Foreign Language*[online], 4, 41–57. Available at: https://scholarspace.manoa.hawaii.edu/server/api/core/bitstreams/d91eefe9-a79a-43c0-8034-69f404f4e80c/content (accessed 18 September 2024)
Siregar, S. (2017) *The influence of dialect on the student's pronunciation in speaking ability. Pedagogy: Journal of English Language Teaching*[online], 5(1), 27-36. Available at: https://doi.org/10.32332/pedagogy.v5i1.766 (accessed 11 January 2026)
Skiada, Maria. (2021). The implementation of authentic language input in second language (L2) teaching: Pedagogical arguments. *Training, Language and Culture*[online], 5(1). 86-96. Available at: https://www.researchgate.net/publication/350207313_The_implementation_of_authentic_language_input_in_second_language_L2_teaching_Pedagogical_arguments (accessed 18 September 2024)
Smith, B. (2008) Dental fricatives and stops in Germanic: Deriving diachronic processes from synchronic variation In: Dufresne, M., Dupuis, F. and Vocaj, E. eds. (2008) *Historical Linguistics 2007: Selected papers from the 18th International Conference on Historical Linguistics, Montreal, 6–11 August 2007*. John Benjamins Publishing Company. 19-36.
Smith, M. (1996) Crosslinguistic influence with special reference to the acquisition of grammar. In: Jordens, P. and Lalleman, J., eds. (1996) *Investigating Second Language Acquisition*. Berlin, New York: De Gruyter Mouton.71-84.
Smith, M. (2002) Interlanguage within Optimality Theory: The Acquisition of Spanish Voiced Stop Spirantization. *Working Papers of the Linguistics Circle*[online], 15, 55-60. Available at: https://journals.uvic.ca/index.php/WPLC/article/view/5144 (accessed 15 November 2023)
Snow, C. E., & Hoefnagel-Höhle, M. (1978) The Critical Period for Language Acquisition: Evidence from Second Language Learning. *Child Development* [online], *49*(4), 1114–1128. Available at: https://doi.org/10.2307/1128751 (accessed 5 December 2024)
Song, L. (2022) A Markedness Differential Approach Towards the Acquisition of English Locative Inversion for Chinese L2 Learners. *2021 International Conference on Education, Language and Art (ICELA 2021)*, 481–486.
Stemler, S. E. (2019) A Comparison of Consensus, Consistency, and Measurement Approaches to Estimating Interrater Reliability. *Practical Assessment, Research, and Evaluation* [online], 9(4), 1-11. Available at: https://scholarworks.umass.edu/pare/vol9/iss1/4 (accessed 18 March 2023)
Stevens, D. N. (2021) *Ab Initio Adult Third Language Acquisition: Transfer source selection and effects of CLI in acquisition of an artificial language*. Published MA. thesis, UiT Norges arktiske universitet.
Strevens, P. (1980). *Teaching English as an International Language: From Practice to Principle*. Oxford: Pergamon Press
Tagliacozzo, E., & Toorawa, S. (2015) *The Hajj: Pilgrimage in Islam*. Cambridge, England: Cambridge University Press.
Tati, J. S., Gedion, A., & Yong, H. (2015) Cross-Linguistic Influence in Malaysian Esl Learners Writing: A Case Study. *People: International Journal of Social Sciences, 1(1)*, 509-518.
Taylor, A. (2015) The Grand Mosque and the Kaaba in Saudi Arabia's city of Mecca on September 25, 2015 [online Photograph]. Available at: https://www.theatlantic.com/photo/2015/09/mecca-then-and-now-128-years-of-growth/408013 (accessed 11 March 2022)
Taylor, A. (2015) The Grand Mosque in Makkah, 1887 [online Photograph]. Available at: https://www.theatlantic.com/photo/2015/09/mecca-then-and-now-128-years-of-growth/408013 (accessed 11 March 2022).
Taylor, A. (2015) The Grand Mosque in Makkah, 2015 [online Photograph]. Available at:

https://www.theatlantic.com/photo/2015/09/mecca-then-and-now-128-years-of-growth/408013 (accessed 11 March 2022)
Taylor, B.P. (1975) The use of overgeneralization and transfer learning strategies by elementary and intermediate students of ESL. *Language Learning*, 25, 73-107.
Taylor, D. (1994) Inauthentic authenticity or authentic inauthentic ity? *Teaching English as a Second or Foreign Language*[online], 1(2), 1-10. Available at: https://esoluk.co.uk/calling/pdf/Inauthentic_Authenticity.pdf (accessed 18 September 2024)
Teixeira, J. (2021) Can explicit instruction help L2 learners overcome persistent L1 interference? In Avram, L., Sevcenco, A. & Tomescu, V. eds. (2021) *L1 Acquisition and L2 Learning.* John Benjamins Publishing Company.229-256.
Thao, N. (2007) *Difficulties for Vietnamese When Pronouncing English Final Consonants.* Thesis. högskolan dalarna. Available at: http://du.diva-portal.org/smash/get/diva2:518290/FULLTEXT01.pdf (accessed 26 January 2023)
Thomas, G. (2009) *How to Do Your Research Project: A Guide For Students In Education And Applied Social Sciences*. London: Sage.
Timofeeva, O. (2018). Survival and loss of Old English religious vocabulary between 1150 and 1350. *English Language and Linguistics[online], 22*(2), 225–247. Available at: https://doi.org/10.1017/S1360674318000114 (accessed 27 December 2025)
Tiono, N. I., & Yostanto, A. M. (2008) A Study of English Phonological Errors Produced by English Department Students. *kata*, [online], 10(1), 79-112. Available at: http://dx.doi.org/10.9744/kata.10.1.79-112 (accessed 15 November 2023)
Torrijos, M. D. M. R. (2009) Effects of cross-linguistic influences on second language acquisition: a corpus-based study of semantic transfer in written production. *Revista de lingüística y lenguas aplicadas*, (4), 147-159.
Tolibovna, S. Z. and Qizi, S. S. S. (2023) First Language Interference in Learning a Foreign Language. *EPRA International Journal of Multidisciplinary Research (IJMR)*,10(1),311-313.
Toth, P. D. & Moranski, K. (2018) Why haven't we solved instructed SLA? A sociocognitive account. *Foreign Language Annals* [online], *51*(1), 73-89. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/flan.12322 (accessed 12 February 2025)
Trubetzkoy, N. (1969) *Principles of phonology*. University of California Press.
Trudgill, P. (2009) Vernacular universals and the sociolinguistic typology of English dialects. In M. Filppula, J. Klemola, & H. Paulasto (Eds.), *Vernacular universals and language contacts: Evidence from varieties of English and beyond*. London: Routledge. 310–328
TSE, A. Y. H. (2015) Pronunciation Errors of University Students in Malaysia: Problems and Remedy. *Linguistics and Language II* [online], 1-379. Available at: https://www.researchgate.net/profile/Montserrat-Iglesias/publication/281285016_Linguistic_development_and_motivation_in_language_tourism/links/5c8263e3458515831f8fd150/Linguistic-development-and-motivation-in-language-tourism.pdf#page=373 (accessed 17 October 2023)
Tulaktondok, L. (2016) English pronunciation errors made by Torajan speakers of English (TSE) *Teaching English as a Foreign Language Overseas Journal*, *3*(1), 14-34.
Türker, E. (1993) "*Fremmedord bilmiyom". A Sociolinguistic Study of Second Generation Immigrant Turkish in Norway*. University of Oslo, unpublished M.A. thesis.
Türker, E. (1995) Milroy's Social Network Theory-A Critical Account. *DilbilimAraştırmaları Dergisi*, *6*, 56-66.
Tushyeh, D. H. Y. (1996). Linguistic problems facing Arab learners of English. *ITL-International Journal of Applied Linguistics*[online], 111(1), 109-117. Available at: https://www.jbe-platform.com/content/journals/10.1075/itl.111-112.05tus (accessed 19 July 2025)
Tyler, M. D. (2019) PAM-L2 and phonological category acquisition in the foreign language classroom. *A Sound Approach to Language Matters–In Honor of Ocke-Schwen Bohn*, 607–630.
Umantari, P. I. M., Laksminy, L. P., & Putra, K. S. (2016) Pronunciation problems of English

