The impact of suprasegmental-based instruction on improving the speech production and perception of EFL learners in Saudi Arabia

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Abstract

The aim of this study was to investigate the impact of suprasegmental-based instruction on improving the speech production and perception of EFL learners in Saudi Arabia. In particular, the study investigated the impact of suprasegmental-based instruction on students' spontaneous speech production and reading aloud, as well as their listening perception abilities. It also investigated the opinions of the participants towards this type of instruction when learning English pronunciation in a Saudi Arabian context. The study involved 32 Saudi male students learning English as a foreign language (EFL) at a private English teaching academy in Riyadh, Saudi Arabia. For the purpose of this study, two intermediate level classes, taught by the same teacher, were involved as an experimental and a control group. The experimental group participated in a four-week intensive course on English pronunciation, with a focus on the suprasegmental features of the language. The course comprised a 40-minute session included as part of the students' regular two-hour class. The control group, instead, only participated in their regular two-hour class with no intervention.

The study adopted a quasi-experimental design, with a combination of quantitative and qualitative analyses. The data were collected using pre- and post- speech production tests (spontaneous speech and reading aloud tasks), which were rated by 11 native listeners and also analysed acoustically using Praat software. In addition, the participants undertook pre- and post- listening perception tests (word and intonation identification tasks). The performance of the experimental and control groups was analysed quantitatively using paired and independent sample t-tests and one-way ANOVA, and effect size (Cohen's d) to assess the impact of teaching suprasegmental features on the students' performance and in comparison, with the performance of the control group. Furthermore, an end of course questionnaire was given to the students in the experimental group, as well as to their teacher, to elicit their feedback on the suprasegmental-based course. Classroom observation was also conducted by the researcher to assess the application of the suprasegmental-based instruction by the teacher and to record the students' responses to this type of instruction. The data collected from the questionnaires and the classroom observation were analysed quantitatively and qualitatively.

The findings of the study showed that explicit instruction on suprasegmental features contributes to the improvement of both the production and the perception of speech, and in enabling learners to easily understand speech and become easily understood in English.

Dedication

This dissertation is dedicated to my father and mother, for their prayers and support, which gave me the hope and strength to accomplish my dreams. It is dedicated to my brothers, sisters, and friends, for sharing with me their words of advice and for being my source of inspiration. It is dedicated to my wife Atheer, as her love and patience helped me finish this study, and to my little angel Alanoud, whom I love more than words can describe.

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List of Abbreviations

ALM	Audio-lingual Method
Aramco	Saudi Arabian Oil Company
CLT	Communicative Language Teaching
CLL	Community Language Learning
CAH	Contrastive Analysis Hypothesis
CPH	Critical Period Hypothesis
CPR	Cued Pronunciation Readings
DM	Direct Method
EFL	English as a foreign language
ELT	English language teaching
ESL	English as a second language
FL	Functional Load
HREC	Human Research Ethics Committee
ICC	Intraclass Correlation Coefficient
IPA	International Phonetic Alphabet
KASP	King Abdullah Scholarship Program
KSA	Kingdom of Saudi Arabia
L1	First language
L2	Second language
LFC	Lingua Franca Core
MDH	Markedness Differential Hypothesis
MoE	Ministry of Education
MSA	Modern Standard Arabic
PAM	Perceptual Assimilation Model
PAI	Pronunciation Attitude Inventory
RP	Received Pronunciation
SLM	Speech Learning Model

Chapter 1: Introduction and Background Information

1.1 Introduction

In the globalized world of the twenty-first century, English is undoubtedly the main means of international communication between both native and non-native English speakers. This has led Saudi Arabia, like so many other countries across the world, to develop national policies and programs to enhance the widespread teaching of English across its education system. Currently in Saudi Arabia, English is being taught as a foreign language in all public and private schools and at all learning levels to facilitate communication between Saudis and people from other parts of the world (Al-Seghayer, 2014; Alrabai, 2016). However, the outcomes of learning and teaching English in Saudi Arabia are not seen to be satisfactory as learners of English in Saudi Arabia are often not able to achieve the desired results when communicating in English.

The unsatisfactory outcomes for language learners in Saudi Arabia have been attributed to many reasons, one of significance is the lack of attention being paid to pronunciation instruction which has been shown to play a crucial role in improving learners' ability to communicate clearly and easily in English (e.g. Ahmad & Nazim, 2014; Hago & Khan, 2015; Al-Seghayer, 2019). Although Saudi EFL learners may be competent in other language components, such as grammar and vocabulary, many still have difficulties when communicating in English because of their lack of knowledge about English pronunciation (Algonhaim, 2014; Hameed & Islam, 2015). Many researchers (e.g. Ahmad & Muhiburrahman, 2013; Alsowat, 2017; Almaqrn & Alshabeb, 2017) argue that Saudi EFL learners encounter many difficulties when communicating in English because pronunciation is ignored in Saudi Arabian classrooms, despite its positive impact on oral communication. They assert that more attention should be paid to improving learners' pronunciation, at both perception and production levels and that doing so would enhance Saudi EFL learners' communicative skills. In particular, researchers have argued that pronunciation instruction in Saudi Arabia does not pay enough attention to English suprasegmental features such as rhythm, intonation, linking and stress which are very important for learners' oral communication success (e.g. Abu Seileek, 2007; Alharbi, 2009; Al-Ahdal, Al-Hattami, Al-Awaid, & Al-Mashaqba, 2015; Ababneh, 2018). However, although many researchers have called for pronunciation teaching methods that focus on the suprasegmental features of English, the field of pronunciation in Saudi Arabia lacks experimentally trialled studies that examine the

effectiveness of this type of pronunciation instruction. Thus, there remains a research gap in the area of suprasegmental studies in the Saudi Arabian context.

The present study aims to provide an insight into the effectiveness of suprasegmental-based instruction in improving the speech perception and production of Saudi EFL learners. The study takes comprehensibility (ease of understanding) as the main goal for the type of pronunciation instruction used in the study as previous studies in other contexts (e.g. Derwing & Rossiter, 2003; Tanner & Landon, 2009; Gordon, Darcy, & Ewert, 2013; Saito & Saito, 2016; Gordon & Darcy, 2016; Kissling, 2018) have shown empirical evidence that suprasegmental-based instruction has a positive impact in the development of L2 learners' perception and production, and enabling them to easily understand and become easily understood in English.

Therefore, the study investigates the impact of suprasegmental-based instruction on improving the oral production in spontaneous speech and reading aloud, and listening perception of Saudi EFL learners in Saudi Arabia. In particular, this study investigates the impact of suprasegmental-based instruction on improving Saudi EFL learners' comprehensibility and fluency, and reducing accentedness in spontaneous speech, as these three dimensions are important contributors to successful oral communication. In addition, the study investigates the impact of this type of instruction on improving Saudi EFL learners' comprehensibility and reducing their accentedness in reading aloud production.

The present study also considers whether suprasegmental-based instruction can help Saudi learners of English improve their listening perception abilities, in particular to perceive and correctly identify words and intonation patterns in English connected speech. Failing to perceive words and the speaker's intonation in English spontaneous speech may cause difficulties in oral communication (Hamouda, 2013). Finally, the study examines the experience and opinions of the students and the teacher who participated in this study, especially in regard to the effectiveness of suprasegmental-based instruction as a teaching method for improving the speech perception and speech production of Saudi students of English. The views of the teacher and the learners about the intervention as well as the researcher's classroom observations, are of particular importance, as they give an insight into the strengths and weaknesses of suprasegmental-based instruction, and what should and should not be included in future applications of this type of instruction.

The findings of the study show that suprasegmental-based instruction can play a vital role in facilitating oral communication by helping EFL learners in Saudi Arabia improve their production and listening perception skills. In particular, the results showed that suprasegmental-based instruction was useful in improving the learners' comprehensibility and fluency to a significant level (p= 0.042 and p= 0.019 respectively) in spontaneous speech production. The calculation of effect size using Cohen's test also showed that this type of pronunciation instruction had a medium effect on improving comprehensibility and fluency of speech (*d*= 0.517 and *d*= 0.450 respectively). However, suprasegmental-based instruction was not found to significantly help learners reduce accentedness in their spontaneous speech production to a significant level (p= 0.387). In addition, acoustic analysis further showed that teaching suprasegmental features was also effective in helping learners to improve some major subcomponents of fluency as this type of instruction help learners increase their speech rate and reduce the length of silent pauses in spontaneous speech to a significant level (p= 0.025 and p= 0.039 respectively) with a medium practical effect on the students' performance improvement (*d*= 0.429 and *d*= 0.401 respectively).

In terms of reading aloud production, the results showed that suprasegmental-based instruction was not effective in improving learners' comprehensibility and reducing foreign accent in reading aloud production to a significant level (p= 0.261 and p= 0.329 respectively).

In terms of listening perception, the results of this study showed that suprasegmental-based instruction significantly improved the students' ability to correctly perceive and identify words and the speaker's intonation in fluent English speech, (p= 0.000 and p= 0.000 respectively), and with a large effect (*d*= 1.998 and *d*= 1.110 respectively).

The analysis of the performance of both groups showed that suprasegmental-based instruction helped the students in the experimental group improve their perception and production of speech more than if there was no explicit pronunciation instruction, as was the case for the control group. The higher efficacy of suprasegmental-based instruction over no explicit pronunciation instruction was evidenced in the results of one-way ANOVA and independent sample *t*-test, which showed that suprasegmental-based instruction, in all variables, produced a higher degree of improvement on the experimental group than having no explicit pronunciation instruction on the control group.

Furthermore, the positive impact of this type of instruction was also observed by the students, the teacher in his reflection and in my classroom observation. The findings from the

students' questionnaires, the teacher's reflection and my classroom observation revealed the effectiveness of suprasegmental-based instruction, and confirmed that the students were keen to learn new pronunciation aspects that were relevant to their communicative competence.

The study makes a significant theoretical contribution to the teaching of English as a foreign language in Saudi Arabia. First, it raises awareness of the importance of teaching pronunciation, particularly of teaching the suprasegmental features of English. Second, it provides evidence of the effectiveness of suprasegmental-based instruction in improving speech production in terms of comprehensibility, fluency in spontaneous speech. It also provides evidence that this type of instruction might not be effective in reducing accentedness in spontaneous speech production as well as in improving comprehensibility and reducing accentedness in reading aloud production. Therefore, the study supports the findings of Derwing and Munro's (1995) and Derwing and Rossiter's studies that found that comprehensibility, fluency and accentedness are three partially related dimensions of speech which should be treated differently, as suprasegmental-based instruction could be useful in improving comprehensibility and fluency, but not effective with foreign accent reduction. In addition, it provides evidence of the effectiveness of this type of instruction in improving learners' listening abilities to correctly perceive and identify words and intonation in English connected speech production. Third, the study contributes to enhancing the learners' phonological awareness, so they become mindful of the importance of the suprasegmental features in their oral communication, and improve their ability to use these aspects spontaneously in their daily interactions. Fourth, the study provides some helpful teaching suggestions which can be used to assist Saudi language teachers to teach English suprasegmental features as a means to effectively improving learners' perception and production skills. Previous studies (e.g. Alhaisoni, 2012; Alseweed, 2012; Alseweed & Daif-Allah, 2013; Alrabai, 2016; Al-Sobhi & Preece, 2018) have argued that Saudi teachers lack training and teaching methodologies that make pronunciation teaching more effective. Therefore, the present study provides some practical, motivating, and enjoyable activities, as well as visual, auditory and physical techniques that align with the materials adopted in the course to teach English suprasegmental features. These activities and techniques, as it will be shown, are effective in teaching the suprasegmental features of English, and are preferred by Saudi learners of English over those of the standard teaching methods currently used in Saudi Arabia. These activities and strategies can make a substantial contribution to helping learners succeed in their pronunciation learning.

1.1.1 Overview of the context of the study: Saudi Arabia

Saudi Arabia is the second largest Arabic-speaking country in the Arab world. Officially named the Kingdom of Saudi Arabia (KSA), it is a monarchy located in the south-western part of Asia. It is the largest country in the Middle East and occupies four-fifths of the Arabian Peninsula (Al-Seghayer, 2011; Mitchell & Alfuraih, 2017). It was established by King Abdulaziz bin Abdulrahman Al-Saud in 1932 (Alrashidi & Phan, 2015). Saudi Arabia is bordered by five countries: Jordan, Iraq and Kuwait from the north, the Arabian Gulf, Bahrain, Qatar and United Arab Emirates on the East, the Sultanate of Oman and Yemen from the South, and the Red Sea on the West (Alshahrani, 2016). It occupies an area of approximately 2,250,000 square kilometres. Its population is about 27 million, most of whom live in the country's largest cities, such as the capital Riyadh, Jeddah, Dammam, and Mecca (Al-Seghayer, 2011). The official national language, Arabic, is used as the medium of instruction in schools at all levels and also for everyday communication (Alrashidi & Phan, 2015). Politically, Saudi Arabia is the leading country of the Arab and Islamic world, as it is the cradle of Islam and host of the two Islamic holy mosques in Makkah and Madinah (Alasmari, 2013). Economically, Saudi Arabia holds the second largest oil reserves (16% of the world's proven oil reserves) after Venezuela, and it is the largest crude oil producer in the world with 12 million barrels produced per day, ranking it among the top 20 strongest economies in the world (U.S. Energy Information Administration, 2017).

Figure 1.1 **Map of Saudi Arabia**

Saudi Arabia announced in 2016 a national transformational plan called Vision 2030, which aims to develop many sectors, including healthcare, tourism, and trade, and to make the country less dependent on oil income (which currently comprises 85% of total revenue) by diversifying the country's revenue sources (U.S. Energy Information Administration, 2017; Habibi, 2019). Education is also among the sectors prioritised in Vision 2030's objectives. The vision for the sector aims to improve the education system and provide Saudi citizens with the

tools to learn through the best materials available, as well as providing teachers with training programs to improve the quality of learning in Saudi Arabia (Mitchell & Alfuraih, 2017).

Vision 2030 expands on the engagement with education that the Saudi government has had since its establishment in 1932. At that time, only 700 students were enrolled in 12 schools across the country (Alamri, 2011). Ninety years later, however, this situation has changed significantly and now more than 4,963,000 public education students are enrolled in 31,798 schools, and a total of 636,245 students are enrolled in 45 government and private universities across the country (Al-Seghayer, 2011; Rahman & Alhaisoni, 2013). The government has paid much attention to developing education policy, courses, and teacher professionalisation. In the 2020 Saudi government budget, the Ministry of Education received an additional 193 billion Saudi Riyals (about 35% of the total budget and more than any other ministry) to help develop the education system and to take it to a more advanced level (Ministry of Finance, 2020).

1.1.2 The education system in Saudi Arabia

The education system in Saudi Arabia is administered and supervised by the Ministry of Education. The Ministry of Education provides education and care for both public and private education at the elementary, intermediate, secondary, and tertiary levels, as well as for post-graduate education, special education, foreign education, and vocational education which is also administered by the Technical and Vocational Training Corporation (Alsubeiy, 2016). The Ministry of Education is also responsible for the professional development of teachers and the implementation of the Kingdom's learning policy in the field of higher education. The Technical and Vocational Training Corporation (TVTC) embodies the Kingdom's vision to train and prepare Saudis for national human resources requirements, by addressing market demands through training and apprenticeships (Al-Seghayer, 2011). The Ministry of Education is also responsible for accrediting training and learning institutes and programs in Saudi Arabia. The Ministry ensures that all training and learning programs meet the quality standards set out by the Saudi education system and that they are consistent with the economic and cultural requirements of the country. There are hundreds of training and learning institutes in Saudi Arabia, including language learning institutes that provide Saudi citizens with professional development and qualifications that are accepted throughout the world (National Commission for Academic Accreditation and Assessment, 2015).