consonants encountered by senior high school students of SMAN 1 Tabanan. *Jurnal Humanis, Fakultas Ilmu Budaya Unud*[online], *10*(2), 228-234. Available at: https://ojs.unud.ac.id (accessed 15 February 2023)
VanPatten, B. (1992) Second language acquisition research and foreign language teaching, Part 1. *ADFL Bulletin,* 23(2), 52-55.
van Putten, M. (2022). *Quranic Arabic: From its Hijazi origins to its classical reading traditions*. Leiden & Boston: Brill
Veiga-Pérez, C. (2017) Spanish Teenager's Pronunciation of English as a Second Language.
Revista de Educación de la Universidad de Granada, 24, 273-292.
Vassiliev, A. (2000) *The history of Saudi Arabia*. London: Saqi.
Versteegh, K. (1997) Bedouin and townspeople: Ibn Khaldūn's view on the development of Arabic. In Naerssen, T., Rutten, M. & Zoomers, A. (eds), *The diversity of development: essays in honour of Jan Kleinpenning*, Van Gorcum, Assen. 332– 340.
Versteegh, K. (2004) *The Arabic Language*. Edinburgh: Edinburgh University Press
Versteegh, K. (2014). *The Arabic language* (2nd ed.). Edinburgh: Edinburgh University Press.
Wagner, A. (2012) Second language phonology and perceptual assimilation of English sounds by Japanese learners of English. 敬和学園大学研究紀要[online], 21, 9-20. Available at: https://www.keiwa-c.ac.jp/wp-content/uploads/2012/12/kiyo21-2.pdf (accessed 29 March 2025)
Wang, X., & Fan, L. (2020) An analysis of interlanguage features and English learning. *Journal of Higher Education Research*, 1(1), 31-37.
Wandari, T. (2022) Difficulty Level of English Fricative Sounds for High School Students. *Bina Darma e-Journal* [online]. Available at: http://eprints.binadarma.ac.id/id/eprint/14882 (accessed 11 February 2023)
Wang, X. (2022) Negative Transfer of Mother Tongue during English as a Second Language Acquisition. *2022 5th International Conference on Humanities Education and Social Sciences (ICHESS 2022)*, 2161–2173.
Wang, X., & Chen, J. (2020) The Acquisition of Mandarin Consonants by English Learners: The Relationship between Perception and Production. *Languages*[online], *5*(2), 20. Available at: https://www.mdpi.com/2226-471X/5/2/20 (accessed 29 March 2025)
Watson, J. (2002) *The Phonology and Morphology of Arabic*. London: Oxford UniversityPress.
Watson, J. (2011) Arabic dialects (general article) In: Weninger, S., Geoffrey, K., Streck, M. and
Wardhaugh, R., & Fuller, J. M. (2015). *An introduction to sociolinguistics* (7thed.). Wiley-Blackwell.
Watson. J.eds. (2011) *The Semitic Languages: An International Handbook* [e. book], De Gruyter: Mouton, 851-897. Available at Maynooth University Library website: https://www.researchgate.net/publication/303569580_Arabic_dialects_general_article (accessed 15 November 2021)
Weinreich, M. (1945) YIVO and the problems of our time. *YIVO Bletter*, *25*(1), 3-18.
Wickham *et al.*, (2019) Welcome to the tidyverse. *Journal of Open Source Software*, 4(43), 1686, https://doi.org/10.21105/joss.01686
Woidich, M. (1994) Cairo Arabic and the Egyptian Dialects. *Language and Literature -LANG LIT*. 493-507
Wolfram, W. (2004). The grammar of urban African American vernacular English. *Handbook of varieties of English*, *2*, 111-32.
Wolfram, W., & Schilling-Estes, N. (2006). *American English: Dialects and Variation* (2nd ed.). Malden, MA: Blackwell Publishers
Wolfram, W., & Schilling, N. (2016) *American English: Dialects and variation.* (3rd ed.) John Wiley and Sons, Incorporated.
World Bank (2020) *Population, total* [online]. Available at: https://data.worldbank.org/indicator/SP.POP.TOTL (accessed 25 December 2021)
Yang, X. (2019) A review of negative language transfer regarding the errors in English writing in

Chinese colleges. *Journal of Language Teaching and Research*[online], *10*(3), 603-609. Available at: https://www.academypublication.com/issues2/jltr/vol10/03/24.pdf (accessed 13 September2024)
Yayush, J. (2003) The voice between normative and objective at Khalil Al-Farahidi.
Insaniyat/Humanities. *Revue Algeria d'anthropology et de social sciences* [online], (21), 63-83. Available at: https://journals.openedition.org/insaniyat/7503 (accessed 28 February 2023)
Yazawa, K. (2020) Testing Second Language Linguistic Perception: Case Study of Japanese, American English, and Australian English Vowels. Published Ph.D. dissertation, 早稲田大学.
Youssef, I. (2019) The phonology and micro-typology of Arabic R. *A journal of general linguistics*[online], 4 (1), 1-36. Available at: https://openarchive.usn.no/usn-xmlui/handle/11250/2638781 (accessed 19 October 2024)
Yrina, T. (2021*) Age and critical period hypothesis*. In The XXVII International Science Conference «Multidisciplinary academic research and innovation», May 25 – 28, 2021. Amsterdam, Netherlands: Library of Congress Cataloging-in-Publication Data.
Yule, G. (1985) *The study of language*. Cambridge university press.
Yule, G. (2016). *The study of language* (6th ed.). Cambridge: Cambridge University Press.
Yuqi, S. (2017) Positive language transfer of causative verbs in Chinese-Portuguese simultaneous interpretations. *Letras de Hoje, 52, 322-330.* *https://www.scielo.br/j/lh/a/jrdTcP4Nx7RXDmQ8b3JhTrC/abstract/?lang=en* (accessed 26 September 2024)
Zafar, S., & Meenakshi, K. (2012). Individual learner differences and second language acquisition: A review. *Journal of language Teaching and Research*[online], *3*(4), 639. Available at: https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=bdb6d9b631c60c8730f5bdd8c0fccf9df88e3b77#page=43 (accessed 26 September 2024)
Zaidan, O. and Burch, C. (2014) Arabic dialect identification. *ComputationalLinguistics*[online], 40(1), 171–202. Available at: https://direct.mit.edu/coli/article/40/1/171/1458/Arabic-Dialect-Identification (accessed 11 April 2025)
Zandvakili, M. T., & Ghasemian, M. (2021). The arrival of Arabic language in India and its reflection in the subcontinent. *Journal of Subcontinent Researches*, 13(40), 179–194
Zhang, A., Feng, H., Zheng, X., Xu, Z., & Dang, J. (2015) *The perception of English vowel contrasts by Chinese EFL learners and native English speakers*. Proceeding of international congress of phonetic sciences (ICPhS), 10-14 Aug 2015. Glasgow, UK.
Zhang, S. (2009) The Role of Input, Interaction and Output in the Development of Oral Fluency. *English language teaching*[online], *2*(4), 91-100. Available at: https://files.eric.ed.gov/fulltext/EJ1083691.pdf (accessed 16 September 2024)
Zhao, Y. (2019) Negative Transfer of Mother Tongue in English. *Creative Education*[online], 10(5), 940-946. Available at: https://www.scirp.org/journal/CTA?paperID=92526 (accessed 11 April 2025)
Ziadeh, J. & Winder, B. (2003) *An Introduction to Modern Arabic*. Dover Publications Inc.
Miniola, New York.
Zughoul, R.M. (1985) Diglossia in Arabic: Investigating Solutions. *AnthropologicalLinguistics*, 22 (5).