The education system in Saudi Arabia consists of five sectors: pre-school, elementary, intermediate, secondary and tertiary education. Pre-school education caters to children aged three to five and is not mandatory. Elementary education caters to the education of six year-olds onwards; this stage normally lasts for six years. Most schools follow the system of ongoing assessment at this level, but this does not mean that students cannot fail at this level. The intermediate level usually lasts for three years (between 12-14 years) and is followed by secondary education for another three years (15-18 years). Finally, tertiary education normally lasts for four years, but can vary depending on the major and type of education (Albedaiwi, 2014).

The main objectives of education in Saudi Arabia are to provide students with the values of Islam and Saudi culture (Alrashidi & Phan, 2015). As a consequence, a co-educational system is not permissible across all learning levels; male and female students study separately due to the conservative cultural environment in Saudi Arabia. For this reason, in the present study, as a male researcher I was only able to work with male students. Therefore, throughout this thesis "Saudi students" refers to male Saudi students only.

Private schools in Saudi Arabia also offer the same levels of education. They are supervised by the Ministry of Education and use the same government curricula and examination system as government schools (Al-Seghayer, 2011). The Ministry of Education appoints a government employee as a principal at each school to ensure that schools follow the educational system set by the ministry (Al-Seghayer, 2011).

1.1.3 Teaching and learning of English in Saudi Arabia

In the Saudi Arabian educational system, English is taught as a foreign language (EFL). Learning English was integrated into secondary schools in 1932, as a result of the discovery of oil in the country, as a means of facilitating the communication between Saudi locals and foreigners working in the Saudi Arabian Oil Company (Aramco), years after the Directorate of Education was established in 1923 (Al-Seghayer, 2011; Alshahrani, 2016). In 1942, English was extended to the curricula taught in intermediate schools. It was taught there without a nationwide curriculum until 1958, when specific learning objectives were established by the government for public and private schools across the country (Mahboob & Elyas, 2014; Al-Nasser, 2015; Aljohani, 2016). The English curriculum and textbooks used to teach English were then re-evaluated in 1990 in order to improve them and make them more appropriate to

the learners' needs and goals (Mahboob & Elyas, 2014; Albedaiwi, 2014; Aljohani, 2016). As a result, the Ministry of Education implemented an EFL syllabus that embodies the culture, the beliefs and the values of the society, commonly referred to as English for Saudi Arabia (Alrashidi & Phan, 2015). In 2004, English was integrated into the primary school for the first time, at Grade 6, and was subsequently introduced in Grades 4 and 5 in all public schools in 2012 (Mitchell & Alfuraih, 2017). In 2021, English classes will be introduced from Grade 1 in Saudi Arabian public schools (Abueish, 2020).

The importance of learning English has increased over the past decade, especially after the Saudi government launched the King Abdullah Scholarship Program (KASP) in 2005. This scholarship offered Saudi students the opportunity to study in high quality universities in countries where English is the language of education, such as the USA, Australia, United Kingdom, Canada and Malaysia (Alasmari, 2013).

With a decree issued in 2001, the government has established the main objectives of teaching English as a foreign language in both public and private schools of Saudi Arabia as: (1) enabling students to acquire the fundamental skills of writing, reading, listening, and speaking and to help students achieve linguistic competence in various professions; (2) developing the students' awareness of the English language as a language of communication; (3) helping students be ready for work in various professions; (4) developing students' understanding of the cultural, economic and religious habits and issues of nations in other parts of the world; and (5) enabling the students to share their culture to the world through the English language (Rahman & Alhaisoni, 2013; Alhmadi, 2014; Alrashidi & Phan, 2015). Since the issuing of the 2001 decree, a growing number of Saudis have studied English as a foreign language (EFL), as evidenced by the high enrolment in English language classes in schools and universities (Al-Seghayer, 2011). By 2011, a total of 50,000 students had taken English learning courses in 348 language institutes across Saudi Arabia, and approximately 33,000 students were enrolled in 18 English colleges in Saudi Arabia (Al-Seghayer, 2011).

As a result of the constant efforts of the Saudi government, English is given more attention than other foreign languages, due to its now well-established importance for the educational and employment opportunities of Saudi students (Al-Seghayer, 2014). English is now taught as a foreign language in all public and private schools, and is offered as a core subject at all levels in male and female schools (elementary, intermediate and secondary schools) (Albedaiwi, 2014; Alrabai, 2016). Typically, English instruction is delivered in

intermediate and secondary levels, with a frequency of four times per week for 45 minutes per lesson (Al-Sobhi & Preece, 2018). However, in the elementary level, English instruction is delivered twice a week for the same duration per lesson (Alseghayer, 2011).

1.1.4 Challenges of learning English in Saudi Arabia

Despite these developments in government programs, and although English language teaching was introduced in Saudi Arabian public schools more than 90 years ago, the challenges of teaching and learning English in the country are enormous, and the outcomes of years of English learning are not yet satisfactory (Khan, 2011; Rajab, 2013). Many researchers (e.g. Khan, 2011; Al-Khairy, 2013; Rajab, 2013; Rahman & Alhaisoni, 2013; Al-Seghayer, 2014; Alrashidi & Phan, 2015; Alrabai, 2016; Naser & Bin Hamzah, 2018) have shown that Saudi EFL learners are challenged with many obstacles that prevent them from achieving language proficiency, even after years of English learning. Among these challenges are: the use of out-dated methodologies for teaching English; the lack of teacher training; and materials and classroom activities are not effective for improving learners' communicative skills nor enhancing their motivation toward language learning.

English teachers in Saudi Arabia are not well trained to teach English effectively. They are often criticised for not using sufficient teaching methodology that helps their students achieve their desired goals (Alasmari, 2013). According to Alasmari (2013) more than 2300 male and female English teachers graduate every year with little knowledge about how teaching English should be presented effectively. Therefore, due to their lack of teaching proficiency, English teachers in Saudi Arabia tend to use teacher-centred instruction and rely on old methods and techniques that are ineffective for improving learners' communicative competence (Alhmadi, 2014). English teachers in Saudi Arabia, for instance, spend most of the class time illustrating and explaining the lessons verbally or writing on the board without engaging the students in activities that give them a chance to practice what they have learned. This, according to Al-Seghayer (2014), impacts negatively the students' motivation toward English learning, as they often fail in oral communication as they only memorise what they are taught without necessarily understanding it or being able to use English to communicate successfully. Alrashidi and Phan (2015) further note that after years of exposure to English, students are not becoming adequately competent and proficient at English due to the emphasis on memorisation and lack of practicing English in class. As a result of this way of teaching, many Saudi learners of English have gained sufficient basic knowledge of reading, writing,

grammar and vocabulary, however their communicative skills are not adequately developed, and many are not able to utilise what they have learned in communicative situations (Alrashidi & Phan, 2015; Alrabai, 2016).

In view of this situation, Saudi researchers (e.g. Al-Seghayer, 2011; Rajab, 2013; Alhamadi, 2014; Alghonaim, 2014; Al-Seghayer, 2014; Alrashidi & Phan, 2015; Alrabai, 2016) have urged the need for enhancing Saudi EFL learners' communicative competence through implementing more effective learner-centred teaching methods that make language learning more interactive, using engaging materials and involving activities and strategies that enhance learners' motivation towards learning English.

1.2 Research problem

Successful oral communication is a main goal for most second language (L2) learners (Derwing & Munro, 2015). It is affected by a number of key factors, including knowledge and use of grammar and vocabulary. However, among these factors, pronunciation plays a major role in facilitating or hindering oral communication as shown by numerous researchers who have argued that pronunciation is a fundamental aspect for successful oral communication (e.g. Adams-Goertel, 2013; Hago & Khan, 2015; Gordon & Darcy, 2016; Darcy, 2018; Levis, 2018).

Second language (L2) speakers are judged by the way they speak. Those who have problems in pronunciation may be considered incompetent or uneducated, and also may be less well understood or incorrectly perceived by other English speakers, even if they are competent in aspects such as vocabulary and grammar (Yates, 2002; Yates & Zielinski, 2009). However, speakers with good pronunciation may be successful in their oral communication even if they lack competency in other areas of the language, such as grammar and vocabulary (Yates & Zielinski, 2009).

Lack of competence in pronunciation may affect listening perception as well as production, and may lead to incorrect or unrecognisable production of sounds (consonants and vowels) and suprasegmental features (stress, rhythm, pauses, intonation and linking), which makes oral communication less successful. As Celce-Murcia et al. (2010) point out, learners' inability to recognise, perceive and produce segmental and suprasegmental features can have a negative impact on their oral production and listening comprehension abilities, and thus affect their ability to communicate.

Pronunciation has proved difficult to achieve for many Saudi learners (Alfallaj, 2013; Al-Seghayer, 2019). Saudi learners of English are often found to struggle in their perception and production abilities when communicating in English because of their lack of mastery of English pronunciation (Ahmad, 2011; Hamouda, 2013; Alfallaj, 2013; Jarrah, 2015; Hameed & Aslam, 2015; Al-Sobhi & Preece, 2018). This has been attributed to many factors such as: (1) the influence of the first language (L1) on the learners' L2 pronunciation; (2) lack of adequate attention to pronunciation given in language classes; (3) lack of innovative teaching methods and materials used to teach pronunciation; and (4) prioritisation of segmental features over suprasegmental features in language instruction (e.g. Alharbi, 2009; Alhaisoni, 2012; Ahmad & Nazim, 2014; Hago & Khan, 2015; Alfehaid, 2015; Ababneh, 2018; Al-Sobhi & Preece, 2018; Al-Seghayer, 2019).

First language interference on learners' L2 pronunciation is claimed to affect Saudi English learners' pronunciation and make it hard for them to master English pronunciation successfully. Although the L1 effect on pronunciation is not the only reason for Saudi EFL learners' pronunciation difficulties and should not be used as a reliable predictor for areas of difficulty among L2 learners, many researchers (e.g. Ahmad, 2012; Ahmad & Nazim, 2013; Alfallaj, 2013; Hago & Khan, 2015; Almaqrn & Alshabeb, 2017; Ahmed, 2017; Abugohar & Yunis, 2018) have claimed that mother tongue interference is one of the main causes for the pronunciation difficulties Saudi learners of English encounter in English. For example, Saudi EFL learners' pronunciation is negatively influenced by the pronunciation features of Arabic, which affect both their perception and production of speech (Abugohar & Yunis, 2018). Hago and Khan (2015) explain that Saudi EFL learners tend to transfer pronunciation features of Arabic when communicating in English because they lack knowledge about how English pronunciation features are used. In a study done by Ababneh (2018) to analyse Saudi English learners' pronunciation errors, it was found that Saudi English learners tend to transfer both segmental and suprasegmental features of Arabic when communicating in English. However, Ahmed (2017) noted that although Arabic influenced learners' English pronunciation at segmental level, its influence on suprasegmental features is critical. Ahmed (2017) found that due to a lack of knowledge of English suprasegmental features and influence of Arabic in the learners' English production, they tend to produce speech with misplaced stress, and inappropriate intonation and rhythm. This notion was also supported by Albaaly (2017) who found that interference from Arabic affect learners' perception and production of stress, intonation and rhythm. Therefore, Almaqrn and Alshabeb (2017) claim that improving

learners' knowledge English suprasegmental features may reduce L1 interference in their perception and production, and improve their oral communication in English.

A second barrier to improving pronunciation for Saudi students is that teaching pronunciation is given less attention compared to other language skills in Saudi Arabia. For some time, researchers (e.g. Alhaisoni, 2012; Ahmad & Muhiburrahman, 2013; Algonhaim, 2014; Abugohar & Yunus, 2018; Ababneh, 2018; Al-Seghayer, 2019) have claimed that even though Saudi learners of English may be competent in other areas of English, such as grammar and vocabulary, they still have poor pronunciation, which often discourages them from communicating easily in English. In Saudi Arabian schools and colleges, pronunciation is not emphasised as much as other language skills, such as speaking, reading, writing, listening, and vocabulary (Ahmed and Nazim, 2014). According to Alseghayer (2019), pronunciation is given little attention in the Saudi Arabian classrooms, and at all education levels, pronunciation is not considered an important skill. Therefore, Saudi learners of English lack basic skills in mastering English pronunciation which inhibits their ability to communicate in English despite having mastery of other language skills (Algonhaim, 2014). Al-Ahdal et al. (2015) attribute this lack of attention paid to pronunciation in Saudi Arabian classrooms to teachers not consider pronunciation a necessary skill. Even more significant though, is the fact that, as explained above, while English is taught in Saudi Arabian schools from an early stage, no pronunciation lessons are included in the national curriculum (Alhmadi, 2014). As a result, as Al-Ahdal et al. (2015) add, language teachers in Saudi Arabia are left with no clear pronunciation teaching materials and activities, and rely on their intuitions to teach pronunciation. Abugohar and Yunus (2018) also assert that pronunciation lessons are not emphasised in English syllabi in Saudi Arabia. Although recently some segmental-based lessons have been included in the intermediate stage syllabus, teachers have tended to ignore these lessons because they lack experience and knowledge about how to teach them communicatively. As Alrabai (2016) argues, teaching pronunciation is often ignored by English teachers for reasons such as lack of interest or lack of knowledge of how to teach it. This notion was also supported by Alhaisoni (2012), Alhmadi (2014), and Hameed and Aslam (2015) who claim that teachers in Saudi Arabia generally neglect pronunciation teaching, due to lack of interest, lack of confidence or lack of knowledge and competence.

Thirdly, teaching English in Saudi Arabia in particular, as mentioned in section 1.1.4, has been limited to methodologies in which learners depend on memorising and rote learning without an awareness of how pronunciation aspects can be used to convey meaning and used

for successful oral communication (Alrabai, 2016). Alsofyani and Algethami (2017) also claim that the absence of pronunciation materials and teaching methods in Saudi Arabia has led teachers to use traditional teaching techniques such as repeating individual sounds to teach pronunciation. Hameed and Aslam (2015) and Alsudais (2017) noted that another reason for Saudi students' difficulties in pronunciation are that traditional methods of teaching prevail, in which students are simply asked to listen and repeat. Therefore, they recommend providing Saudi teachers with more training opportunities to teach pronunciation effectively and interactively. Alhaisoni (2012) believed that teachers in Saudi Arabia tend not to be creative and rely on old teaching methods that reduce Saudi students' motivation and enthusiasm for English learning and their learning outcomes. Ezza (2013) points out that "teachers often conceive of English pronunciation as difficult and frustrating to teach, as the relevant teaching approaches are complex, daunting and time-consuming and the textbooks used in teaching are not student friendly" (p.63). Therefore, he recommends providing teachers with easy and more effective teaching strategies that enhance learners' motivation toward pronunciation learning and make teaching it communicatively effective.

Finally, pronunciation instruction in Saudi Arabia tends to rely on teaching methods, such as the audio-lingual method, which assign higher priority to segmental features than suprasegmental features (Al-Seghayer, 2014; Alsudais, 2017). Numerous studies (e.g. Basalamah, 1990; Alharbi, 2009; Hamouda, 2013; Bataineh & Al-Qadi, 2014; Jarrah, 2015; Al-Ahdal et al., 2015; Ababneh, 2018; Abugohar & Yunus, 2018; Misfer & Busabaa, 2019; Alhudhaif, 2020) conducted on Saudi EFL learners have found that Saudi learners encounter pronunciation problems related to perceiving and producing English suprasegmental features and these need to be taught explicitly to eliminate their difficulties in communication. However, these researchers have shown that although suprasegmental features have been shown to have an impact on oral communication, they have not been given as much attention as segmental features in teaching English pronunciation to Saudi learners. For example, Saudi EFL learners were found to have a better mastery of segmental features than suprasegmental features despite the positive impact of the latter on their oral communication (Abu Seileek, 2007). Therefore, Abu Seileek (2007) stresses the need for integrating new suprasegmental-based teaching methods to substitute the traditional teaching methods currently used to teach pronunciation in Saudi Arabia which rely heavily on memorisation and repetition of sounds. In addition, Saudi EFL learners have major difficulties with perceiving stress, intonation and rhythm of English speech, which are very important for listening comprehension (Hamouda,

2013). According to Hamouda (2013) Saudi EFL learners might be able to recognise familiar words if pronounced in isolation, however they might not be able to recognise even familiar words in a stream of speech, due to the lack of instruction on suprasegmental features. Bataineh and Al-Qadi (2014) also involved English native experts to investigate Saudi EFL learners' pronunciation errors, and found that suprasegmental features errors, such as intonation, stress and pauses, were affecting their perception and production more than segmental errors were; however, these aspects of pronunciation are not taught explicitly in classrooms as much as segmental features. Abugohar and Yunus (2018) further note that Saudi EFL learners' pronunciation problems relating to stress, intonation, linking and pauses which negatively impact learners' ability to speak English accurately and fluently, can be reduced if explicit instruction is given to exactly where their difficulties in pronunciation are. Abugohar and Yunus (2018) assert that paying attention to suprasegmental features would help learners improve their communicative skills. Alghazo (2015) also pointed out that paying more attention to suprasegmental features would help learners improve their fluency and overcome their pronunciation difficulties and so make oral communication more successful. However, according to Alghazo (2015) pronunciation instruction in Saudi Arabia is still limited to improving accuracy in perceiving and producing segmental features, and little attention is paid to suprasegmental features.

Therefore, the present study follows the recommendations of previous studies (e.g. Abu Seileek, 2007; Alharbi, 2009; Hamouda, 2013; Jarrah, 2015; Hameed & Aslam, 2015; Alghazo, 2015; Al-Ahdal, et al., 2015; Al-Domi, 2017; Ababneh, 2018; Abugohar & Yunus, 2018; Misfer & Busabaa, 2019; Alhudhaif, 2020) that highlight the necessity to teach English suprasegmental features explicitly to improve Saudi English learners' perception and production of speech, and so enable them to more easily communicate in English. It focuses on the teaching of English pronunciation in Saudi Arabia with an emphasis on teaching suprasegmental features (i.e. stress, intonation, rhythm, linking and pauses). These suprasegmental or prosodic features are speech characteristics that play an important role in oral communication (Levis, 2018). They make communication more successful and listeners often rely on them to understand speech even if consonants and vowels are not correctly produced (Reed, 2012). Suprasegmental features have been shown to be effective in enhancing the perception and production of pronunciation of other Arab EFL learners (e.g. Bouchhioua, 2016; Ahmed, 2017; Al-Tamimi & Attamimi, 2018) as well as L2 learners in other contexts (Derwing et al., 1998; Derwing & Rossiter, 2003; Hardison, 2004; Meng et al., 2009; Kennedy

& Trofimovich, 2010; Phan & Vo, 2012; Gordon, Darcy & Ewert, 2013; Saito & Saito, 2016; Gordon & Darcy, 2016).

Suprasegmental features are particularly important as they have been shown to be closely connected to communicative functions of spoken English. According to Levis and Grant (2003) "suprasegmentals, by virtue of their connection to discourse meaning and connected speech, are more likely than segmentals to be directly relevant to speaking skills" (p. 14). Therefore, many researchers (e.g. Basalamah, 1990; Alharbi, 2009; Abu Seileek, 2007; Bataineh & Al-Qadi, 2014; Al-Ahdal et al., 2015; Almaqrn & Alshabeb, 2017; Misfer & Busabaa, 2019) have claimed that even when Saudi learners of English have been introduced to English segmental features, they still lack knowledge and mastery of English suprasegmental features. Emphasising the features that learners are already aware of or which are less important in improving learners' abilities to perceive and produce speech with ease will not lead to a noticeable improvement in the learners' performance. Derwing and Munro (2015) and Levis (2018) note that pronunciation instruction should focus on those features that are more important for learners' intelligibility and comprehensibility as this will lead to noticeable improvement in the students' performance; teaching features which students have already mastered, or features that do not cause difficulties for understanding will not make a difference in performance. Therefore, the present study is concerned with teaching the suprasegmental features (ie. stress, intonation, rhythm, linking and pauses) that are likely to make a direct contribution to improving learners' perception and production of speech. In addition, the current study presents suprasegmental-based instruction through the use of motivating and enjoyable materials, activities and techniques, including visual, auditory and physical strategies, which help to make the learning process communicative and interactive. This is in line with previous studies such as those by Hamouda (2013), Al-Ahdal, et al. (2015), Alghazo (2015), Ababneh (2018) and Misfer and Busabaa (2019), who claim that introducing suprasegmental features through communicative and interactive activities would make teaching them easier and more effective.

In summary, pronunciation is a source of difficulty for Saudi EFL learners in oral communication. These difficulties have been attributed to L1 interference, traditional teaching methods that do not emphasise pronunciation, lack of effective methods and materials, and very little attention given to suprasegmental features when pronunciation is taught. Although many researchers have argued that suprasegmental-based instruction may offer a solution to this problem, there is still a lack of experimental studies to support this claim. Therefore, this

study aims to investigate the impact of suprasegmental-based instruction on male Saudi EFL learners' English perception and production to help address this issue.

1.3 Research aim

Until now, most pronunciation studies conducted in Saudi Arabia have been limited to investigating the difficulties that Saudi learners of English tend to encounter when producing and perceiving English pronunciation at segmental (e.g. Ezza, 2013; Ahmad & Nazim 2014; Hassan, 2014; Hameed & Aslam, 2015; Hago & Khan, 2015) and suprasegmental levels (e.g. Basalamah, 1990; Alharbi, 2009; Hamouda, 2013; Bataineh & Al-Qadi, 2014; Jarrah, 2015; Al-Ahdal et al., 2015; Ababneh, 2018; Alhudhaif, 2020). However, pronunciation studies that provide experimental teaching solutions to overcome these pronunciation difficulties which hinder Saudi English learners' oral communication are still limited, especially at the suprasegmental level.

Therefore, the present study aims to investigate the impact of suprasegmental-based instruction on improving the Saudi EFL learners' pronunciation skills, and help them become more easily comprehensible to listeners in spontaneous speech and in reading aloud production, as well as in improving learners' listening comprehension abilities so they become able to correctly perceive and identify words and the speaker's intonation in spontaneous English speech.

In doing so, it is among the first studies to implement suprasegmental-based instruction to improve Saudi EFL learners' perception and production of speech in a Saudi Arabian context. Notably, previous studies conducted in Saudi Arabia have focused on suprasegmental features investigated the effectiveness of computer-based instruction on improving learners' awareness of stress (Abu Seileek, 2007) or using authentic videos to raise learners' awareness of suprasegmental features (Al-Domi, 2017). However, the studies were investigating the effectiveness of a particular tool for improving awareness of suprasegmental features. The present study, instead, investigates the effectiveness of suprasegmental-based instruction in teaching pronunciation, and the impact of teaching suprasegmental features on improving Saudi learners' perception and production of speech for more successful communicative competence. Therefore, it is one of very few studies that examine the impact of suprasegmental-based instruction as a way of teaching pronunciation in Saudi Arabia. Although pronunciation teaching studies carried out in other parts of the world have shown the suprasegmental instruction to be successful in improving learners' perception and production

of speech (Derwing, et al., 1998; Derwing & Rossiter, 2003; Tanner & Landon, 2009; Saito & Saito, 2016; Gordon & Darcy, 2016; Saito & Saito, 2016; Kissling, 2018), suprasegmental-based instruction has not yet been thoroughly experimentally trialled in the Saudi classroom, where English is taught as a foreign language.

Based on the success of suprasegmental-based instruction in previous studies with other L2 learners of English (e.g. Derwing et al., 1998; Derwing & Rossiter, 2003; Hardison, 2004; Kennedy & Trofimovich, 2008; Meng et al., 2009; Phan & Vo, 2012; Gordon et al., 2013; Saito & Saito, 2016), it is predicted that suprasegmental-based instruction might also be effective in the context of Saudi Arabia (Alharbi, 2009; Jarrah, 2015; Al-Ahdal et al., 2015; Al-Domi, 2017; Misfer & Busabaa, 2019).

1.4 Research questions

Based on the research aims highlighted in the previous section, the researcher sought to answer the following research questions:

1. To what extent does suprasegmental-based instruction improve comprehensibility and fluency and reduce accentedness among Saudi EFL learners in spontaneous speech production?
2. To what extent does suprasegmental-based instruction improve comprehensibility and reduce accentedness among Saudi EFL learners in reading aloud production?
3. To what extent does suprasegmental-based instruction improve the listening perception of Saudi EFL learners in terms of their ability to identify words and intonation in English spontaneous speech?
4. What are the responses of both the teacher and the students towards suprasegmental-based instruction?

1.5 Organisation of the thesis

This thesis consists of six chapters. This first chapter presents an overview of Saudi Arabia and of how English is taught in Saudi Arabian classrooms. In addition, it describes the issue being investigated, and the problems Saudi Arabian learners of English face when learning English pronunciation. The aims and research questions are then introduced as well as the significance of the current study in the context of other research aimed at improving perception and production of speech among Saudi learners of English.

The second chapter presents a review of the literature directly related to the aims of the study. The literature review is presented under seven broad themes: (1) the essential role of pronunciation in oral communication; (2) the importance of suprasegmental features in oral communication; (3) the characteristics of Arabic and English phonological systems including difficulties faced by Saudi learners of English; (4) the factors affecting learning pronunciation, such as age and first language interference; (5) the relation between perception and production of speech; (6) approaches to pronunciation teaching; and (7) a review of previous research on suprasegmental-based instruction.

The third chapter explains the research methodology, and describes the quasi-experimental research design in detail, including where the research was conducted, who were the subjects that participated in the study, and how the suprasegmental-based teaching intervention was conducted. In addition, the procedures followed to implement, evaluate and analyse the pre- and post-tests for both the control and experimental groups are explained. Details of the qualitative component of the research are then presented, including the procedures followed to analyse the data.

The fourth chapter describes the results of the experimental study, the procedures followed in the analysis of the data collected, and the findings that relate to the main research questions of the study, including the quantitative results from the perception and production tests and the closed questions in the students' end of course questionnaires, and then the qualitative results from the teacher's survey questionnaire and the classroom observations.

The fifth chapter begins with a summary of the main findings and provides a thorough discussion of the quantitative and qualitative findings in terms of the research questions that guided the study.

The sixth and final chapter summarises the main findings and identifies the contributions of this study to research and discusses the pedagogical implications of the findings. It also outlines the associated limitations and offers recommendations for future studies that should be conducted in Saudi Arabia to further improve the teaching and learning of English pronunciation in the Saudi Arabian context.

Chapter 2: Literature Review

2.1 Introduction

This chapter presents a review of current research on L2 pronunciation pedagogy. It provides a framework for the present study that focuses on the impact of suprasegmental-based instruction on improving the speech production and perception of Saudi EFL learners, and facilitating oral communication between Saudi EFL learners and other users of the language.

This chapter explains how this type of instruction has been used to improve EFL learners' perception and production of speech in other Arabic speaking countries, and highlights the gap existing in Saudi Arabia, where suprasegmental-based instruction has not previously been thoroughly experimentally trialled. This literature review sets out the basis for the framework that was used for the experimental application of this type of instruction, which was conducted as part of the present study. The review is organised under seven broad themes:

The first part of this chapter is concerned with the role of pronunciation in oral communication, and includes a discussion of the relationship between segmental and suprasegmental features of pronunciation, and the goals of pronunciation learning. In addition, intelligibility and nativeness as main goals of pronunciation instruction are explained and evaluated; this leads into a discussion of research into comprehensibility, accentedness and fluency and their effect on oral communication.

The second section of the chapter reviews the literature on how each category of suprasegmental features plays a role in speech, and how improving learners' perception and production of speech by paying attention to these features enables them to achieve oral communication success (e.g. Morley, 1994; Chela-Flores, 2001; Hahn, 2004; Gilbert, 2008; Tanner & Landon, 2009; Warren et al., 2009; Kennedy & Trofimovich, 2010; Gordon, et al., 2013; Khaghaninejad & Maleki, 2015; Saito & Saito, 2016; Levis, 2018).

In the third section, there is an overview of the differences and similarities between the phonological systems of Arabic and English. There is a detailed description of Arabic and English suprasegmental features (word and sentence stress, rhythm, and intonation), and the difficulties faced by Arab learners with English pronunciation are explained.

In the fourth section, the focus is on the literature concerned with the main social and psychological factors that influence pronunciation learning and how these factors may reduce

or enhance the degree of success among L2 learners. These factors include the age of learners, mother-tongue interference, exposure to the second language, motivation and personality.

Section five of this chapter provides an overview of the relationship between the perception and production of spoken language, as these are two closely related skills. In addition, this section provides a review of research into the main ways that perception plays a significant role in speech production. It shows how, if speakers are not able to perceive speech with ease, they are unlikely to be able to produce clear speech and so communicate successfully with others (Khaghaninejad & Maleki, 2015). In addition, it shows how improving listening helps the learner to identify sounds and words, and to recognise suprasegmental features in connected speech, and thus may contribute to improving learners' phonological awareness and production of speech.

The sixth section presents the most commonly used methods, approaches, and techniques that have been developed and popularised for teaching English pronunciation. The literature shows that interest in communicative language teaching approaches and methods has increased significantly in the English language teaching field in the last four decades. This is because most language learners, when learning English as a second language, aim to improve their perception and production skills in order to successfully communicate in English (Celce-Murcia et al., 2010).

The seventh and final section of this chapter presents the previous research into the use of suprasegmental-based instruction for improving English L2 learners' perception and production of speech. In particular, the literature affirms that suprasegmental-based instruction has been shown to be successful in improving English L2 learners' perception and production of speech in many contexts worldwide but has not yet been thoroughly experimentally trialled in Saudi Arabia.

2.2 The essential role of pronunciation in oral communication

2.2.1 Definition and features of pronunciation

Pronunciation is an essential language element which underpins successful oral communication (Celce-Murcia et al., 2010). It plays a fundamental role in facilitating oral communication and ensuring mutual understanding between speakers (Fraser, 2001; Levis, 2018). Pronunciation is a motor skill, considered to be a key requirement in language

proficiency, and it has been acknowledged as an essential component of language acquisition development (MacDonald, 2002; Burns, 2006; Yates & Zielinski, 2009; Gilakjani, 2012).

The interest in pronunciation as a key element in language learning has increased due to an increased appreciation of the essential role that pronunciation plays in oral communication, which relies on a mutual relationship between speaker and listener (Celce-Murcia et al., 2010). The interaction between speaker and listener involves both the speaker's ability to express an idea clearly and the ability of the listener to comprehend the idea being expressed (Rivers, 1987). Levis (2018) notes that pronunciation has an impact on both the learners' ability to understand speech and also the way their speech is understood by others. Celce-Murcia et al. (1996) argue that pronunciation is important because it is the first thing people notice while speaking. They claim that learners may encounter oral communication problems and their speech may not be comprehensible if they are unable to produce appropriate, fluent and reasonably accurate pronunciation, even when they are competent in grammar and vocabulary. In addition, Tergujeff (2012) argues that people often make decisions about another's language proficiency based on the speaker's pronunciation and disregard their proficiency in other skills in that language. Overall, speakers who have clear and understandable pronunciation are more successful and confident in communication than those who do not (Morley, 1991).