Appendices

Appendix A: Raters' Evaluation Form

Evaluation Form

- Student name:-

Initial Sound /ʤ/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to Wrong	Completely Wrong	Substitution	Transcription
Initial /ʤ/	jungle	ʤʌŋgl							
	junk	ʤʌŋk							
	jut	ʤʌt							
	jug	ʤʌg							
	jump	ʤʌmp							
	just	ʤʌst							

Middle Sound /ʤ/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to Wrong	Completely Wrong	Substitution	Transcription
Middle /ʤ/	wager	weiʤə							
	danger	deinʤə							
	sager	seiʤə							
	major	meiʤə							
	pager	peiʤə							
	ranger	reinʤə							

Final Sound /ʤ/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to Wrong	Completely Wrong	Substitution	Transcription
Final /ʤ/	Sage	seiʤ							
	Rage	reiʤ							
	Wage	weiʤ							
	Page	peiʤ							
	Cage	keiʤ							
	Age	eiʤ							

Initial Sound /θ

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to Wrong	Completely Wrong	Substitution	Transcription
Initial /θ/	throw	θrəʊ							
	three	θriː							
	thread	θrɛd							
	Think	θɪŋk							
	throat	θrəʊt							
	thick	θɪk							

Middle Sound /θ/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not sure	Close to Wrong	Completely Wrong	Substitution	Transcription
Middle /θ/	panther	ˈpænθə							
	pathway	ˈpɑːθweɪ							
	toothpick	ˈtuːθpɪk							
	Something	ˈsʌmθɪŋ							
	birthday	ˈbɜːθdeɪ							
	truthful	ˈtruːθfʊl							

Final Sound /θ/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to wrong	Complet ely Wrong	Substitution	Transcri ption
Final /θ/	cloth	klɒθ							
	truth	truːθ							
	fifth	fɪfθ							
	tooth	tuːθ							
	month	mʌn θ							
	bath	bɑːθ							

Initial Sound /ð/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to Wrong	Completely Wrong	Substitution	Transcription
Initial /ð/	them	ð ɛ m							
	these	ðiːz							
	the	ðə							
	than	ðæn							
	though	ðəʊ							
	there	ðeə							

Middle Sound /ð/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to Wrong	Completely Wrong	Substitution	Transcription
Middle /ð/	brother	ˈbrʌðə							
	mother	ˈmʌðə							
	father	ˈfɑːðə							
	gather	ˈgæðə							
	another	əˈnʌðə							
	clothing	ˈkləʊðɪŋ							

Final Sound /ð/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to Wrong	Completely Wrong	Substitution	Transcription
Final /ð/	with	wɪð							
	loathe	ləʊð							
	teethe	tiːð							
	breathe	briːð							
	seethe	siːð							
	smooth	smuːð							

Initial Sound /v/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to wrong	Completely Wrong	Substitution	Transcription
Initial /v/	voice	vɔɪs							
	vest	vɛst							
	video	vɪdɪəʊ ˈ							
	valley	væliˈ							
	vine	vaɪn							
	Virus	ˈvaɪərəs							

Middle Sound /v/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not sure	Close to Wrong	Completely Wrong	substitution	transcription
Middle /v/	river	ˈrɪvə							
	over	əʊvəˈ							
	lover	lʌvəˈ							
	level	ˈlɛvl							
	clover	ˈkləʊvə							
	seven	ˈsɛvn							

Final Sound /v/

Position	Word	Pronunciation	Perfectly Correct	Close to Correct	Not Sure	Close to Wrong	Completely Wrong	Substitution	transcription
Final /v/	five	faɪv							
	dove	dʌv							
	shave	ʃeɪv							
	love	lʌv							
	move	muːv							
	above	əˈbʌv							

Evaluator's name:
Signature:
Date:

Appendix B: Demographic Information Questionnaire in English

Questionnaire

1- Demographic Information:
Full Name:
……
…… Gender:
……
……..
Age: ……..
Place of Birth:
…….
. Place of Living:
…….
. Educational Level:
…….
Major: ……..

2-The educational level of your parents:

	Father	Mother
Primary	□	□
Medium	□	□
Secondary	□	□
University	□	□
None	□	□

3-Which of the following languages do you use with your family:
CA □ Standard Arabic□ English□ A dialect□
Others……
4-Which of the following languages do you use with your friends:
CA□ Standard Arabic □ English□ A dialect □
Others……
……..
5-Which of the following languages do you use with your teacher in the university: CA□ Standard Arabic □ English□ A dialect □
Others……..
6-Which language do you speak to another student during break time? CA□ Standard Arabic□ English□ A dialect□
Others……
……
7-Which language do you speak to another student outside the university? CA□ Standard Arabic□ English□ A dialect□
Others……
…….

8-Have you been in any English speaking country before?

……

…….

9-Have you joined any International schools in Saudi Arabia during your study?

……

……

10-How long have you studied English?

……..

11-Do receive any training courses to improving your English language pronunciation? If (Yes), please provide short details about the nature of theses training courses.

……

……

……

12- What is your main reason for learning English?

…….

13- Indicate the simplest language aspects you have found when learning English:

English sounds□ Grammar□ Orthography□ Vocabulary□ others (identify) □……..

14- Indicate the most difficult language aspects you have confronted when learning English: English sounds□ Grammar□ Orthography□ Vocabulary□ others (identify) □……..

15- In this section, please assess your proficiency level in the following language areas. Assessment scale is beginner, medium, and advanced.

Language	Reading	Listening	Speaking	Writing	Overall
a-Arabic					
b-English					

Thank you

Appendix C: Demographic Information Questionnaire in Arabic

عنوان المشروع البحثي هو "إنتاج أصوات اللغة الإنجليزية من قبل الدارسين السعوديين للغة الإنجليزية كلغة ثانية في جامعة تبوك"

استبيان

1- المعلومات الديموغرافية:

الاسم الكامل:
.....
.....

الجنس:.....
.....

العمر:.....
...

مكان الميلاد:.....
... مكان المعيشة:.....
... المستوى التعليمي:.....
التخصص:.....

2-المستوى التعليمي لوالديك:

	الأم	الأب
الابتدائية	□	
متوسطة	□	
الثانوية	□	
الجامعة	□	
لا شيء	□	

3-أي من اللغات التالية تستخدمها مع عائلتك:

العربية الفصحى □ اللغة العربية الفصحى □ الإنجليزية □ لهجة □

اخرى.....
..... 4-أي من اللغات التالية تستخدمها مع أصدقائك:

اللغة العربية الفصحى □ اللغة العربية الفصحى □ الإنجليزية □ لهجة □

آخرى.....
..... 5-أي من اللغات التالية تستخدمها مع معلمك في الجامعة:

اللغة العربية الفصحى □ اللغة العربية الفصحى □ الإنجليزية □ لهجة □

آخرى.....
..... 6- ما هي اللغة التي تتحدث بها مع طالب آخر أثناء فترة الاستراحة؟

اللغة العربية الفصحى □ اللغة العربية الفصحى □ الإنجليزية □ لهجة □

آخرى.....
.....
7- ما هي
اللغة التي تتحدث بها مع طالب آخر خارج الجامعة؟
اللغة العربية الفصحى □ اللغة العربية الفصحى □ الإنجليزية □ لهجة □
آخرى.....
.....
8- هل زرت أي
دولة ناطقة باللغة الإنجليزية من قبل؟
.....
.....
.....
.....
9-هل التحقت بأي مدارس دولية في السعودية أثناء دراستك؟
.....
.....
.....
.....
.....
10-كم مدة دراسة اللغة الانجليزية؟

. . . . . .
. . . . . .
. . . . . .
. . . . . .
11-هل تتلقى أي دورات تدريبية لتحسين نطقك للغة الإنجليزية؟ إذا كانت (نعم)، يرجى تقديم تفاصيل مختصرة عن طبيعة الدورات التدريبية للأطروحات.

. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
12- ما هو السبب الرئيسي لتعلمك اللغة الإنجليزية؟
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

13- اذكر أبسط الجوانب اللغوية التي وجدتها عند تعلم اللغة الإنجليزية:
الأصوات الإنجليزية □ القواعد □ قواعد الإملاء □ المفردات □ أخرى (تحديد)
□..... 14- اذكر أصعب الجوانب اللغوية التي واجهتك عند تعلم اللغة الإنجليزية:
الأصوات الإنجليزية □ القواعد □ قواعد الإملاء □ المفردات □ أخرى (تحديد) □.....

15- في هذا القسم، يرجى تقييم مستوى كفاءتك في مجالات اللغة التالية. مقياس التقييم مبتدئ، ومتوسط، ومتقدم.