In language learning, pronunciation refers to the production of specific, significant sounds in a particular language to achieve meaning in the context of language use (Yates, 2002). It covers consonants, vowels, and the changes that these sounds undergo in connected speech (Lane, 2010). Burns and Claire (2003) define pronunciation as "the meaningful perception and production of the sounds of that language and how they impact on the listener" (p. 5). Derwing and Munro (2015) similarly define pronunciation as "all aspects of the oral production of language, including segments, prosody, voice quality, and rate" (p. 5). Fraser (2001) used pronunciation to refer to "all those aspects of speech which make for an easily intelligible flow of speech, including segmental articulation, rhythm, intonation and phrasing" (p.6).

From the definitions above, it is evident that pronunciation includes segmental features, that is, individual sounds which involve consonants and vowels, as well as suprasegmental features (prosodic patterns) or features beyond the segments including stress, intonation, rhythm, pauses and linking (Odisho, 2005). Some researchers (e.g. Esling, 1994; Pennington,

1996; Kerr, 2000; Yates, 2002; Yates & Zielinski, 2009; Derwing & Munro, 2015) include voice quality as another level of pronunciation. This aspect refers to how voice is projected in speech (Yates, 2002). Voice quality underlies both segmental and suprasegmental aspects (Kerr, 2000; Yates, 2002; Yates & Zielinski, 2009). Yates (2002) argues that different languages use different articulatory settings. For example, Vietnamese speakers tend to pronounce speech utterances through the back of the mouth with higher pitch and lower volume, while English speakers tend to use the front of the mouth with lower pitch and higher volume (Kerr, 2000). However, although segmental and suprasegmental features and voice quality tend to be treated in isolation, when speaking, these features work in combination in order to achieve effective communication (Yates, 2002). Yates and Zielinski (2009) claim that segmental, suprasegmental features and voice quality all contribute to making pronunciation easy or difficult to understand. So, when a speaker is unable to produce one area correctly, other areas of pronunciation might be affected, and thus make his or her speech difficult to understand.

2.2.2 The goal of pronunciation learning (Nativeness vs Intelligibility)

Pronunciation instruction and research have been influenced by what Levis (2005) describes as two contradictory principles: nativeness and intelligibility. These two important principles in pronunciation instruction have been discussed thoroughly by numerous researchers and are considered the main goals of pronunciation instruction (e.g. Jenkins, 2000; Levis, 2005; Foote, 2018; Derwing & Munro, 2015; Levis, 2018; Huensch, 2018).

The nativeness principle, which was the dominant goal in pronunciation instruction before the 1960s, lies in the notion that "L2 speakers should try as best as they can to replicate a native-like accent" (Levis, 2005; Derwing, 2010, p.29). Derwing and Munro (2015) state that during the mid-20th century, accurate pronunciation was given emphasis in pronunciation instruction as a goal of the Audio-lingual Method. Through this method, learners were encouraged to produce accurate pronunciation of segmental and prosodic aspects similar to those of the native speakers (Derwing & Munro, 2015). Harding (2018) adds that when nativeness is the goal of pronunciation instruction, L2 learners are encouraged to have a native-like accent, and learners' speech is judged by the way their pronunciation adheres to native English norms. Crowther, Trofimovich, Isaacs and Saito (2017) noted that the nativeness principle is concerned with achieving native-like pronunciation through the diminishing of any linguistic features that might make L2 speakers sound non-native. Advocates of the nativeness

principle believe that "it is both possible and desirable to achieve native-like pronunciation in a foreign language" (Levis, 2005, p. 370).

However, the goal of this type of pronunciation instruction has been described by many researchers (e.g. Morley, 1991; Levis, 2005; Field, 2005; Derwing & Munro, 2015; Galante & Thomson, 2017) as unrealistic, especially for those who start learning after the age of puberty, except for a very few skilled adults who might have the ability for achieving native-like pronunciation. For example, Field (2005) noted that, since the 1970s, the native-like pronunciation goal has been recognised as unrealistic because it is time-consuming to achieve and does not meet learners' needs. Levis (2018) additionally notes that many adult L2 learners might be competent in grammar and have the ability to communicate easily and effectively, even though they have a noticeable accent in their speech. Derwing and Munro (2009) similarly found that accented speech does not equate with low proficiency, because some L2 speakers might become indistinguishable from native speakers in terms of their competency in grammar, vocabulary and idioms, but still have accented speech, and yet be easily understood. Therefore, the study demonstrated that non-native-like pronunciation does not necessarily impair communication, and does not mean that speech is not understandable by listeners (Derwing & Munro, 2009; Trofimovich & Isaacs, 2012; Levis, 2018).

As a result, numerous pronunciation researchers and practitioners have called for a focus on intelligible and comprehensible pronunciation rather than native-like pronunciation. In intelligibility-based instruction it is assumed that accents are a normal part of speaking a foreign language, and that instruction should target those features that will impact understanding, whether in understanding others or in being understood (Derwing & Munro, 2015). According to Jenkins (2000), foreign accent is part of the speaker's L1 identity and L2 speakers have the right to keep their foreign accent, as a regional group identity, when speaking the target language as long as their accent does not interfere with their communication with other speakers of the language. Thomson (2018) believes that helping L2 learners become understandable does not mean that they should be expected to be native-like; however, quite evidently some accented pronunciation features can make communication more difficult. There is agreement then, as Thomson and Derwing (2014) recommend, that reducing accentedness in L2 speech should not be the goal for pronunciation instruction, except for the aspects that make speech unclear or interfere with understanding.

One of the earliest authors to emphasise the need to promote intelligibility as a goal for pronunciation was Abercrombie (1949), who claimed that L2 learners only need to have comfortably intelligible pronunciation to communicate successfully using the target language. The intelligibility principle implies that L2 learners simply need to be understandable to interlocutors (Levis, 2005). This principle holds that speakers of an L2 should aim to be comfortably understandable rather than to replicate a native-like accent (Morley, 1991; Derwing, 2010). Munro and Derwing (2015) also note that the intelligibility principle lies in the notion that "learners should develop speaking patterns that allow them to communicate with ease, even if their accent retains nonnative characteristics" (p. 377). Foote and Trofimovich (2018) further explain that the intelligibility principle emphasises the possibility of improving a speaker's production so as to be understood even with the presence of a foreign accent. When setting the intelligibility principle as a goal in pronunciation instruction, learners are encouraged to develop pronunciation that is easily understood by both native and nonnative listeners because English is learned for international communication (Jenkins, 2000; Harding, 2018). According to Derwing and Munro (2015), pronunciation instruction should aim to help learners become more understandable and focus on the aspects of pronunciation that interfere with understanding.

Pronunciation that can be comfortably understood has become a goal in pronunciation instruction, and the dominant topic in pronunciation studies since the late 20th century (Field, 2005; Munro, 2011). This approach has gained more attention in the field of pronunciation because, as 'global English' becomes more and more prevalent, interaction is taking place more between non-native speakers of English than between native and non-native speakers of the language (Jenkins, 2000; Tergujeff, 2012). It is estimated that one billion people learn English as a foreign language (Morley, 1991; Jenkins, 2002; Tergujeff, 2012). This interaction between English non-native speakers from different L1 backgrounds has led several researchers (e.g. Jenkins, 2000; Levis, 2005; Derwing & Munro, 2005; Kang, 2014; Derwing & Munro, 2015) to propose that learning English for international communication should focus on developing understandable pronunciation rather than replicating a particular native accent (ie. British English or General American). For example, Jenkins (2000) argues that pronunciation instruction should move away from conforming to a native standard variety such as General American or British English to promoting international intelligibility meaning that learners become able to successfully communicate with both native and nonnative speakers of English from diverse backgrounds and make themselves easily understood by others. Nelson and Kang

(2015) also argue that L2 learners should be encouraged to improve their speech so it can be effective and appropriate to a wide variety of language users without losing their ethnic, national and personal identities. Munro and Derwing (2006) point out that pronunciation instruction should help language learners become successful and effective communicators by focusing on the pronunciation aspects that enhance intelligibility and comprehensibility, rather than reducing accentedness. Earlier, Levis (2005) had similarly recommended that syllabus designers set pronunciation teaching priorities that focus on improving learners' speech to be intelligible and comprehensible. He considered this is very important while noting most of the pronunciation teaching materials in use aimed to help L2 learners of English come as close to native English speech production as possible since L2 learners were being encouraged to follow a particular English model such as Received Pronunciation or General American, even though these might not be helpful for the learners' communicative needs. According to Levis (2005), a non-native English speaker who is used to a particular accent may find another unintelligible, therefore, L2 speakers should be helped in promoting their intelligibility to be comfortably understood and improving their ability to understand a variety of accents and speakers.

2.2.3 Factors affecting oral communication: comprehensibility, intelligibility, accentedness and fluency)

Distinguishing nativeness and intelligibility principles in pronunciation instruction requires the recognition of three distinct but partially related dimensions that listeners make in their judgements of L2 speech, comprehensibility, intelligibility and accentedness (Derwing & Munro, 1995; Munro, Derwing & Morton, 2006; Derwing & Munro, 2009; Levis, 2018). These three partially related dimensions were proposed by two major researchers in the field of pronunciation Derwing and Munro (1995) and have been the focus of L2 pronunciation research in the last two decades (O'Brien, 2014; Thomson, 2018; Kang, Thomson & Moran, 2018). Comprehensibility and intelligibility are two independent dimensions broadly meaning 'understanding' and fall under the intelligibility principle in pronunciation instruction as they both aim at achieving understandable pronunciation rather than attaining native-like pronunciation (Shepard, Elliott & Baese-Berk, 2017; Isaacs, Trofimovich & Foote, 2017; Crowther et al., 2017). These two terms are sometimes used synonymously, and they are not always defined consistently in the literature (Shepard, Elliott & Baese-Berk, 2017). Nevertheless, according to Derwing and Munro (1995) comprehensibility and intelligibility have distinct meanings and each needs to be dealt with separately.

In brief, comprehensibility, which is the primary focus of the current research, is one of the main requirements of successful oral communication. It is defined as “the listener's perception of the degree of difficulty encountered when trying to understand an utterance” (Derwing & Munro, 2005, p. 385). According to Derwing and Munro (2015), comprehensibility refers to “the amount of effort that must be put in understanding speech” (p.3). Similarly, Levis (2018) defines comprehensibility as “the amount of work that listeners need to do in understanding a speaker” (p.17). Warren, Elgort and Crabbe (2009) also define comprehensibility as “a listener’s perceptions of the amount of effort involved in understanding a particular non-native speaker” (p.88). These definitions of comprehensibility are influenced by the definition given by Varonis and Gass (1982), who defined comprehensibility as “a listener’s perception of how easy or difficult a given individual’s speech is to understand” (Derwing, 2017, p.1). Derwing (2017) notes that comprehensibility is associated with the effort entailed in processing speech. Derwing and Munro (1995) earlier determined that non-native speech comprehensibility is affected by many variables, including speech rate, speech clarity, word choice and voice quality. Other studies (e.g. Isaacs & Trofimovich, 2012; Crowther et al., 2015; Saito, et al., 2016; Crowther et al., 2017) have also shown that comprehensibility is influenced by many linguistic dimensions, such as phonology, fluency, lexical knowledge and grammar. These studies among others (e.g. Anderson-Hsieh, Johnson, & Koehler, 1992; Derwing et al., 1998; Derwing & Rossiter, 2003; Gordon, Darcy, & Ewert, 2013; Saito & Saito, 2016) have also shown empirical evidence that comprehensibility is particularly impacted by suprasegmental features.

In pronunciation assessment, Thomson (2018) pointed out that comprehensibility has been operationalised to refer to the effort required by listeners to process L2 speech in most recent pronunciation studies following Derwing and Munro’s (1995) description of comprehensibility. It is judged by how difficult it is for the listener to understand an utterance (Derwing & Munro, 2009; Derwing, 2010). It is often explored through rating scales in which listeners subjectively judge how difficult it is for them to understand an L2 speech production (Derwing et al., 1998; Derwing & Rossiter, 2003; Munro, Derwing & Morton, 2006; Galante & Thomson, 2017). Comprehensibility is often operationalised in pronunciation assessment through a 9-point Likert scale with descriptors ranging from: 1= very easy to understand, to 9= very or extremely difficult to understand (Derwing, 2010; Derwing, 2017; Galante & Thomson, 2017; Thomson, 2018).

Although intelligibility is not the focus of this research, it is necessary to consider the construct as one of the main dimensions affecting oral communication (Galante & Thomson, 2017). Intelligibility is partially related to comprehensibility and is synonymously used to denote the listeners' understanding of L2 speech (Isaacs, Trofimovich & Foote, 2017). However, it is distinguished from comprehensibility and is explicitly defined as "the extent to which a speaker's message is **actually understood** by a listener" (Derwing & Munro, 1995, p. 76). Intelligibility has been defined differently by researchers in the field, and several researchers (e.g. Isaacs, 2008; Becker & Kluge, 2014; Levis, 2018; Kang, Thomson and Moran, 2018) have noted that there is no universally accepted definition of intelligibility, nor a consensus on how to assess it. In addition, there is little empirical evidence which proves which pronunciation features are crucial contributors to intelligibility improvement. However, the majority of researchers in the field of pronunciation have used the definition given by Derwing and Munro (1995) and this has been followed in the present study.

In explaining their definition of intelligibility, Derwing and Munro (2015) point out that intelligibility is achieved when an utterance is understood by the listener as intended by the speaker. Levis (2018) further explains that intelligibility can be defined at a semantic level (broadly) as "the extent to which a speaker is understandable", and at a lexical level (narrowly) as "whether the particular words used by a speaker are successfully decoded by listeners" (Levis, 2018, p. 16). Intelligibility broadly defined can be assessed, according to Levis (2018), by asking listeners to answer comprehension questions or writing summaries of what they understood as was done in Hahn's (2004) study: intelligibility narrowly defined can be assessed by the total number of words successfully transcribed by the listeners as was the case in Derwing and Munro's (2009) study.

Word transcription has been the most common way of assessing intelligibility (Field, 2005; Munro, 2018). Munro (2018) notes that because intelligibility refers to the match between the speaker's intention and listener's response, it is usually evaluated through assessing "the degree of correspondence between the two" (p. 419). In this type of measurement of intelligibility, listeners are required to transcribe the actual words they hear, and then the number of words correctly transcribed is counted for performance evaluation (Derwing & Munro, 2015). Intelligibility can also be assessed through listeners' responses to true and false questions, or answers to comprehension questions (Derwing & Munro, 2015; Kang, Thomson & Moran, 2018). However, Munro (2018) notes that the count of words correctly transcribed is more reliable and practical than the other techniques. Thomson (2018)

further notes that speech transcriptions or paraphrasing are more reliable techniques for assessing actual understanding of speech (intelligibility), while rating scales might not be appropriate for assessing actual understanding, since transcriptions measure the match between what is produced with how it is actually understood, while rating scales can be used to measure listeners' subjective assessment of how difficult the speech is for them to understand (comprehensibility).

Accentedness is another dimension in the model of spoken language proposed by Derwing and Munro (1995). It is one of the dimensions on which listeners make their judgement of L2 speech (Levis, 2018). Accentedness refers to "the extent of difference perceived by speakers of one linguistic variety when listening to speakers of other varieties" (Derwing & Munro, 2015, p. 175). In an earlier study, Derwing and Munro (2009) used this construct to refer to "the ways in which (L2 speakers') speech differs phonologically from that local variety of English, and the impact of that difference on speakers and listeners" (p. 476). Derwing and Munro (2009) emphasized that accentedness is about the difference between an L2 speaker's foreign accent and a target variety of English. Several studies (e.g. Flege, 1992; Isaacs & Trofimovich, 2012; Crowther et al., 2015; Crowther et al., 2017) have found that accentedness is correlated to both segmental and suprasegmental features. For example, Flege (1992) stated that listener perception of foreign accent is based on different aspects of segmental and suprasegmental features. On the other hand, as Crowther et al (2017) noted, accentedness is more associated with segmental accuracy than suprasegmental production. Furthermore, Flege (1984) and Derwing and Munro (2009) have shown that native listeners can easily detect an L2 speaker's foreign accent. According to Derwing and Munro (2009) "listeners are amazingly sensitive to the presence or absence of a foreign accent" (p. 477). Therefore, foreign accent is measured through "a listener's perception of how different a speaker's accent is from that of the L1 community" (Derwing & Munro, 2005, p.385).