اللغة	القراءة	الاستماع	التحدث	الكتابة	بشكل عام
ا. العربية					
ب. الانجليزية					

انتهى الاستبيان شكرا
لك

Appendix D: The LexTALE English Proficiency Test

"This test consists of about 60 trials, in each of which you will see a string of letters. Your task is to decide whether this is an existing English word or not. If you think it is an existing English word, you write "yes", and if you think it is not an existing English word, you write "no". If you are sure that the word exists, even though you don't know its exact meaning, you may still respond "yes". But if you are not sure if it is an existing word, you should respond "no".
In this experiment, we use British English rather than American English spelling. For example:

"realise" instead of "realize"; "colour" instead of "color", and so on. Please don't let this confuse you. This experiment is not about detecting such subtle spelling differences anyway. You have as much time as you like for each decision. This part of the experiment will take about 5 minutes.

If everything is clear, you can now start the experiment."

-Write Yes if it is English word or NO if it is non-English word:
اكتب نعم اذا كانت كلمه انجليزيه و لا اذا كانت ليست كلمة انجليزية

1- platery
2- denial
3- generic
4- mensible
5- scornful
6- stoutly
7- ablaze
8- kermshaw
9- moonlit
10- lofty
11- hurrican
e 12-flaw
13- alberation
14- unkempt
15- breeding
16- festivity
17- screech
18- savoury
19- plaudate
20- shin
21- fluid
22- spaunc
h 23-allied
24- slain
25- recipient
26- exprate
27- eloquence

28- cleanliness
29- dispatch

30- rebondicate
31- ingenious
32- bewitch
33- skave
34- plaintively
35- kilp
36- interfate
37- hasty
38- lengthy
39- fray
40- crumper
41- upkeep
42- majestic
43- magrity
44- nourishment
45- abergy
46- proom
47- turmoil
48- carbohydrate
49- scholar
50- turtle
51- fellick
52- destription
53- cylinder
54- censorship
55- celestial
56- rascal
57- purrage
58- pulsh
59- muddy
60- quirty
61- pudour
62- listless
63- wrought

Appendix E: Arabic Production Task

اقرائي الكلمات الاتيه: -

1جبل -
2قمر -
3جمل
4-بلد
-
5جرس
6-جبن
7-كتاب
8-هدف
9-جسر -
10جديد
-
11حاجه
12-ركض
-
13ماجد
14-ليمون
15-يجلس
16-نجوم
-
17حار
-
18رجل
-
19وجه
20-برج
21-بارد -
22تفاح
23-ناج
24-نسيج -
25درج
-
26درس
-
27ازعاج
28-محتاج
29-طبق
30-باب

1-ثاني
-
2وادي
3-بحر
4-ثوب
5-سيارة
6-ثعلب
7-ثقيل -
8كرسي
9-ثابت -
10ثور -
11مثل -
12انثى -
13قلب -
14مثلث -
15شاي
16-كوكب
17-اثار
18-كمثرى
19-يمشي
20-كثير -
21حرث
22-نهار
23-بحث
24-ميراث
25-سلم
26-ثلاثه -
27كريم -
28شوكه -
29حديث
30-غيث

1-فول
2-فم
3-فوهه
4-فجر -
5فيديو
6-فيلم -
7يفرح -
8مفتاح
9-تفاح -
10مفك -
11فلفل
12-ميرفت -
13ملف
14-هتف
15-يلف
16-علف
17-عنف
-
18ظر
ف -
19شقيق
20- اخ
21-كلمه
22-سمكه
23-فأس
24-مسمار
25-عسل
26-علبه
27-مقص
28-حليب
29-كيس -
30قصة

-
1ذهب
2-ذرة
3-ذكي
-
4ذوق
5-ذقن
6-ذيل
7-بذخ
8-يذبل
-
9عذاب 10-أذن (للسمع)
11-يذكر
12-مذله
13-فخذ -
14لذيذ -
15ملاذ
16-تلميذ -
17معاذ
18-نبيذ -
19سبعه -
20نهايه -
21حرف
22-وسط
23-مزيد
24-موقع
25-قطار
26-مقال
27-شكل
28-لغه
29-فكرة -
30بعيد

Appendix F: English Production Task

سابدا تسجيل صوتك من الان الى النهايه اقراي

الكلمات كما تنطقيها تماما في لهجتك السعوديه اليوميه كما وكانك تستخدميها مع عائلتك

a- Read the following words: 1-Jungle
2-
hang
3-
Junk
4-
Massive
5-Jut
6-Jug
7-
Jump
8-
Prove
9-Just
10-
Elaborate
11-wager
12-librty
13-write
14-
danger
15-
friends
16-sager
17-house
18-sage
19-major
20-rage
21-wage
22-age
23-
pager
24-sky
25-ranger
26-
environment
27-page
28-cage
29-
lemon

30-power
b- Read the following
words: 1-Throw
2-three
3-
move
4-
elevator
5-Thread
6-Think
7-
Throat
8-paper
9-book
10-
Thick
11-panther
12-pathway
13-
toothpick
14-element
15-reduce
16-
something
17-increase
18-note
19-
birthday
20-truthful
21-pepper
22-cloth
23-truth
24-fruite
25-apple
26-fifth
27-saked
28-tooth
29-
month
30-bath

c- Read the following words:

1-them
2-
these
3-the
4-than
5-thoug
h 6-
there
7-brother
8-mother
9-father
10-
gather
11-
another
12-
clothing
13-with
14-loathe
15-teethe
16-
breathe
17-seethe
18-
smooth
19-image
20-clarity
21-impact
22-big
23-bet
24-day
25-
moss
26-read
27-end
28-
phone
29-tape
30-and

d- Read the following words:

1-five
2-dove
3-shave
4-love
5-move
6-above
7-river
8-over
9-lover
10-level
11-clover
12-seven
13-voice
14-vest
15-video
16-valley
17-vine
18-virus
19-building
20-bird
21-sound
22-you
23-how
24-example
25-sentence
26-peach
27-middle
28-pony
29-people
30-park

Appendix G: The Statistical Analysis of the Demographic Information about Hijazi Urbans and Hwaiti Bedouins

Characteristic	Hijazi Urban n=20	Hwaiti Bedouin n= 20	P.value
• **Nationality, n (%)** • Saudi	20 (50)	20 (50)	NA
• **Gender, n (%)** • Male • Female	0 (0.0) 20 (50)	0 (0.0) 20 (50)	NA
• **Age, median (IQR)**	22 (22.0-22.0)	22 (21.0-22.0)	1.0
• **Place of birth, n (%)** • Jeddah • Madinah • Makkah • Tabuk	12 (30) 4 (10) 4 (10) 0 (0.0)	0 (0.0) 0 (0.0) 0 (0.0) 20 (50)	<**0.001**
• **Place of living, n (%)** • Jeddah • Madinah • Makkah • Tabuk	12 (30) 4 (10) 4 (10) 0 (0.0)	0 (0.0) 0 (0.0) 0 (0.0) 20 (50)	<**0.001**
• **Year of study, n (%) year**	4.0 (4.0-4.0)	4.0 (4.0-4.0)	1.0
• **Major of study, n (%)** English language	20 (50)	20 (50)	NA
• **Mother education level, n (%)** • Primary • Secondary • Intermediate • Master • Non	0 (0.0) 16 (40.0) 2 (5.0) 2 (5.0) 0 (0.0)	5 (12.5) 5 (12.5) 7 (17.5) 0 (0.0) 3 (7.5)	<**0.001**
• **Father education level, n (%)** • Primary • Secondary • Intermediate • Master • Doctoral • Non	1 (5.0) 17 (85.0) 0 (0.0) 0 (0.0) 2 (10.0) 0 (0.0)	3 (15.0) 2 (10.0) 14 (70) 0 (0.0) 0 (0.0) 1 (5.0)	<**0.001**
• **Indigenous dialect, n (%)** • Hijazi Urban	20 (50)	0 (0.0)	NA