In pronunciation assessment studies, accentedness is assessed by asking native listeners to evaluate whether the nonnative speaker's pronunciation is very different from the quality of pronunciation they are used to (Murphy, 2014). Accentedness is commonly evaluated via a 9-point Likert scale in which native listeners are involved to rate non-native English production with descriptors similar to 1= no foreign accent and 9= very strong or extremely heavy foreign accent (Derwing & Munro, 1995; Derwing & Munro, 2005; Derwing, 2010; Thomson, 2017).

The presence of a foreign accent in L2 speakers' speech does not necessarily mean that their speech is not actually understood (intelligible) or not easily perceived to be understood (comprehensible) (Derwing & Munro, 1995). Derwing and Munro (1995) conducted an experimental study to investigate the correlation between the scores of intelligibility, comprehensibility and foreign accent. Their study involved a group of L2 English learners, and native English listeners who assessed the L2 learners' production for intelligibility, comprehensibility and foreign accent. Their study found that although there was a partial correlation between the three dimensions, the presence of foreign accent in the L2 speakers' speech does not necessarily reduce the intelligibility and comprehensibility of their speech. In their study, the native listeners were able to transcribe the utterances produced by the L2 speakers and rated their production as easy to understand, but gave them low scores when rating the foreign accent of the L2 speakers' production. However, although Derwing and Munro (1995) found that accentedness does not necessarily reduce comprehensibility and intelligibility, they concluded that pronunciation instruction should address the aspects of foreign accent that do affect listeners' understanding of speech.

Another important dimension of oral communication is fluency (Derwing & Munro, 2015). Fluency is important for comprehensibility and vital for successful communication (Rossiter, Derwing, Manimtim & Thomson, 2010; Levis, 2018). Fluency is a fundamental goal for L2 language learners because they need to express their thoughts easily (de Jong & Perfetti, 2011). According to De Jong and Perfetti (2011) without smooth and relatively fast production, communication might not be successful. Fluency is defined by Lennon (1990) in two different senses, namely narrow and broad. In its broad sense, Lennon (1990) uses fluency to refer to general oral proficiency which involves an excellent grasp of the vocabulary and grammar of the language (Rossiter et al, 2010). In its narrow sense, fluency is used to refer to one component of oral proficiency which is restricted to the smoothness of speech which includes temporal measures, such as the length and number of pauses, hesitations and speech rate (de Jong & Perfetti, 2011). Lennon (1990) defines fluency in its narrow sense as "an impression on the listener's part that the psycholinguistic processes of speech planning and speech production are functioning easily and efficiently" (p. 391).

Other definitions of fluency have also been used in the literature to describe L2 learners' ease of comprehension of the target language, or having advanced skills in reading and writing the target language (Thomson, 2015). De Jong & Perfetti (2011) describe fluency in relation to "the extent of a speaker's linguistic knowledge as well as the use of that knowledge, the speed

of access, and control over the available linguistic forms and syntactic devices" (p.534). However, in the literature on pronunciation, as well as in the current study, fluency is used according to Lennon's narrowly-defined concept of fluency, that is as a performance phenomenon to describe the flow and smoothness of speech; this has also been the approach described in other studies (e.g. Derwing et al., 1998; Derwing & Rossiter, 2003; Derwing et al., 2004; Kennedy & Trofimovich, 2010; Galante & Thomson, 2017). According to Thomson (2015) fluency has been used in previous studies to refer to the fluidity of speech or speaking the second language with ease and without hesitations, despite having limited grammatical ability, limited knowledge of vocabulary or poor pronunciation. For example, Derwing and Munro (2015) define fluency as "the degree to which speech flows easily without pauses and other dysfluency markers such as false starts" (p.177). In their book, Derwing and Munro used fluency "to describe the rate and the degree of fluidity of speech, as signaled by the presence or absence of hesitation markers, self-repetitions, and filled and unfilled pauses" (p.4). Similarly, Levis (2018) used fluency to refer to smoothness of speech as used by Lennon (1990).

Fluency has been measured in pronunciation studies through subjective listeners' rating of L2 learners' speech, commonly on a 9-point Likert scale ranging from 1= very fluent to 9= very or extremely dysfluent (Derwing & Rossiter, 2003; Derwing et al., 2004; Galante & Thomson, 2017). Assessing fluency in this way distinguishes it from proficiency, so native listeners are asked to focus explicitly on the factors that affect learners' overall smoothness and flow of speech such as filled and silent pauses, self-corrections, and repetitions (Galante & Thomson, 2017). Thomson (2015) points out that listeners' judgement of learners' fluency reflects "the underlying cognitive processes involved in planning and producing spoken language, and the degree to which those processes are automatic or controlled" (p.210). However, some researchers (e.g. Kormos & Denes, 2004; Kang, 2010) have objectively measured learners' fluency by assessing learners' production of speech factors that correlate to fluency, such as speech rate, articulation rate, mean length of run, number and duration of silent and filled pauses. Levis (2018) also noted that fluency measurement can be predicted by a number of speech elements, such as duration and number of silent and filled pauses, logical delivery of grammatical junctures, mean length of run, repetition of speech, and speech rate (measured by counting number of syllables per second or words per minute).

Fluency is correlated to the other dimensions of speech (intelligibility, comprehensibility and accentedness). Previous studies (e.g. Derwing & Munro, 2001; Derwing

et al., 2007; Kang, 2010; Kang, Robin & Pickering, 2010; De Jong et al., 2012; Pinget, Quené and de Jong, 2014) have shown that the way fluency features are produced can affect the listeners' perception. For example, Derwing, Munro, Rossiter and Thomson (2004) examined the relationship between fluency and both comprehensibility and accentedness in a study which involved untrained native listeners to assess L2 speech production. Their study found that fluency is strongly related to comprehensibility and relatively weakly related to accentedness. Derwing et al. (2004) showed that the more fluent the L2 speakers are, the more comprehensible their speech is perceived to be by listeners. However, they claimed that it is unlikely that more fluency would lead to a reduction in the perception of accentedness because listeners' assessment of accentedness might be strongly based on segmental and prosody aspects. Thomson (2015) found similar results when he examined the relationship between fluency, comprehensibility and accentedness. Thomson (2015) found that speech fluency was strongly related to comprehensibility but only moderately correlated to accentedness. According to Thomson (2015) listeners might perceive speech to be extremely fluent but strongly accented and vice versa. On the other hand, he found that fluency is weakly related to intelligibility. However, in spite of its weak correlation to intelligibility, Thomson (2015) claims that due to the strong relationship between prosody (strongly related to intelligibility), and fluency, instruction that explicitly focuses on fluency can improve learners' intelligibility and that instruction that is based on prosody can improve learners' fluency of speech.

The correlation between fluency and comprehensibility has been also supported by Levis (2018) who claims that L2 learners' fluency might influence listeners' judgement of comprehensibility. Levis (2018) points out, for example, that speakers with a very slow or very fast speech rate might be perceived by listeners to be hard to understand. In a study done by Munro and Derwing (2001) it was similarly found that speech rate correlates to listeners' judgement of comprehensibility, and those who spoke very fast or very slow were rated less comprehensible and harder to understand. However, Munro and Derwing (2001) noted that nonnative speakers' production tends to be slower in speech rate which may affect their comprehensibility, and recommended helping nonnative speakers to produce relatively faster speech rate to be easily comprehensible. Kang, Thomson and Moran (2018) similarly note that listeners tend to find natural speech with reasonable speed easier to comprehend. Lennon (1990) further found that reducing the number and length of pauses as well as improving the normality of learners' speech rate is associated with perceived improvements in learners' fluency and makes speech easier to comprehend.

2.3 The role of suprasegmental features in speech

As mentioned in Chapter 1, suprasegmental features which include stress, intonation, linking, rhythm and pauses are important for successful oral communication. These features are strongly associated with each other, and each contributes significantly in oral interaction (Wennerstrom, 2001). These features are strongly related to improving the perception and production of speech (Celce-Murcia et al., 2010; Levis, 2018). As Przedlacka (2018) notes, suprasegmental features are important for oral communication, and they contribute to delivering the meaning and help in organising speech. They have also been acknowledged as one of the reasons for break downs in understanding (Warren, Elgort & Crabbe, 2009; Kang, 2010). According to Levis and Grant (2003), suprasegmental features are more relevant to improving learners' communicative skills than segmental features not only affect words, they also contribute to whole speech perception and production.

2.3.1 The role of intonation in speech

Intonation is one of the suprasegmental features that is essential for oral communication (Wennerstrom, 2018). It refers to "the variations in the pitch of a speaker's voice in an utterance" (Derwing & Munro, 2015, p.59). Intonation includes the variations produced in pitch to communicate phrasing and discourse meaning (Levis & Witchmann, 2015). Levis (2018) defines intonation as "the use of voice pitch to communicate meaning at phrasal level" (p.150).

Intonation is important for both perception and production of speech as it can influence the way information is processed and can make understanding the speaker's messages or intentions easier when produced appropriately (Levis, 2018). It plays an important role at discourse level, "as speakers organise their thoughts into units, distinguish new versus old ideas, make contrasts and shift from one topic to the next" (Wennerstrom, 2018, p.154). Although intonation might rarely affect listeners' identification of words in speech, it can affect listeners' ability to process speech information easily (Levis, 2018). According to Wennerstrom (2001) intonation might not change the meanings of words if produced incorrectly as is the case with stress, however, it has a significant role in discourse meaning, as it helps in making speech understood as intended by the speaker. Meng et al. (2009) add that intonation facilitates communication because it helps listeners to know whether speech is continuing or ending, it emphasises more important information, and also gives an impression about the speaker's attitudes and emotions. Intonation is therefore a very important

suprasegmental feature for both perception and production of speech, and it helps L2 speakers successfully communicate in English (Zhang, 2004). Wennerstrom (2018) notes that L2 learners need to be taught intonation to be aware of how the speaker moves from one phrase to another, and to pay attention to each new idea in each phrase. According to Wennerstrom (2018) when L2 speakers lack awareness of intonation, they tend to produce flat speech with words produced in isolation, and without any distinction between important and less important words, such as function words, in the sentence, which may affect listeners' attention to the important parts of the speaker's message.

Intonation is also important as it is crucial in signalling different sentence types to the listener, such as questions and statements, as well as the feelings and attitudes of the speaker, which could range from enthusiasm to annoyance (Wells, 2006). Correct use of this feature is crucial in order to clearly express the desire to receive information about a given topic, seek explanation or agreement or to strongly bring a point forward (Swan & Smith, 2001; Roach, 2009). It often helps in emphasising particular information in speech which makes speech easier to understand (Morley, 1994). According to Brazil (1994) intonation is important in speech because it contributes to how a message is carried in speech. Listeners also tend to depend on the intonation of the speaker to differentiate between questions and statements (Levis, 2018). Odisho (2005) similarly notes that intonation is crucial for listeners to correctly distinguish questions from statements, and to identify politeness and assertiveness in the production of speakers.

2.3.2 The role of stress in speech

Stress is another critical suprasegmental feature; it is often referred to as the backbone of English pronunciation (Sabater, 1991). It is defined by Yates (2002), as "the prominence given to certain syllables within words, and to certain syllables or words within utterances" (p.1). Stress is important for improving both perception and production of speech (Levis, 2018). It is one of the most important suprasegmental features in English, and plays a crucial role in facilitating communication between speakers and listeners (Odisho, 2005). According to Fraser (2001), stress in important in English because it is used to convey different meanings in words and sentences. She goes on to explain that listeners tend to perceive speech easily if stress is placed correctly, even if segmental features are not produced correctly. Zielinski (2006) similarly points out that misplacement of stress may confuse listeners, because they rely heavily on stress patterns to identify words in speech. Swan and Smith (2001) also point out

that the mispronunciation of stress in English may result in changing the meaning of a word or sentence. In English, there are two types of stress: word or lexical stress, and sentence stress.

Word stress refers to "those syllables within a word that are longer, louder, and higher in pitch" (Celce-Murcia et al., 2010, p.184). Word stress is essential for understanding speech and avoiding difficulties in oral communication (Deterding, 2018). Listeners tend to depend on the loudness, duration, pitch prominence of the stressed syllable to identify words in speech that carry information, and understand meaning (Lewis & Deterding, 2018). According to Levis (2018) word stress is very important for both intelligibility and comprehensibility of speech, and listeners tend to not only depend on segmental features to understand speech but also on the location of stress. Levis (2018) further argues that words with correct stress tend to be identified quickly by listeners, while those with incorrect stress tend to be identified with difficulty or not recognised. In a study done by Hahn (2004) to investigate the role of primary stress in understanding speech produced by English nonnative speakers, it was found that listeners perceived words easily and accurately if the primary stress was located on the correct syllable. Correct placement of stress can help listeners identify whether a word is a noun or a verb, as nouns mostly receive the stress on the first syllable as in *'project*, while verbs tend to receive the stress on the second syllable as in *pro'ject* (Kreidler, 1987). Correct placement of stress can also help listeners to identify compound words and phrases as compound words receives stress on the first element as in *a 'loud speaker* (sound amplifier), while phrases as in *a loud 'speaker* (a person who speaks loudly) receives the stress on the second element (Sabater, 1991).

On the other hand, sentence stress, which is also called nuclear stress, is produced to draw listeners' attention to important words in a phrase or a sentence (Levis & Levis, 2018). This aspect of suprasegmental features is also important in making oral communication more successful as speakers can emphasise more important words to help listeners understand their intended meaning (Cutler, 1980). According to Cutler (1980), although listeners might not be able to detect the misplacement of stress in speech, a misplacement of stress might lead to a change in what the speaker wants the listeners to focus on, and so lead to misunderstanding. Lee et al. (2017) further note that listeners may depend on stress to locate important words in sentences and identify what new information is being communicated. Thus, inability to place sentence stress correctly may negatively affect the listeners' recognition of the information being expressed and make speech more difficult to understand (Thompson & Gaddes, 2005). For example, the stress positions in *a 'French teacher* and *a French 'teacher* are completely

different, as the first means a person who teaches French, and the second means a teacher who is French (Swan, 2005). Various researchers in the field (e.g. Hahn, 2004; Field, 2005; Lee et al. 2017; Levis & Levis, 2018; Levis, 2018) have shown that correct stress placement at sentence level improves comprehensibility and intelligibility of speech, and so contributes to successful oral communication.

The role of stress is important at both word and sentence levels as it helps to distinguish between words and to draw the listeners' attention to the words that carry important information (Levis, 2018). Fraser (2001) proposed a list of pronunciation features that should be given priority when teaching pronunciation, and listed word and sentence stress at the top of that list due to their impact on listeners' comprehension of speech. Fraser (2001) claims that learners' speech tends to be perceived with difficulty if they misplace word and sentence stress, even though they produce correct segmental sounds. Jenkins (2000) similarly notes that listeners often fail to successfully recognise speech or find understanding speech difficult when stress is placed incorrectly. In a study done by Warren, Elgort and Crabbe (2009) to investigate the areas of difficulty for listeners that affect speech comprehensibility, it was found that stress is strongly associated with comprehensibility of speech as per listeners' judgement, and speakers who have better mastery of stress are easier to understand.