• Hwaiti Bedouin	0 (0.0)	20 (50)	
• **Mother place of birth, n (%)** • Jeddah • Madinah • Makkah • Tabuk • Taif	 7 (17.5) 5 (12.5) 5 (12.5) 0 (0.0) 3 (7.5)	 0 (0.0) 0 (0.0) 0 (0.0) 20 (50) 0 (0.0)	**<0.001**
• **Father place of birth, n (%)** • Jeddah • Madinah • Makkah • Tabuk • Taif	 6 (15.0) 7 (17.5) 3 (7.5) 0 (0.0) 4 (10.0)	 0 (0.0) 0 (0.0) 0 (0.0) 20 (50) 0 (0.0)	**<0.001**
• **Mother indigenous dialect (%)** • Hijazi Urban • Hwaiti Bedouin	 20 (50) 0 (0.0)	 0 (0.0) 20 (50)	NA
• **Relative in other country, n (%)** • Yes • No	 13 (32.5) 7 (17.5)	 0 (0.0) 20 (50)	**<0.001**
• **Relative country, n (%)** • Malaysia • Syria • Egypt • Philippines • Morocco • Palestine • Yemen • NA	 1 (2.5) 1 (2.5) 7 (17.5) 1 (2.5) 1 (2.5) 1 (2.5) 1 (2.5) 7 (17.5)	 0 (0.0) 0 (0.0) 0 (0.0) 0 (0.0) 0 (0.0) 0 (0.0) 0 (0.0) 20 (50)	**0.007**
• **Degree of family relationship, n (%)** • Fourth degree relative • Other • NA	 5 (12.5) 8 (20.0) 7 (17.5)	 0 (0.0) 0 (0.0) 20 (50.0)	**<0.001**
• **Visiting foreign relatives, n (%)** • Never • NA	 13 (32.5) 7 (17.5)	 20 (50) 0 (0.0)	**<0.001**
• **Dialect do you speak to foreign relatives, n (%)** • NA	20 (50)	20 (50)	NA
• **Languages with family, n (%)** • Hijazi Urban • Hwaiti Bedouin	 20 (50) 0 (0.0)	 0 (0.0) 20 (50)	1.0

• **Languages with friends, n (%)** • Hijazi Urban • Hwaiti Bedouin	20 (50) 0 (0.0)	0 (0.0) 20 (50)	1.0
• **Languages with teacher at university, n (%)** • Hijazi Urban • Hwaiti Bedouin • English	4 (10.0) 0 (0.0) 16 (40.0)	0 (0.0) 13 (32.5) 7 (17.5)	<**0.001**
• **Languages with other students during break time, n (%)** • Hijazi Urban • Hwaiti Bedouin • English	18 (45.0) 0 (0.0) 2 (5.0)	0 (0.0) 19 (47.5) 1 (7.5)	<**0.001**
• **Visiting English speaking country, n (%)** • Yes • No	0 (0.0) 20 (50)	0 (0.0) 20 (50)	NA
• **Attend international schools in Saudi Arabia during studying** • Yes • No	0 (0.0) 20 (50)	0 (0.0) 20 (50)	NA
• **Period of studying English, n (%) year**	10.0 (10.0-10.0)	10.0 (10.0-10.0)	1.0
• **Joined training courses to improve English pronunciation, n (%)** • Yes • No	0 (0.0) 20 (50)	0 (0.0) 20 (50)	NA
• **Reason of learning English, n (%)** Study abroad Get a job Complete undergraduate study Intellectual development Communication	5 (12.5) 3 (7.5) 9 (22.5) 1 (2.5) 2 (5.0)	5 (12.5) 8 (20.0) 2 (5.0) 1 (2.5) 4 (10.0)	0.11
• **Simplest aspects of the language that found when learning English, n (%)** Grammar Dictation Vocabularies	16 (40.0) 1 (2.5) 3 (7.5)	12 (30.0) 4 (10.0) 4 (10.0)	0.28
• **Most difficult aspects of the language that found when learning English, n (%)** • English sound • Dictation	15 (37.5) 2 (5.0)	14 (35.0) 2 (5.0)	0.91

• English sound and Dictation	3 (7.5)	4 (10.0)	
1- Reading L 2, n (%) • Beginner • Intermediate • Advanced	 0 (0.0) 10 (25.0) 10 (25.0)	 4 (10.0) 14 (35.0) 2 (5.0)	**0.006**
2- Listening L 2, n (%) • Beginner • Intermediate • Advanced	 0 (0.0) 9 (22.5) 11 (27.5)	 2 (5.0) 13 (32.5) 5 (12.5)	0.08
3- Writing L2, n (%) • Beginner • Intermediate • Advanced	 1 (2.5) 13 (32.5) 6 (15.5)	 5 (12.5) 13 (32.5) 2 (5.0)	0.09
4- Speaking L 2, n (%) • Beginner • Intermediate • Advanced	 0 (0.0) 16 (40.0) 4 (10.0)	 10 (25.0) 10 (25.0) 0 (0.0)	0.09
5- General proficiency L2, n (%) • Beginner • Intermediate • Advanced	 0 (0.0) 14 (35.0) 6 (15.0)	 3 (7.5) 15 (37.5) 2 (5.0)	0.08
6- Reading L1, n (%) • Intermediate • Advanced	 0 (0.0) 20 (50.0)	 1 (2.5) 19 (97.5)	1.0
7- Listening L1, n (%) • Intermediate • Advanced	 0 (0.0) 20 (50.0)	 0 (0.0) 20 (50.0)	NA
8- Writing L1, n (%) • Intermediate • Advanced	 3 (7.5) 17 (42.5)	 3 (7.5) 17 (42.5)	1.0
9- Speaking L1, n (%) • Intermediate • Advanced	 2 (5.0) 18 (45.0)	 2 (5.0) 18 (45.0)	1.0
10- General proficiency L1, n (%) • Intermediate • Advanced	 1 (2.5) 19 (47.5)	 0 (0.0) 20 (50.0)	1.0

Appendix H: The Consent Form and the Information Sheet **(English Copy)**

SRESC TEMPLATE

INFORMATION AND CONSENT FORM FOR RESEARCH PARTICIPANTS

Purpose of the study:

I am Haya Nasser Al-Amiri, a PhD student in the Department of Applied Linguistics and Intercultural Studies, Maynooth University. As part of the requirements for my PhD, I am conducting a research study under the supervision of Dr. Ana de Prada Perez. I am conducting a research study as part of my research funded by the Saudi Embassy in Dublin.The study is about English and Arabic phonetics.

What will the study involve?

The study will include four tasks, including a questionnaire, an Arabic phoneme production task, an English phoneme production task, and a proficiency level test. Participants will complete these tasks individually and will take approximately one hour to complete.

Who approved this study?

This study has been reviewed and received ethical approval from the Maynooth University Research Ethics Committee and the University of Tabuk. You may have a copy of this approval if you request it. Why have you been asked to take part? You have been asked because you speak both Arabic and English.

Are you required to participate?

No, you are under no obligation to participate in this research. However, we hope you will agree to participate and give us some of your time to complete four tasks. It is entirely up to you to decide whether or not to participate. If you decide to do so, you will be asked to sign a consent form and given a copy and information sheet for your records. It is entirely up to you to decide whether or not you would like to take part. If you decide to do so, you will be asked to sign a consent form and given a copy and the information sheet for your own records. If you decide to take part, you are still free to withdraw at any time without giving a reason and/or to withdraw your information up until such time as the research findings are anonymized. A decision to withdraw at any time, or a decision not to take part, will not affect your relationships with Tabuk University.

What information will be collected?

We will collect information about your language background and record your voice while you read Arabic and English words.

Will your participation in the study be kept confidential?

Yes, all information collected about you during the research will be kept confidential. No names will be identified at any time. All hard copy information will be kept in a locked cabinet at the researchers' workplace. Electronic information will be encrypted and stored securely on the MU PC or servers and will only be accessible by researcher Haya Al Omairi and her supervisor, Dr. Ana de Prada Perez.

No information will be distributed to any unauthorized individual or third party. If you wish, the data you provide may also be made available at your own discretion.

'It must be recognised that, in some circumstances, confidentiality of research data and records may be overridden by courts in the event of litigation or in the course of investigation by lawful authority. In such circumstances the University will take all reasonable steps within law to ensure that confidentiality is maintained to the greatest possible extent.'

What will happen to the information which you give?

All the information you provide will be kept at Maynooth University in such a way that it will not be possible to identify you. On completion of the research, the data will be retained on the MU server. After ten years, all data will be destroyed (by the PI). Manual data will be shredded confidentially and electronic data will be reformatted or overwritten by the PI in Maynooth University.

.

What will happen to the results?

A copy of the research results will be kept confidential during the research and will be made available to you upon request. Upon completion of the research, the data will be stored on an MU server. After ten years, all data will be destroyed (by the principal investigator).

What are the potential disadvantages of participating?

I don't envisage any negative consequences for you in taking part.

What if there are any problems?

You may be concerned about being recorded speaking in a foreign language. You will pronounce the sounds using your own pronunciation, and your pronunciation will not be evaluated at all. The recordings will be used for this research project only. At the end of the study, I will discuss with you how you found the experience and how you feel. If you experience any distress after participating in this study, you can contact:

HAYA ALOMERI at HAYA.ALOMERI.2022@MUMAIL.IE

You can also contact the research supervisor at Dr. Ana de Prada Pérez at Ana.DePradaPerez@mu.ie

Any further questions? If you require further information, you can contact me at:
HAYA.ALOMERI.2022@MUMAIL.IE

If you agree to take part in the study, please complete and sign the consent form overleaf.

Thank you for taking the time to read this

Consent Form

I .....agree to participate in [researchers *name*]'s research study titled [*title*].

Please tick each statement below [*please delete or amend the statements as appropriate*]:

The purpose and nature of the study has been explained to me verbally & in writing. I've been able to ask questions, which were answered satisfactorily. ☐

I am participating voluntarily. ☐

I give permission for my [*insert as appropriate e.g. interview*] with [*name*] to be [*insert as appropriate audio/video-recorded*]

☐

I understand that I can withdraw from the study, without repercussions, at any time, whether that is before it starts or while I am participating. ☐

I understand that I can withdraw permission to use the data right up to [*insert as appropriate publication/anonymisation/submission of thesis*] [*Date*].

☐

It has been explained to me how my data will be managed and that I may access it on request. ☐

I understand the limits of confidentiality as described in the information sheet ☐

I understand that my data, in an anonymous format, may be used in further research projects and any subsequent publications if I give permission below:

☐

[*Select as appropriate*]

I agree to quotation/publication of extracts from my interview ☐

I do not agree to quotation/publication of extracts from my interview ☐

I agree for my data to be used for further research projects ☐

I do not agree for my data to be used for further research projects ☐

I agree for my data, once anonymised, to be retained indefinitely in the IQDA archive ☐

Signed…….

Date……

……. Participant Name in block capitals

……...

I the undersigned have taken the time to fully explain to the above participant the nature and purpose of this study in a manner that they could understand. I have explained the risks involved as well as the possible benefits. I have invited them to ask questions on any aspect of the study that concerned them.

Signed……. Date…….

Researcher Name in block capitals ……...

If during your participation in this study you feel the information and guidelines that you were given have been neglected or disregarded in any way, or if you are unhappy about the process, please contact the Secretary of the Maynooth University Ethics Committee at research.ethics@mu.ie or +353 (0)1 708 6019. Please be assured that your concerns will be dealt with in a sensitive manner.

For your information the Data Controller for this research project is Maynooth University, Maynooth, Co. Kildare. Maynooth University Data Protection officer is Ann McKeon in Humanity house, room 17, who can be contacted at ann.mckeon@mu.ie. Maynooth University Data Privacy policies can be found at https://www.maynoothuniversity.ie/data-protection.

Appendix I: The Consent Form and the Information Sheet **(Arabic Copy)**

نموذج المعلومات والموافقة للمشاركين في البحث نموذج المعلومات

الغرض من الدراسة. أنا هيا ناصر العميري طالبة دكتوراه في قسم اللغويات التطبيقية والدراسات بين الثقافات ، جامعة ماينوث.
كجزء من متطلبات الحصول على درجة الدكتوراه ، أقوم بإجراء دراسة بحثية تحت إشراف الدكتورة آنا دي برادا بيريز.
أقوم بإجراء دراسة بحثية كجزء من بحثي الممول من السفارة السعودية في دبلن. تعنى الدراسة بالصوتيات الإنجليزية والعربية.
ماذا ستشمل الدراسة؟ ستشمل الدراسة أربع مهام بما في ذلك استبيان ، ومهمة إنتاج اصوات باللغة العربية ، ومهمة إنتاج اصوات باللغة الإنجليزية ، واختبار مستوى الكفاءة. سيكمل المشاركون هذه المهام

بشكل فردي وسيستغرق إكمالها حوالي ساعة.

من وافق على هذه الدراسة؟ تمت مراجعة هذه الدراسة وحصلت على الموافقة الأخلاقية من لجنة أخلاقيات البحث بجامعة ماينوث ومن جامعة تبوك. قد يكون لديك نسخة من هذه الموافقة إذا طلبت ذلك.
لماذا طلب منك المشاركة؟ لقد طلب منك ذلك لأنك تتحدث العربية والإنجليزية. هل عليك المشاركة؟
لا ، لست ملزمًا بأي شكل من الأشكال بالمشاركة في هذا البحث. ومع ذلك ، نأمل أن توافق على المشاركة وأن تمنحنا بعضًا من وقتك لإكمال أربع مهام. الأمر متروك لك تمامًا لتقرر ما إذا كنت ترغب
في المشاركة أم لا. إذا قررت القيام بذلك ، فسيُطلب منك التوقيع على نموذج موافقة وإعطائك نسخة وورقة المعلومات لسجلاتك الخاصة. إذا قررت المشاركة ، فلا يزال بإمكانك الانسحاب في أي وقت دون
إبداء أسباب و / أو سحب معلوماتك حتى يحين الوقت الذي تكون فيه نتائج البحث مجهولة المصدر. لن يؤثر قرار الانسحاب في أي وقت أو قرار عدم المشاركة في علاقاتك مع جامعة تبوك. لن يكون
لمشاركتك أو عدم مشاركتك في هذه الدراسة أي تأثير على درجاتك أو على مسار الدراسة. ما هي المعلومات التي سيتم جمعها؟ سنقوم بجمع معلومات حول الخلفية اللغوية الخاصة بك ونسجل

صوتك أثناء قراءة الكلمات العربية والإنجليزية. هل ستبقى مشاركتك في الدراسة سرية؟ نعم ، سيتم الحفاظ على سرية جميع المعلومات التي يتم جمعها عنك أثناء إجراء البحث. لن يتم تحديد أي أسماء في أي وقت. سيتم حفظ جميع معلومات النسخ الورقية في خزانة مقفلة في مكان عمل الباحثين ، وسيتم تشفير المعلومات الإلكترونية وحفظها بشكل آمن على أو الخوادم ولن يتم الوصول إليها إلا من قبل الباحثة هيا العميري ومشرفتها الدكتورة آنا دي **MU PC**

برادا بيريز.

لن يتم توزيع أي معلومات إلى أي فرد آخر غير مصرح له أو طرف ثالث. إذا كنت ترغب في ذلك ، يمكن أيضًا إتاحة البيانات التي تقدمها لك وفقًا لتقديرك الخاص.

"يجب الاعتراف بأنه ، في بعض الظروف ، قد يتم تجاوز سرية بيانات البحث والسجلات من قبل المحاكم في حالة التقاضي أو في سياق التحقيق من قبل سلطة قانونية. في مثل هذه الظروف ، ستتخذ الجامعة جميع الخطوات المعقولة بموجب القانون لضمان الحفاظ على السرية إلى أقصى حد ممكن".

Maynoothماذا سيحدث للمعلومات التي تقدمها؟ سيتم الاحتفاظ بجميع المعلومات التي تقدمها في بحيث يتعذر التعرف عليك. عند الانتهاء من البحث ، سيتم الاحتفاظ بالبيانات على خادم **University**. بعد عشر سنوات ، سيتم إتلاف جميع البيانات (بواسطة الباحث الرئيسي). سيتم تمزيق البيانات **MU** اليدوية بسرية تامة وسيتم إعادة تنسيق البيانات الإلكترونية أو الكتابة فوقها بواسطة الباحث الرئيسي في جامعة ماينوث.

ماذا سيحدث للنتائج؟ سيتم الاحتفاظ بنسخة من نتائج البحث بشكل سري أثناء إجراء البحث ، وسيتم توفير. بعد عشر **MU**نسخة لك عند الطلب. عند الانتهاء من البحث ، سيتم الاحتفاظ بالبيانات على خادم

سنوات ، سيتم إتلاف جميع البيانات (بواسطة الباحث الرئيسي).

ما هي المساوئ المحتملة للمشاركة؟ لا أتوقع أي عواقب سلبية عليك في المشاركة في هذه الدراسة.