2.3.3 The role of rhythm in speech

Rhythm, which refers to the distribution of stressed and unstressed utterances larger than individual words, is also one of the important features for facilitating speech in oral communication (Setter & Sebina, 2018). It is defined as "a pattern of stressed elements (beats) aligned at regular intervals in time" (Wennerstrom, 2001, p. 275). Odisho (2005) similarly defines rhythm as "the distribution of stressed and unstressed syllables within a sentence or a piece of discourse in a given language" (p.99). Levis (2018) also refers to rhythm as "a general suprasegmental category that describes the timing patterns associated with a language" (p.128).

Rhythm is one of the important components of successful oral communication (Chela-Flores, 2001). It contributes to making speech more understandable and enables listeners to understand running speech (Sabater, 1991). Levis (2018) notes that rhythm is directly associated with comprehensibility because inability to match rhythmic structures in speech may make processing speech more difficult. Levis (2018) adds "its primary purpose is to help listeners segment continuous speech and identify the beginning of actual words while ruling

out possible words that were not actually spoken" (p. 137). According to Levis (2018) rhythm affects comprehensibility and intelligibility as it helps in processing speech and identifying words and messages in the stream of speech.

Rhythm is associated with many features, such as pausing, intonation and stress, all of which contribute to organising rhythm in English and make speech flow smoothly and be easily processed (Gilbert, 2008). Levis (2018) further associates rhythm with syllable length, vowel quality, speech rate and connected speech. According to Wennerstrom (2001) using correct rhythm helps speakers communicate well in oral conversations and reduces breakdowns in speech which may make listeners to be less willing to continue the conversation. If speakers produce speech with a flat rhythm in which intonation patterns, pauses and stress are not produced appropriately, listeners' attention might not be directed to the important information the speaker is intending to convey, and thus be unable to follow speech successfully (Wennerstrom, 2018).

Speakers often use rhythm to attract listeners to important information in their speech, to signal when their turn to speak starts (Wennerstrom, 2001). Hussain and Sajid (2015) further note that producing unnatural rhythms can negatively impact the comprehensibility of speech and affect oral communication. In addition, Derwing and Munro (2015) point out that rhythm can help facilitate speech comprehension, as it helps listeners grasp the information conveyed through the speaker's speech rhythm and stress of content words. Dauer and Browne (1992) point out that due to the impact of rhythm on intelligibility and comprehensibility, learners need improve their perception and production of English rhythm as it helps decode and process speech easily. Chela-Flores (2001) asserts that by perceiving and producing rhythm learners would be helped to communicate easily and successfully in social interactions. Therefore, he recommends that teachers pay attention to rhythm when teaching pronunciation to make pronunciation learning more effective.

2.3.4 The role of other suprasegmental features in speech

Other suprasegmental features, such as pauses and linking are also important for improving perception and production of speech, and so contribute to successful oral communication. A pause, which is defined as "a break in an utterance comprised of silence (an unfilled pause) or a verbal space filler such as "um" or "uh" (a filled pause)", plays an important role in improving learners' perception and production of speech (Oliveira, 2002; Götz, 2013).

Pauses are important in oral communication as they are used to convey a wide variety of messages including directing listeners' perception to important information in speech (Al-Ghazali & Alrefaee, 2019). Celce-Murcia et al. (2010) add that pauses help process speech by dividing the stream of speech into logical chunks. According to Celce-Murcia et al. (2010), pauses help listeners process speech easily. Without pausing, it would be difficult for listeners to understand reduced, linked or stressed words and phrases. De Jong and Bosker (2013) also claim that the use of pauses is a revealing factor that helps listeners recognise fluent speakers, and that placing pauses inappropriately may affect speech production. Wennerstrom and Siegel (2003) examined the effect of pause duration in conversations, and found that speakers use different pause lengths to communicate successfully with others. For example, in their study, when a speaker took a long pause, then their intention was to give the floor to another speaker, while when a speaker took a short pause, then the intention of the speaker was to continue his/her speech.

Pauses often occur as a result of anxiety, interruption, breathing or dysfluency in language production (Oliveira, 2002). Riggenbach (1991) classified silent pauses into three categories: a micropause (a silent pause of 200 milliseconds and less), hesitations (a silent pause between 300 ms to 400 ms), and a long unfilled pause (a silent pause of 500 ms and 3 seconds). Micropauses occur frequently in speech; however, they are considered as a normal part of fluent speech because they do not impair understanding or make speech less fluent: in fact, they contribute to comprehensibility. However, pauses longer than that may be considered as dysfluencies, and might make speech more difficult to understand (Götz, 2013).

Pausing is also correlated to the rate of speech production, because longer pauses lead to slower speech rate (Lennon, 1990; Lane, 2010). These two aspects are also essential for improvement in perceived fluency (Lennon, 1990). Fraser (2001) noted that using pauses appropriately helps speakers speak at a natural speech rate, so speech is easier for listeners to understand. Kang (2010) conducted a study to investigate what features mainly contributed to the comprehensibility and accentedness of non-native English speakers. Her study involved recordings of 11 non-native English speakers from different L1 backgrounds; the research used human judgments and Praat acoustic analysis. Kang's study found that appropriate pausing and speaking at a normal rate helped to reduce perceived accentedness in speech, and thus made it easily comprehensible to listeners. Kang (2010) concluded that communication between the speaker and the listener might be negatively affected when speech is produced with inappropriate pauses or when speech rate is too fast or too slow.

Another suprasegmental feature that has been proven to impact the speaker's perception and production of speech is the linking used in connected speech (Anderson-Hsieh, Riney & Koehler, 1994). Linking is very common in spoken English, and non-native English speakers need to be aware of, and proficient with, linking to be able to produce and perceive the language effectively. Linking refers to "the way the last sound of one word is joined to the first sound of the next word" (Gilakjani, 2012, p. 121). Celce-Murcia et al. (2010) similarly define linking as two sounds being connected smoothly. It may include omissions, additions and modifications of sounds into other sounds, as well as a combination of these elements in a given word in context (Alameen & Levis, 2015). According to Alameen and Levis (2015), linking is important in oral communication, and being aware of how words are connected in English improves both intelligibility and comprehensibility of speech. There are three main types of linking: vowel to vowel, consonant to vowel, and consonant to consonant (Dauer & Browne, 1992). For example: consonants are linked to vowels when the last consonant of a word is followed by a vowel in the same thought group, as in the example '*His office'.* The linking of vowels to vowels is also common in English. If a word ends with a vowel and the next word starts with a vowel, they can be linked together as in '*Too old'.* The third type is linking consonants to consonants as in the example '*Black cat'.* Connected speech, according to Dauer and Browne (1992), is important in spoken English, and enhancing learners' knowledge of linking is important to improving their perception and production of speech. Levis (2018) believes learners need to be introduced to connected speech because the shapes of words may change in running speech as a result of linking, and this produces a greater difficulty for listeners to comprehend speech successfully. In view of this, Levis (2018) claims that pronunciation instruction that pays attention to rhythm and linking would help learners enhance their knowledge about the shapes of words in connected speech, and improve their ability to both produce comprehensible speech and to easily understand the speech of others.

In summary, suprasegmental features, including intonation, stress, rhythm, pauses and linking are important for successful oral communication. Producing and perceiving these features correctly and appropriately would help to make non-native speakers' speech more comprehensible, and enable learners to easily and clearly understand the speech of others. Therefore, paying more attention to these aspects of the language in instruction should help make language learners better aware of how speech is perceived and produced in English.

2.4 The characteristics of Arabic and English phonological systems including difficulties faced by Arab learners

As mentioned in Chapter 1, Arabic and English share similarities but also have differences in their phonological systems, which may influence Arab learners' acquisition of English pronunciation (Aquil, 2012). The similarities and differences between the phonological systems of Arabic and English include segmental features (consonants and vowels) and suprasegmental features (word and sentence stress, rhythm, and intonation). Understanding these similarities and differences is important because they help in making pronunciation teaching and learning more effective (Al-Saidat, 2010).

Therefore, the present study describes the general characteristics of Arabic (standard) and English phonological systems and gives a general insight into how each phonological system is structured. In the present study, the phonological system of Modern Standard Arabic (MSA) is described because this version of Arabic is the formal version for all Arabic countries (Shehatah, 2015). Moreover, previous studies (e.g. Al-Ani, 1970; Al-Saidat, 2010; Watson, 2011; Sharifo et al., 2013; Sabir & Alsaeed, 2014; Shehatah, 2015; Ashour, 2017; Betti & Ulaiwi, 2018) have used this version of Arabic for describing the Arabic phonological system. However, it should also be noted that there are a number of spoken colloquial varieties in the Arab world, so the way Arabic is spoken may vary from one place to another especially when used informally in daily interaction (Shehatah, 2015; Abdulrahman and Ramamoorthy, 2018). Importantly, in the present study, the overview of the similarities and differences between the two languages focuses particularly on the suprasegmental features of the two languages as this is the scope of the present study.

In general, Arabic and English belong to different language families and possess different and exclusive sounds, symbols, prosodic aspects and grammar rules. English is an Indo-European West Germanic language (Swan & Smith, 2001). It is the mother tongue of 341 million people, and spoken with many different accents, such as British, American and Australian English (Ashour, 2017). On the other hand, Arabic is a central Semitic language, spoken in 22 Arab countries, by 250 million people as a first language (Swan & Smith, 2001; Alotaibi, Selouani & Cichocki, 2009; Al-Shuaibi, 2009; Abdulrahman and Ramamoorthy, 2018). Like English, there are many different regional accents and dialects, However, the formal version of Arabic is the Modern Standard Arabic (MSA), which is an adapted form of Classical Arabic, and is used for language instruction and also in formal interactions and formal occasions such as lectures, conferences, television, radio etc. (Alotaibi & Meftah, 2013).

Modern Standard Arabic is essentially the same in all Arab countries, and all regional dialects are influenced by the Modern Standard Arabic (Defense Language Institute, 1974).

English and Arabic have similarities and differences in terms of their consonants. Modern Standard Arabic has 28 consonants, while English has 25 consonantal phonemes (Odisho, 2005; Alotaibi & Meftah, 2013; Sharifo et al., 2013; Ashour, 2017). However, the number of consonants in Arabic may vary from one dialect to another (e.g. Ingham, 1994; Alamro, 2019). For example, Najdi Arabic, which is the dialect spoken in the central part of Saudi Arabia, especially in Riyadh where this study was conducted, has consonants that are not found in the MSA (Alamro, 2019). For instance, in some areas of Najd (the central part of Saudi Arabia), the affrication of velar stops /k/ and /g/ are pronounced as voiceless alveolar affricate /ts/ and voiced alveolar affricate /dz/ as in *tsatf* ‘shoulder’ in Nadji Arabic instead of *katf* in MSA, and *dzdām* ‘close’ in Najdi insead of *gdām* in MSA (Ingham, 1994). However, Alqahtani (2014) observed that /k/ and /g/ are changed to /ts/ and /dz/ in some areas of Najd, such as in Alqassim and Alzulfi, while they are pronounced as they are /k/ and /g/ in Riyadh.

Manner of Articulation	Place of Articulation	Bilabial	Labio-Dental	Inter-dental	Alveolar	Post-Alveolar	Palatal	Velar	Uvular	Pharyn-geal	Glottal
	Plosive: Plain	b			tʰ d			kʰ	q		ʔ
	Emphatic				ṭ ḍ						
	Affricate					ʤ					
	Fricative: Plain		f	θ ð	s z	ʃ			χ ʁ	ħ ʕ	h
	Emphatic			ð̣	ṣ						
Approximants	**Central**	w					j				
	Lateral				l						
	Nasal	m			n						
	Tap				ɾ						
	R-sounds: Rolled				r						

Figure 2.1 **Chart of Arabic consonants** (adapted from Odisho 2005, p. 26)

Manner of Articulation	Place of Articulation	Bilabial	Labio-Dental	Inter-dental	Alveolar	Post-Alveolar	Palatal	Velar	Glottal
	Plosive	pʰ b			tʰ d			kʰ g	
	Affricate					ʧ ʤ			
	Fricative		f v	θ ð	s z	ʃ ʒ			h
Approximants	**Central**	w				ɹ	j	(w)	
	Lateral				l				
	Nasal	m			n			ŋ	

Figure 2.2 **Chart of English consonants** (adapted from Odisho 2005, p. 30)

While Arabic is a language that heavily depends on consonants, and they carry the load of meaning (Odisho, 2005, Amer & Amer, 2011). English relies heavily on vowels (Al-Seghayer, 2019). Arabic and English also have different vowel systems. English is a twelve-vowel system in which there are two sets of vowels, short and long. The short vowels in English are /I/, /ʊ/, /e/, /ɒ/, /ə/, /ʌ/, /æ/, and the long vowels /iː/, /uː/, /ɜː/, /ɔː/, and /ɑː/ (Ashour, 2017). However, Arabic is a six-vowel system, composed of three long vowels, /aː/, /uː/, and /iː/ or *Alif*, *Wow*, and *Yaa*, and three short vowels, /a/, /u/, and /i/ (Seraye, 2016). Short vowels are indicated by diacritics *Fat'ha*, *Damma*, and *Kasra* above or under the letter (Seraye, 2016). Ingram (1994) and Sharifo et al. (2013) noted that Arabic dialects are similar to the MSA in their vowel system, however some dialects may have more vowels. For example, Najdi and Kuwaiti Arabic dialects have two long vowels (ie. /eː/ and /oː/) which are not found in the MSA (Ingram, 1994; Sharifo et al., 2013).

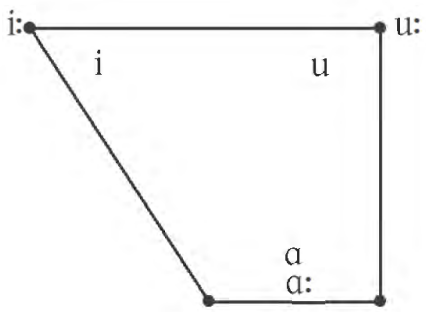

Figure 2.3 **Chart of Arabic vowels** (adapted from Saadah 2011, p.24)

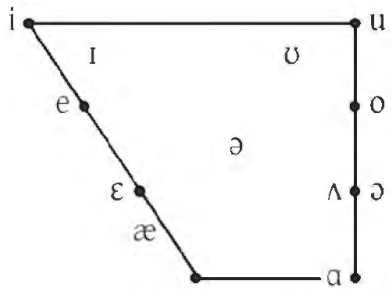

Figure 2.4 **Chart of English vowels** (adapted from Saadah 2011, p.25)

2.4.1 Suprasegmental features of Arabic and English

Arabic and English also have various prosodic similarities and differences that have been the focus of many studies in the field (e.g. Sabater, 1991; de Jong & Zawaydeh, 1999; Halpern, 2009; Watson, 2011; Betti & Ulaiwi, 2018; Alhudhaif, 2020).

Before discussing the detailed characteristics of Arabic and English suprasegmental features, it is necessary to consider the speech rhythm of both languages. Languages can be classified into two different categories based on their speech rhythm: syllable-timed rhythm and stress-timed rhythm. In languages with syllable-timed rhythm, "syllables tend to occur at regular intervals of time, and consequently all syllables tend to have the same length (e.g. Spanish and French)". In contrast, in languages that use stress-timed rhythm, "stressed syllables tend to occur at regular intervals" (Sabater, 1991, p.153). This means that syllables in syllable-timed languages require an equal length of time to pronounce, whereas in stress-timed languages stressed syllables tend to have the same duration, and the unstressed syllables are shortened to hold the beat of the stress. Sabater (1991) summarises the general characteristics of stress-timed languages as follows: 1) there is vowel reduction in unstressed syllables, 2) syllable structure is complex, 3) duration of stressed and unstressed syllables is not proportionally affected by the rate of speech whether slow or fast, 4) unlike syllable-timed languages, secondary stress is common in stressed-time languages, 5) stress occurs regularly in stress-timed languages, and the metric system is based on the foot. However, Sabater (1991) notes that these are general characteristics and they might differ from one language to another because stress-timed languages are not all exactly the same. According to Bertran (1999), Arabic and English are both categorised as stress-timed languages because stress is important in both languages' phonological system, although there are phonological characteristics which are unique in each language. Tajima, Kitahara and Zawaydeh (1999) compared the speech rhythm of Arabic and English, and found that speakers of both Arabic and English pay explicit attention to stressed syllables in their speech and that stress plays a crucial role in shaping the rhythm of their speech.

2.4.2.1 Similarities and differences in stress

Although both languages are stress-timed languages, Arabic and English have different rules for placing and predicting stress in speech. In Arabic, all dialects receive word stress, which is located depending on the syllable weight and position (Watson, 2011). In general, Arabic stress is regular and predictable, its rules are simple, and it is often placed at the word level (Benrabah, 1997; Swan & Smith, 2001; Watson, 2011). Unlike English, Arabic words carry only primary stress and this normally falls on content words (Defense Language Institute, 1974; Alamro, 2019). However, Al-Ani (1970) notes that some polysyllabic words can carry a secondary stress as in [ra-**ʔii**-su-**'hun**-na] 'their chief, female plural'. According to Watson

(2011) “Arabic recognizes three weights of syllable: light (CV), heavy (CVC and CVV), and super heavy (CVVC and CVCC)” (p.2). The time lapse of each syllable in Arabic is approximately equal (Defense Language Institute, 1974). In addition, vowels in the unstressed syllables are pronounced neutrally in Arabic, and without weakening or reducing them, unlike in English (Amer & Amer, 2011; Alamro, 2019). According to the Defense Language Institute (1974) vowels in Arabic are always pronounced clearly and with their full value.

In Arabic, the primary stress mostly tends to fall on one of the last three syllables in the word depending the weight of the syllable (Watson, 2011). For example, a word final syllable containing a super heavy (CVVC and CVCC) syllable is always stressed, while in words with no super heavy syllable, stress falls on a heavy syllable, while in words containing only light syllables, the stress falls on the first syllable (Watson, 2011; Alamro, 2019). In a comparative analysis between stress in Arabic and English, the Defense Language Institute (1974) found that the placement of stress in Arabic words is determined by the weight of the syllable. For example, super heavy syllables which are always restricted to word-final are always stressed, but if the word has no super heavy syllable, then the heavy syllable is stressed. However, in words with two heavy syllables, the stress normally falls on the syllable next to the final (the penultimate syllable). While in words containing three syllables and more, if the penultimate syllable is not heavy, the stress falls on the third syllable from the last. However, prefixes and suffixes added to the words may change the place of stress. De Jong and Zawaydeh (1999) and Halpern (2009) further explain that stress falls in the last syllable as in [ja-**deed**] ‘new’, if the last syllable is a super heavy CVVC, that is, it contains a consonant followed by one or two vowels, and then one or two consonants. If the last syllable is a heavy syllable CVC, then the heavy syllable will carry the stress, as in [al-wa-**lad**] ‘the boy’ whether it is the last syllable or not (de Jong & Zawaydeh, 1999; Betti & Ulaiwi, 2018). In addition, in Arabic disyllabic words, stress tends to fall on the first syllable as in [**kaa**-tib] ‘writer’. However, generally with words containing four syllables, if the syllable next to the final is not heavy, then the stress is placed on the one before the second last syllable as in [mak-**ta**-ba-ti] ‘my library’ (Watson, 2011). Al-Ani (1970) also noted that in words only containing light syllables (CV), the primary stress is placed on the first syllable as in [**ka**-ta-ba] ‘he wrote’. According to Alamro (2019) in almost all dialects in Arabic, including the Najdi dialect, super heavy syllables in the end of words tend to be stressed. In addition, Arabic differs from English in that it does not change the grammatical category or distinguish between parts of speech or meanings of words (Alamro, 2019).

Notably, as Watson (2011) and Alamro (2019) point out, Arabic dialects may differ from the Modern Standard Arabic in terms of placement of stress in the absence of a super heavy syllable. For example, Alamro (2019) summarises the differences in stress locations between the Najdi Arabic and the Modern Standard Arabic, and explains that stress in the Najdi dialect is located at a different position from Modern Standard Arabic in three cases: in the case of vowel addition in the beginning of the word (Epenthesis) as in [**ka**.ta.bat] 'she wrote' where the stress falls in the first syllable in the Modern Standard Arabic, and Najdi speakers tend to add a vowel before the initial segment (consonant) in the first syllable, and thus the stress is moved on the second syllable in Najdi dialect as in [ɪk.**ta**.bat] 'she wrote' instead of [**ka**.ta.bat]. The second case is when the glottal stop 'hamzah' /?/ is deleted. The following example, [?al.ki:m.**ya:?]** 'chemistry', is pronounced with a glottal /?/ in the Modern Standard Arabic, and thus the stress is located in the final heavy syllable, however it is deleted in the Najdi dialect and the stress moves to the syllable next to the final, [?al.**ki:m**.ya]. The third case is when a vowel is shortened in the Najdi dialect. For example, [ra.**ma:**]'he threw' is pronounced with a long vowel in the Modern Standard Arabic, while it is pronounced with a short vowel in the Najdi dialect [**ra.**ma], and thus the location of the stress moves from the second syllable to the first syllable.

In English, on the other hand, stress can fall at both word and sentence levels (Roach, 2009). At word level, English words have three levels of stress assigned on different word syllables; primary, secondary and unstressed syllables (Wennerstrom, 2001). Words of more than one syllable must have at least one stressed syllable that is longer, louder, and higher in pitch than unstressed syllables (Derwing & Munro, 2015). In addition, unlike Arabic, vowels tend to be lengthened in the stressed syllables and reduced or shortened in the unstressed syllables (Amer & Amer, 2011). According to Anderson-Hsieh and Venkatagiri (1994) English native speakers tend to produce the stressed syllable with a duration about four times longer than unstressed syllables. English, according to Cutler (2015), is a lexical stress language, which means that stress in English words can come in different syllable positions within words, whereas word stress may occur more predictably in many languages, as in Arabic. Cox (2012) explains stress as the relative prominence of syllables. According to Cox (2012), English word syllables are classified as either a stressed or unstressed syllable. Stressed syllables tend to be perceived by listeners as louder, longer in duration, and with higher pitch than unstressed syllables (Cox, 2012). For example, in the word 'carrot', the first syllable is a stressed syllable while the second syllable is unstressed. Lane (2010) adds that English words may contain more

than one stressed syllable; the primary stress is the most prominent syllable in the word, while the other syllables carry secondary stress or are unstressed. For example, in the word 'telephone', the first syllable *te* has primary stress, the second syllable is *le* is unstressed, and the third syllable *phone* carries the secondary stress. However, Lane (2010) notes that the primary stress does not necessarily come on the first syllable. Cutler (2015) similarly points out that, stress is applied on different syllable positions within English words. Therefore, the primary stress can fall on the second, third, or fourth syllable. For example, in the word '*admiration*' the primary stress falls on the third syllable, while the first syllable received a secondary stress which is pronounced with lesser level of stress (Cutler, 2015). The presence of a secondary stress is common in words that have three and more syllables to avoid a long sequence of unstressed syllables in long words (Sabater, 1991). According to Sabater (1991), in English secondary stress occurs because stressed syllables cannot be preceded by more than two unstressed syllables in succession as in *ˌclarifi'cation*. In this example, the primary stress falls on the fourth syllable *'cation*, and is preceded by two unstressed syllables *ri* and *fi*, while the first syllable *ˌcla* receives a secondary stress.

In English, stress is affected by many factors, such as morphological structure (simple, compound and complex words) as affixes may change the placement of the stress, its grammatical category (noun, verb, adjective etc.), number of syllables, and the phonological structure of the syllable (Helal, 2014; Betti & Ulaiwi, 2018). For example, the addition of an affix to a word may change its stress placement as in ***ma**gnet* and *mag**ne**tic*. Suffixes can receive the primary stress if the root of the word consists of more than one syllable as in *Ja**pan*** and *Japa**nese***. In addition, nouns and verbs vary in the location of their stress where nouns receive stress on their first syllable while verbs receive stress on their second syllable as in ***con**vert* 'noun' and *con**vert*** (verb). Moreover, content words containing one syllable are stressed, as in ***heart***, while two syllable words may vary on their stress placement depending on the category of the word (ie. noun or verb), and in three syllable words, for instance, verbs receive stress on the final syllable if it is strong, while the majority of three syllable nouns, the stress is placed on the syllable that precedes the final (the penultimate syllable), if the syllable is heavy. If the penultimate syllable is not heavy, the stress is placed on antepenultimate syllable (third to the final) as in ***e**lephant* (Helal, 2014; Betti & Ulaiwi, 2018).

At sentence level, in English stress is placed on words that carry more important information (Levis, 2018). The important words carrying information are more strongly emphasised, compared to the less important words in the sentence (Sabater, 1991). Content

words of the sentence (ie. words that carry information) tend to carry more important information and are emphasised more than function words (ie. words that signify grammatical relationships) to draw the listeners' attention to the more important words in the sentence (Yates, 2002; Celce-Murcia et al., 2010). Sentence stress, similar to word stress, is indicated by pitch movement, greater syllable length, and increased loudness, as in *It's **MON**day* (Levis & Levis, 2018). According to Levis and Levis (2018) in almost 90% of spoken sentences and phrases, the stress falls on the last word, known as unmarked sentence stress. In addition, sentence stress can also be contrastive stress, in which stress comes on words that carry contrastive meaning, including function words (ie. Prepositions and pronouns) (Levis & Levis, 2018). For example, in the following sentence: *It's **IN** the dresser*, the stress is placed on the preposition 'in' because it is more important for the meaning the speaker is trying to convey (for example, it is not ON the dresser).

Research has shown that a common problematic area for Arab ESL learners concerning the suprasegmental features of English is the placement of stress (e.g. Basalamah, 1990; Sabater, 1991; Benrabah, 1997; de Jong & Zawaydeh, 1999; Alharbi, 2009; Helal, 2014; Alhudhaif, 2020). This problem is related to the fact that in Arabic, the placement of stress follows a predictable pattern, while English stress rules are more complex and less predictable (Larudee, 1973; Betti & Ulaiwi, 2018). As a result, speakers of Arabic do not have to choose different stress placements based on unpredictable rules, as is the case for speakers of English. For the same reason, Arab ESL learners tend to either neglect or pay less attention to the role of stress and its various placement rules. Also, they have difficulty in predicting word stress as well as in emphasising content words in sentences in English (Swan & Smith, 2001; Amer & Amer, 2011). For example, Arab EFL learners tend to misplace stress in English and also stress words in the sentence that carry less important information, including pronouns located in the sentence final, although these pronouns are not stressed in English as in *I **'gave** it to **'him*** (Defense Language Institute, 1974). In addition, Arab EFL learners tend to produce stressed and unstressed syllables with the same duration, intensity and vowel length, which often make less understood by listeners (Amer & Amer, 2011).

One of the most important studies undertaken on the difficulties with stress faced by Arab learners of English was Benrabah's (1987). His study involved Algerian students learning English as a second language, who were asked to produce English words with different syllable lengths. It showed that these Arab learners of English placed the stress on the wrong syllable in most of the words, and the words were then perceived incorrectly by the native English

listeners, as in the word ‘forgot’ which was perceived as ‘forelock’. Benrabah (1987) concluded his study by revealing that Arab learners of English are competent at producing segmental sounds, but still have major difficulties producing suprasegmental features. Another important study on errors in stress placement was Helal’s (2014), which involved 15 Arab participants from Egypt. Two tests (written and speech production tests) were done to investigate the students’ ability to place stress correctly. In the written test, the students were given several English words on a written sheet where they had to highlight the stressed syllable in each word. In addition, the students were asked to read aloud some English words; their reading was then analysed to check the appropriateness of their stress placement. The findings of the study showed that the Arab students had difficulties placing the stress in both the written and production tests. The study also found that the students’ ability to allocate the stress appropriately was associated with their English proficiency, so that those who were less competent in English were less able to place the stress in the correct position. Helal concluded that Arab learners of English need to improve their knowledge of stress as it is one of the suprasegmental features that affects oral communication. In a more recent study, Alhudhaif (2020) also examined the ability of Saudi EFL learners in placing stress correctly in English words. The words chosen for testing the participants’ awareness of stress location varied in their structure. The results of her study showed that Saudi EFL learners struggled with placing stress correctly on complex and compound words as well as on two-syllable words when stress is placed on the first syllable. Alhudhaif (2020) concluded that due to the differences between Arabic and English stress rules, Saudi EFL learners were not able to predict stress in long words. Therefore, Alhudhaif (2020) recommended that Saudi EFL learners have more instruction on stress to be aware of its location in English words.

2.4.2.2 Similarities and differences in rhythm

Arabic and English also share similarities and differences in rhythm. According to Tajima et al. (1999) Arabic and English are similar in rhythm as they both are categorised as stress-timed languages. However, they also have some differences as English has been found more distinctly stress-timed than Arabic (Tajima et al., 1999). Rhythm, as mentioned in section 2.3.3, is seen as a product of stress: important words in speech are foregrounded through their occurrence on a strong beat, and less important words are backgrounded by their occurrence on a weak beat (Kenworthy, 1990). Odisho (2005) argues that the ability to produce these beats correctly is largely dependent on the ability to appropriately locate stress and identify vowel lengthening and shortening.

In English, rhythm is "characterized by the beats occurring on the stressed syllables" (Cox, 2012, p.83). For example, in the sentence 'Jason apparently missed the bus', the first syllable in 'Jason', the second syllable in 'apparently' and the monosyllabic words 'missed' and 'bus' received the strong beats (ie. JAS-on-a PAR-ent-ly MISSED-the BUS). Cox (2012) noted that changing the strong beats in this example would make the sentence sound unnatural. In English, sentences can be divided into different rhythmic beats (called 'feet') which are produced at approximately equal intervals of time (Wennerstrom, 2001; Nolan, 2006). Each foot or block of speech has rhythm, starts with a stressed syllable and may include one or more unstressed syllables (Sabater, 1991; Wennerstrom, 2001). Chela-Flores (2001) notes that rhythm is linked to many features, such as syllable length, stressed and unstressed syllables, full and reduced vowels, pauses and linking. Gilbert (2008) similarly points out that rhythm is associated with pausing, intonation and stress as they contribute to organising rhythm in English and make speech flow smoothly and become easily processed. Kenworthy (1990) also notes that the rhythm of English is associated with the placement of fully pronounced strong syllables and weak syllables which tend to be pronounced very weakly or almost not pronounced at all. According to Wennerstom (2001), the number of syllables varies in each foot, however stressed syllables tend to be longer, louder and may also receive a higher pitch than unstressed syllables which tend to be reduced in duration, and thus do not add significantly to the duration of foot time. English has a vowel reduction system which means, in speech, vowels can be shortened or lengthened and yield different syllable structures and rhythmic patterns.