ما إذا كان هناك مشكلة؟ قد تشعر بالقلق من تسجيلك للنطق بلغة أجنبية. يمكنك نطق الأصوات باستخدام طريقة النطق الخاصة بك ، ولن يتم تقدير نطقك على الإطلاق. سيتم استخدام التسجيلات لهذا المشروع البحثي فقط. في نهاية الدراسة ، سأناقش معك كيف وجدت التجربة وكيف تشعر. إذا واجهت أي ضائقة بعد المشاركة في هذه الدراسة ، فيمكنك الاتصال بـ:

HAYA ALOMERI at HAYA.ALOMERI.2022@MUMAIL.IE.

وبامكانك التواصل مع مشرفه البحث على *Dr. Ana de Prada Pérez at Ana.DePradaPerez@mu.ie*

أي استفسارات أخرى؟ إذا كنت بحاجة إلى مزيد من المعلومات ، يمكنك الاتصال بي: هيا العميري

HAYA.ALOMERI.2022@MUMAIL.IE

إذا كنت توافق على المشاركة في الدراسة ، فيرجى إكمال نموذج الموافقة الموجود على الصفحة وتوقيعه.

شكرا لكم

Consent Form [*English and Arabic sounds***]**

I .....agree to participate in Haya Alomeri's research study titled *English and Arabic Sounds.*

Please tick each statement below

The purpose and nature of the study has been explained to me verbally & in writing. I've been able to ask questions, which were answered satisfactorily. ☐

I am participating voluntarily. ☐

I give permission for my [*production tasks*] with [*Haya Alomeri*] to be *audio-recorded* ☐

I understand that I can withdraw from the study, without repercussions, at any time, whether that is before it starts or while I am participating. ☐

I understand that I can withdraw permission to use the data right up to the *anonymization* of data on 1st of September, 2022. ☐

It has been explained to me how my data will be managed and that I may access it on request. ☐

I understand the limits of confidentiality as described in the information sheet ☐

I agree to quotation/publication of extracts from my interview ☐

I do not agree to quotation/publication of extracts from my interview ☐

Signed…….

Date……

……. Participant Name in block capitals

……...

I the undersigned have taken the time to fully explain to the above participant the nature and purpose of this study in a manner that they could understand. I have explained the risks involved as well as the possible benefits. I have invited them to ask questions on any aspect of the study that concerned them.

Signed……. Date…….

Researcher Name in block capitals ……...

If during your participation in this study you feel the information and guidelines that you were given have been neglected or disregarded in any way, or if you are unhappy about the process, please contact the Secretary of the Maynooth University Ethics Committee at research.ethics@mu.ie or +353 (0)1 708 6019. Please be assured that your concerns will be dealt with in a sensitive manner.

For your information the Data Controller for this research project is Maynooth University, Maynooth, Co. Kildare. Maynooth University Data Protection officer is Ann McKeon in Humanity house, room 17, who can be contacted at dataprotection@mu.ie. Maynooth University Data Privacy policies can be found at https://www.maynoothuniversity.ie/data-protection.

Two copies to be made: 1 for participant, 1 for PI

نموذج الموافقة]الأصوات الإنجليزية والعربية[أوافق على
المشاركة في دراسة هيا العمري البحثية بعنوان الأصوات الإنجليزية والعربية.
يرجى وضع علامة على كل بيان أدناه تم
شرح الغرض من الدراسة وطبيعتها لي شفهيًا وخطيًا. لقد تمكنت من طرح الأسئلة التي تمت الإجابة عليها بشكل مرض. □
أنا أشارك طواعية. □

أمنح الإذن لـ]مهام الإنتاج[الخاصة بي مع]هيا العمري[ليتم تسجيلها صوتيًا □ أفهم أنه يمكنني
الانسحاب من الدراسة ، دون تداعيات ، في أي وقت ، سواء كان ذلك قبل بدئها أو أثناء مشاركتي. □
أفهم أنه يمكنني سحب إذن استخدام البيانات حتى إخفاء هوية البيانات في الأول من سبتمبر .2022 □ تم شرح كيفية إدارة
بياناتي وأنه يمكنني الوصول إليها عند الطلب. □
أفهم حدود السرية كما هو موضح في ورقة المعلومات □

أوافق على اقتباس / نشر مقتطفات من مقابلتي □ لا أوافق
على الاقتباس / نشر مقتطفات من مقابلتي □

وقعت.....
... تاريخ.....

اسم المشارك بأحرف كبيرة
.....

لقد استغرقت أنا الموقع أدناه وقتًا لشرح بالكامل للمشارك أعلاه طبيعة هذه الدراسة والغرض منها بطريقة يمكنهم فهمها. لقد شرحت المخاطر التي تنطوي عليها وكذلك الفوائد المحتملة. لقد دعوتهم لطرح أسئلة حول أي جانب من جوانب الدراسة التي تهمهم.

وقعت.....
... تاريخ.....

اسم الباحث بأحرف كبيرة
..... إذا شعرت أثناء مشاركتك في هذه الدراسة أن
المعلومات والإرشادات التي تم إعطاؤها لك قد تم إهمالها أو تجاهلها بأي شكل من
الأشكال ، أو إذا كنت غير راضٍ عن هذه العملية ، فيرجى الاتصال بأمين لجنة الأخلاقيات بجامعة Maynooth على العنوان
research.ethics @ mu.ie. يُرجى التأكد من أنه سيتم التعامل مع مخاوفك بطريقة حساسة. 6019.708 1 (0) 353+ أو

لمعلوماتك ، فإن وحدة التحكم في البيانات لهذا المشروع البحثي هي جامعة ماينوث ، ماينوث ، كيلدير. مسؤولة حماية البيانات بجامعة. يمكن الاطلاع
على سياسات خصوصية بيانات جامعة Maynooth على https://www.maynoothuniversity.ie/data-protection. ويمكن الاتصال بها على
dataprotection@mu.ie ماينوث هي آن ماكيون في منزل الإنسانية ، الغرفة 17 ،

Appendix J: Approval Letter From Tabuk University

KINGDOM OF SAUDI ARABIA
Ministry of Higher Education
University of Tabuk
Faculty of Education & Arts

جامعة تبوك
University of Tabuk

المملكة العربية السعودية
وزارة التعليم العالي
جامعة تبوك
كلية التربية والآداب
قسم اللغات والترجمة

To whom it may concern

We received a request from the researcher/ HAYA NASSIR ALOMERJ, who studies as a PhD student in Maynooth University, to conduct her research project entitled[**The production of English sounds by Saudi Learners of English as a second language in Tabuk university**] at university of Tabuk under the supervision of university of Tabuk/ languages and Translation department. Haya's experiment will start on 4th June, 2022, in Tabuk, Saudi Arabia and will end on 1st September 2022. We approved her request to conduct the study in the university of Tabuk (languages and Translation department) for three months starting from 4/6/2022 until 1/9/2022.

Please do not hesitate to contact me if you need any further information on this matter.

Yours Sincerely,

Dr. Hafa Abu Shail Alatawi

PhD (Psycholinguistics); Supervisor of Languages and Translation Department.

Email: h.abushail@ut.edu.sa, alataw.hafa@gmail.com

Office: Building C, room (01-23C-7-30) phone extension: 7144

Arts and Education College, University of Tabuk

Tabuk, Saudi Arabia

Ref.: الرقم

Date: 30/1/2022 التاريخ

Encl. المرفقات

Appendix K: Ethical Approval Letter From Maynooth University

MAYNOOTH UNIVERSITY RESEARCH ETHICS COMMITTEE
MAYNOOTH UNIVERSITY,
MAYNOOTH, CO. KILDARE, IRELAND

Maynooth University
National University of Ireland Maynooth

Dr Carol Barrett
Secretary to Maynooth University Research Ethics Committee

28 March 2022

Haya Nassir S Alomeri
School of Modern Languages, Literatures and Cultures
Maynooth University

Re: Application for ethical approval for a Project entitled: The production of English sounds by Saudi Learners of English as a second language in Tabuk university

Dear Haya,

The above project has been evaluated under Tier 2 process, expedited review and we would like to inform you that ethical approval has been granted.

Any deviations from the project details submitted to the ethics committee will require further evaluation. This ethical approval will expire on 31/03/2023.

Kind Regards,

Dr Carol Barrett
Secretary,
Maynooth University Research Ethics Committee

C.c. Dr Ana de Prada Pérez,
School of Modern Languages, Literatures and Cultures

Reference Number
SRESC-2022-2470985

Appendix L: The Statistical Analysis of the Arabic Production Task for the Hijazi and Urban Speakers:

Standard Arabic Phoneme	**Arabic Variants of a phoneme**	**Hijazi Urban n=1440**	**Hwaiti Bedouin n=1440**	**P-value**
4- / ʒ /, n (%)	[ʒ]	360 (25.00)	0 (0.0)	NA
	[ʤ]	0 (0.0)	360 (25.00)	
	[g]	0 (0.0)	0 (0.0)	
4- /θ/, n (%)	[θ]	0 (0.0)	360 (25.00)	**<0.001**
	[t]	249 (17.29)	0 (0.0)	
	[s]	111 (7.70)	0 (0.0)	
4- /ð/, n (%)	[ð]	0 (0.0)	319 (22.15)	**<0.001**
	[z]	176 (12.22)	0 (0.0)	
	[d]	184 (12.77)	0 (0.0)	
	[θ]	0 (0.0)	41 (2.84)	
4- / f /, n (%)	[f]	360 (25.00)	360 (25.00)	1

Appendix M: The Statistical Analysis on the Pronunciation of the English Phonemes and Level of Expectedness in Hijazi Urban Versus Hwaiti Bedouin Students

Participants' productions	**Hijazi Urban n=1440**	**Hwaiti Bedoui n n=1440**	**P-value**
1- /ʤ/, n (%)			
• [ʤ] correct	184 (12.77)	297 (20.62)	
• [g] expected WA	51 (3.54)	26 (1.80)	
• [ʒ] expected WA	125 (8.68)	36 (2.50)	0.09
• [k]unexpected WA	0 (0.0)	1 (0.06)	
1- /θ/			
• [θ] correct	211 (14.65)	340 (23.61)	
• [t] expected WA	48 (3.33)	6 (0.41)	
• [s] expected WA	91 (6.31)	2 (0.13)	
• Deletion expected WA	1 (0.06)	2 (0.13)	
• [ð] unexpected WA	3 (0.20)	9 (0.62)	0.16
• [p] unexpected WA	2 (0.13)	0 (0.0)	
• [z]unexpected WA	4 (0.27)	0 (0.0)	
• [l] unexpected WA	0 (0.0)	1 (0.06)	
1- /ð/			
• [ð]correct	101 (7.01)	230 (15.92)	
• [z] expected WA	152 (10.55)	1 (0.06)	
• [d] expected WA	36 (2.50)	0 (0.0)	
• Deletion expected WA	2 (0.13)	0 (0.0)	
• [s] unexpected WA	19 (1.31)	5 (0.34)	
• [t] unexpected WA	7 (0.48)	2 (0.13)	0.46
• [θ] unexpected WA	43 (2.98)	121 (8.40)	
• [b] unexpected WA	0 (0.0)	1 (0.06)	

1- /v/ • [v] correct • [f] expected WA	319 (22.15) 41 (2.88)	250 (17.36) 110 (7.63)	0.09

Appendix N: Model 1
Panel Regression with Fixed Effects

Characteristics	Estimate	SE	z	P-value
Speaker dialect group				
• **Hijazi Urbina**				
Sound/ʤ/	1.96	0.35	5.58	<**0.001**
Sound/v/	3.54	0.38	9.19	<**0.001**
Sound/θ/	1.92	0.35	5.48	<**0.001**
Phoneme Initial	1.20	0.35	3.36	<**0.001**
PhonemeMiddle	1.36	0.35	3.83	<**0.001**
Sound/ʤ/: phoneme Initial	0.91	0.50	1.80	0.07
Sound/v/: phoneme Initial	-0.58	0.53	-1.09	0.27
Sound/θ/: phoneme Initial	0.09	0.47	0.19	0.84
Sound/ʤ/: phoneme Middle	-3.18	0.49	-6.43	<**0.001**
Sound/v/: phoneme Middle	0.64	0.67	0.95	0.34
Sound/θ/: phoneme Middle	-1.28	0.45	-2.80	**0.005**
• **Hwaiti Bedouin**				
Sound/ʤ/	3.34	0.77	4.31	<**0.001**
Sound/v/	2.45	0.77	3.16	**0.001**
Sound/θ/	6.02	0.92	6.53	<**0.001**
Phoneme Initial	4.35	0.82	5.27	<**0.001**
Phoneme Middle	5.20	0.86	6.04	<**0.001**
Sound/ʤ/: phoneme Initial	-1.94	1.16	-1.66	0.09
Sound/v/: phoneme Initial	-4.03	1.09	-3.66	<**0.001**
Sound/θ/: phoneme Initial	-4.04	1.30	-3.10	**0.01**
Sound/ʤ/: phoneme Middle	-4.68	1.13	-4.13	<**0.001**
Sound/v/: phoneme Middle	-3.09	1.14	-2.71	**0.006**

Sound/θ/: phoneme Middle	-6.07	1.26	-4.78	**<0.001**

Appendix O: Model 2

Panel Regression with Fixed Effects

Characteristics	Estimate	SE	z	P-value
Speaker dialect group				
• **Hijazi Urbina**				
Sound/ð/	-4.18	0.56	-7.40	<**0.001**
Sound/ʤ/	-5.40	0.59	-9.13	<**0.001**
Sound/θ/	-3.54	0.56	-6.31	<**0.001**
Phoneme Final	-2.00	0.57	-3.47	<**0.001**
Phoneme Initial	-1.38	0.60	-2.31	<**0.001**
Sound/ð/: phoneme Final	0.64	0.67	0.95	0.34
Sound/ʤ/: phoneme Final	3.83	0.67	5.69	<**0.001**
Sound/θ/: phoneme Final	1.93	0.64	2.98	**0.002**
Sound/ð/: phoneme Initial	1.22	0.67	1.82	0.06
Sound/ʤ/: phoneme Initial	5.32	0.72	7.33	<**0.001**
Sound/θ/: phoneme Initial	2.60	0.67	3.84	<**0.001**
• **Hwaiti Bedouin**				
Sound/ð/	0.64	0.83	0.77	0.43
Sound/ʤ/	-0.69	0.77	-0.90	0.36
Sound/θ/	0.59	0.81	0.72	0.46
Phoneme Final	-2.10	0.76	-2.74	0.006
Phoneme Initial	-1.78	0.75	-2.35	**0.01**
Sound/ð/: phoneme Final	-3.09	1.14	-2.70	**0.006**
Sound/ʤ/: phoneme Final	1.58	1.06	1.49	0.13
Sound/θ/: phoneme Final	2.97	1.19	2.48	**0.01**
Sound/ð/: phoneme Initial	0.93	1.12	0.82	0.40
Sound/ʤ/: phoneme Initial	3.68	1.13	3.23	**0.001**

Sound/θ/: phoneme Initial	2.95	1.21	2.43	**0.01**

Appendix P: Characteristic of the Phenome Position in Hijazi Urban Versus Hwaiti Bedouin Students who Pronounced the Sound Perfectly Correctly

Phenome position	Hijazi Urban n=1440 (50%)	Hwaiti Bedouin n=1440 (50%)	P-value
1- Voiced post-alveolar affricate, n (%)			
• Initial	105 (7.3)	114 (7.9)	
• Middle	19 (1.3)	95 (6.6)	**<0.001**
• Final	60 (4.2)	91 (6.3)	
2- Voiceless dental fricative, n (%)			
• Initial	91 (6.3)	116 (8.1)	
• Middle	61 (4.2)	110 (7.6)	0.23
• Final	70 (4.9)	114 (7.9)	
3- Voiced dental fricative, n (%)			
• Initial	40 (2.8)	97 (6.7)	
• Middle	48 (3.3)	105 (7.3)	0.19
• Final	17 (1.2)	40 (2.8)	
4- Voiced labiodental fricative, n (%)			
• Initial	106 (7.4)	79 (5.4)	
• Middle	99 (6.8)	105 (7.3)	0.07
• Final	97 (6.7)	68 (4.7)	