In contrast, the rhythm in Arabic is not influenced by the vowel system as in the case in English (Odisho, 2005). Stressed syllables are not lengthened in Arabic as much as they are in English, and unstressed syllables tend to be pronounced clearly and with full vowel length (Kenworthy, 1990; de Jong & Zawaydah, 1999). De Jong and Zawaydah (1999) investigated the duration of vowels in Arabic stressed and unstressed syllables, and found that vowels in stressed syllables were slightly longer than unstressed syllables, but they were not lengthened as much as they are in English. In an experimental study comparing the rhythm of English and Arabic as stress-timed languages, Tajima et al. (1999) found that the Arabic and English speakers who were involved in the study produced similar rhythmic modes and paid more attention to stressed syllables. However, they found differences between the rhythm of the two languages in the lengthening of the stressed syllables. These differences in stressed syllables may make Arab learners of English produce rhythms that are different from those that English

native speakers tend to produce. Algethami (2012) also compared the production of speech rhythm in Arabic and English using acoustic analysis and found that English native speakers produced more stress-timed rhythm than Arabic native speakers. Similarly, Swan and Smith (2001) noted that Arab learners of English tended to avoid contracted forms and elisions and usually spoke with a heavy staccato rhythm. As a result, Alharbi (2009) thought that, due to the learners' lack of awareness of linking and contracted forms in English, Arab learners tended to pronounce each word in isolation without linking them together when speaking English which made the rhythm of their speech similar to the rhythm of Arabic. Therefore, Alharbi (2009) concluded that Arab EFL learners need to be aware of these differences between Arabic and English rhythm to improve their pronunciation competency and communicate successfully in English.

2.4.2.3 Similarities and differences in intonation

Differences and similarities are also present in the intonational system of the two languages. As explained in section 2.3.1, intonation includes "pitch level, direction and shift within a sentence" (Odisho, 2005, p.94). According to Odisho (2005) intonation is used similarly in English and Arabic as both languages use intonation to indicate a combination of syntactic, semantic, and attitudinal features of the utterance. For example, speakers in both languages use a rising tone to show a sense of completeness of information being conveyed, and use a falling tone to show a sense of incompleteness (Odisho, 2005).

In English, high rising tone is used to show completeness of the utterance, while medium or falling tone is used to show that the speaker is still continuing their speech (Wennerstrom & Siegel, 2003). However, English has a complex intonation system (Nolan, 2006). Each syllable in the sentence (prominent syllable) is produced with a certain degree of pitch, but those words that carry meaning are highlighted with noticeably higher or lower pitch (Brazil, 1994; Lane, 2010). According to Brazil (1994) there are five tones in the English language: falling, high rising, low rising, rise-falling, and fall-rising. Lane (2010) further adds that in English tones vary from one phrase or sentence to another. For example, statements are produced with falling tone, questions with high rising tone, polite commands with low rising tone, personal opinions with falling rising, surprises with rising falling tone (Yanglang, 2013).

Arabic intonation is similar to English intonation, and embraces similar rising and falling pitch although with a slight difference in pitch (Swan & Smith, 2001; Alharbi, 2009).

According to Bengrait and Hamlaoui (2016) intonation in Arabic is similar to English, especially in using rising pitch with yes/no questions, requests and listing items, however falling pitch in Arabic does not fall as low as in English. In addition, Al-Ani (1970) noted that in the intonational system of Arabic, there are only four levels of pitch used to denote different sentence types such as declarative statements, commands, questions, and exclamation which are; falling, medium, rising, extra rising. According to Swan and Smith (2001), Arabic speakers, like English speakers, use rising pitch to denote questions, suggestions and offers. However, Arabs learning English, due to lack of awareness of English intonational system, tend to have difficulties using appropriate intonation when speaking in English (Al-Seghayer, 2019). Bin Hady (2016) conducted a comparative study between English and Arabic phonological systems and found that although intonation in Arabic and English is similar, Arab learners of English tend to have difficulties perceiving and producing English intonation appropriately. Odisho (2005) noted that due to the lack of awareness of intonation in English, Arab EFL learners are unable to differentiate between questions and statements when communicating in English. Jarrah (2015) also noted that Arab learners of English tend to have problems differentiating between stressed and unstressed syllables, which leads them to produce syllables with the same level of pitch. Therefore, producing English intonation can be somewhat difficult for Arab learners of English, and its mastery is more difficult because of the differences between the Arabic and English phonological systems.

In summary, Arabic and English share some suprasegmental similarities and a number of important differences which may lead to difficulties in perception and production of speech. Firstly, unlike English, stress in Arabic is regular and predictable, and is only placed at word level. However, in English, stress is not predictable and is more complex; importantly, vowels tend to be lengthened in the stressed syllables, and reduced or shortened in the unstressed syllables. Secondly, stressed syllables in Arabic are not lengthened as much as these syllables are in English. Thirdly, although Arabic and English rhythms are both stress-timed, English is more distinctly stress-timed than Arabic. Fourthly, Arabic lacks linking and contracted forms in speech, therefore Arab EFL learners tend to pronounce each letter when speaking English and that makes the rhythm of their speech similar to the way they speak in Arabic. Fifthly, although Arabic and English intonation patterns are somewhat similar, Arab speakers of English tend to apply the same intonation as Arabic in their English speech production, which may make their perception and production of speech difficult. Arab EFL learners also tend to overuse falling pitch at the end of the sentences.

The similarities and differences between Arabic and English have been extensively investigated and the results have led many researchers (e.g. Odisho, 2005; Alharbi, 2009; Hamouda, 2013; Helal, 2014; Jarrah, 2015; Bin Hady, 2016; Betti & Ulaiwi, 2018; Ababneh, 2018; Al-Seghayer, 2019; Alhudhaif, 2020) to suggest that Arabs learning English may benefit from training in the perception and production of English word stress, sentence stress, intonation, and rhythm. They argue that these suprasegmental features can enhance learners' perception and production, and so lead to more successful oral communication.

2.5 Factors that affect pronunciation learning

Both production and perception of speech are influenced by a number of factors that may promote or impede learners' mastery of pronunciation. The pronunciation of non-native speakers of any language is not only influenced by the type of instruction or the teacher, but also by several social and psychological factors, such as the age of the learners, mother-tongue interference, exposure to the second language, motivation and personality, that influence pronunciation learning and may reduce or enhance the degree of success among L2 learners (Kenworthy, 1990; Yates, 2002; Schaetzel, 2009; Trofimovich, Kennedy & Foote, 2015).

2.5.1 Effect of age on pronunciation learning

Age has been proven to have a major effect on pronunciation learning. Many studies (Flege, Munro & Mackay, 1995; Flege, 1999; Marinova-Todd, Marshall & Snow, 2000; Schaetzel, 2009; Al-Saidat, 2010; Trofimovich, Kennedy and Foote, 2015) have shown a correlation between age and pronunciation ability. They have also confirmed that the older a language learner is when beginning to master L2 pronunciation, the more difficult it will be to achieve native-like mastery. For example, Flege, Munro and Mackay (1995) found that the age of learning has a significant influence on the pronunciation of L2 learners. In their study, they noted that the earlier the language is learned, the better outcomes would be achieved. Marinova-Todd et al. (2000) similarly found that children generally tend to be capable of acquiring L2 pronunciation rapidly and with little effort, whereas adults tend to have less successful pronunciation outcomes. Trofimovich, Kennedy and Foote (2015) also note that although children may take longer than adults in their learning, they tend to be more successful in mastering L2 pronunciation. Al-Saidat (2010) further argues that L2 learners tend to lose some of their learning abilities when they become adults, which prevents them from attaining perfect pronunciation. However, Flege (1999) believes that adults' difficulty in learning

pronunciation is not only caused by a loss of ability but also by a lack of awareness of how the L2 phonological system functions. Snow and Hoefnagel-Höhle (1978) examined the hypothesis that children tend to be more successful than adults in their language acquisition. Their study involved different groups of English native speakers learning Dutch in Holland, who were divided into different groups based on their ages (3-5, 6-7, 8-10, 12-15, and adults) and level of proficiency (beginners and advanced). The results of their study showed that learners aged between 12-15 and adults were faster in their learning than younger learners, and the group of 12-15 years old achieved almost perfect pronunciation better than other age groups. Snow and Hoefnagel-Höhle (1978) concluded that these findings provide evidence that children aged between 2-12 do not have an advantage over older learners in terms of language acquisition, including pronunciation. Munro, Flege and Mackay (1996) similarly showed that age play an essential role in pronunciation learning and the age of learners when started learning a second language affect the degree of accentedness in their speech. However, they found that even those who started learning a second language at an early age (between 2-12 years old) were also influenced by their L1 and had a heavy foreign accent in their production.

The notion of the effect of age on language acquisition has become known as the critical/sensitive period hypothesis (CPH), which was first introduced by Penfield and Roberts in 1959, and then elaborated by Lennenberg in 1967 (Marinova-Todd et al., 2000; Schaetzel, 2009; Trofimovich, Kennedy & Foote, 2015). Penfield and Roberts were among the first scholars to propose that language acquisition in children and adults is different and that it is more effective to learn a language at an early age. Lennenberg later argued that the learning capacity of adults sharply declines due to biological aging (Trofimovich, Kennedy & Foote, 2015). This is due to a gradual reduction of neuronal plasticity in areas of the brain responsible for language acquisition (Marinova-Todd et al., 2000). Snow and Hoefnagel-Höhle (1978) stated that the CPH lies in the notion that perfect language acquisition occurs during the critical period, which ends at the age of puberty. According to Snow and Hoefnagel-Höhle (1978) the CPH predicts that any second language acquisition takes place after the age of puberty would be slower and less successful. Therefore, learning a language after that age would not be similar to learning it before the age of puberty due to the establishment of cerebral lateralization of brain function (Snow & Hoefnagel-Höhle, 1978). Abrahamsson and Hyltenstam (2009) similarly notes that the L2 learners' ability to achieve nativelikeness decreases with age. Their study found that those who started learning after the age of 12 were perceived as less nativelike than those who started learning before that age. However, when learners were engaged in more

detailed linguistic tasks, both child and adult learner groups did not achieve nativelike acquisition. Jones (2002) also notes that young children enjoy an advantage over adults in terms of pronunciation learning, and he believes that "it is virtually impossible for adults to acquire native-like pronunciation in a foreign language" (p.179).

There is, however, no universal agreement on the role played by age in language acquisition. For example, Thompson and Gaddes (2005) argue that, although children may have more natural ability than adults in acquiring native-like pronunciation, adult learners enjoy an advantage over children in pronunciation learning, as they have the ability to use their cognitive abilities and self-monitor their pronunciation which is essential for pronunciation development. In addition, while the adopters of the CPH notion focus on the biological development of the brain, which is considered to be decreasingly flexible and plastic as age progresses, other researchers (e.g. Pullen, 2012; Ahmed, 2017) claim that children have an advantage over adults in engaging and integrating with the target community because they have identities that are less rigidly formed. Yates (2002) also asserts that children, over time, have more time and opportunities to interact in the target language, which explains why people who learn a foreign language commencing at a younger age may achieve better outcomes in the long term. To conclude, most researchers emphasising the effect of age on pronunciation learning have mainly focused on the attainment of native-like pronunciation. However, when intelligibility and comprehensibility are set as a priority for pronunciation instruction, the effect of age may not be as significant.

2.5.2 Effect of L1 interference on pronunciation learning

A second factor affecting pronunciation learning is the interference of the mother-tongue or cross-linguistic influence on pronunciation (Yates, 2002; Al-Saidat, 2010). Research has shown that L1 influence plays a significant role in the acquisition of a second language (Jenkins, 2000; Bada, 2001; Al-Saidat, 2010). Mother-tongue or first language effect refers to "the ways in which L1 knowledge appear to cause difficulty in the acquisition of aspects of the L2" (Derwing & Munro, 2015, p.178). This influence of the L1 may affect learners' acquisition of many language components, including pronunciation (Brown, 2007). However, it is believed that the influence of the learner's native language affects pronunciation skills development more than other components of the language, such as grammar and vocabulary (Jones, 2002). Trofimovich, Kennedy & Foote (2015) argue that learners' L1 influences their L2

pronunciation development, which can help or hinder their perception and production of L2 speech.

This L1 influence has been described in terms of two concepts: positive and negative transfer. Positive transfer refers to "the process of using rules from L1 which facilitates or has a positive influence on learning L2", while negative transfer refers to "the transfer of rules from L1 which impedes or has harmful influence on the command of rules of L2" (Alkhateeb, 2016, p. 97). Therefore, the differences between the two languages may make acquiring pronunciation more difficult (Al-Saidat, 2010). According to Al-Saidat (2010), this negative transfer in pronunciation occurs when the feature intended to be pronounced is not present in the sound system of the speaker's mother language, so learners tend to substitute an approximate but possibly incorrect sound from their L1. Al-Saidat studied the impact of native language in the acquisition of L2 English phonological system, and pronunciation difficulties among 24-year-old Jordanian Arabs. Their pronunciation was assessed through a reading aloud task and was recorded and compared with the native English production. The experiment revealed that there are differences between the syllable structure of Modern Standard Arabic (MSA) and that of the English language. Further, the findings indicate that the Arabic language lacks many of the possible syllable structures of English, such as initial consonant clusters (CCC), which makes it difficult for Arab L2 learners of English. Al-Saidat (2010) concluded that speakers have no difficulty in producing and understanding words in their mother tongue because their brains are trained to use the L1 sound system. However, when learning another language system, features of the mother tongue often clash with those of the L2 (Al-Saidat, 2010). In an earlier study, Flege and Port (1981) compared the production of English stops /p/, /b/, /k/, /g/, /t/ and /d/ in initial and final positions of Saudi Arabian speakers and American English speakers, and found that the duration of closure intervals of stops and duration of vowels preceding these stops in Saudi EFL learners were different from the American English speakers. Flege and Port (1981) attributed their participants' differences to the learners' first language which influenced their production. In another study investigating the effect of L1 interference on the perception of L2 learners, Kusumoto (2012) investigated the interference of the native language on the perception of 38 Japanese English learners. This study involved perception tests of minimal pairs of 50 words containing /r/-/l/ sounds, as in *pray* and *play*, and another 50 words containing different minimal pair contrasts. These words frequently cause problems for Japanese learners of English who have learned English after the age of puberty, as they are not pronounced the same way in Japanese as they are in English. The findings of

her study showed that, due to the interference of the students' mother language, Japanese learners of English found perceiving the minimal pairs containing /r/-/l/ more difficult than other contrasts. Kusumoto (2012) concluded that L2 learners are more likely to perceive sounds that are similar to their native language more accurately than those which do not exist in their mother tongue.

While L1 interference might negatively affect the speakers' perception and production of the sound system of the target language, due to its linguistic features contrasting with those of the native language, studies also show that similarities between L1 and L2 can positively influence the perception and production of the sound system of the target language (e.g. Jenkins, 2000; Bada, 2001; Aquil, 2012; Akteruzzaman & Islam, 2016; Alkhateeb, 2016; Al-Zoubi, 2019). These researchers point out that learners of a second language can benefit from the sound system of their native language. They can make heuristic comparisons to perceive and produce in L2 sound features similar to those of L1 and avoid any differences that exist between the languages. Al-Zoubi (2019) examined the effect of similarities and differences in speech sounds on the learning of Arab EFL learners. He found that the sounds that are similar in both Arabic and English (ie. /b/, /f/, /k/, /l/, /m/) were easier to acquire than the English sounds that do not exist in Arabic (ie. /p/ and /v/). Al-Zoubi (2019) concluded that the phonological system of the native language can play both a negative and a positive role in the pronunciation acquisition of the second language.

When discussing the positive and negative influences of the mother tongue on the target language, it is important to refer to the Contrastive Analysis Hypothesis (CAH). This was first proposed by Fries (1954) and Lado (1957), who claimed that L2 speakers tend to transfer sounds, forms and meaning, and not just the phonological system, from their mother tongue to the target language (Al-Saidat, 2010). The Contrastive Analysis Hypothesis assumes that L2 learners' errors are attributable to the transfer from their first language (Lightbown & Spada, 2006; Derwing & Munro, 2015; Archibald, 2018). This hypothesis assumes that through comparing the phonological systems of the L1 and L2 languages, it would be easy to predict what is easy or challenging to learn (Archibald, 2018). According to the CAH, the interference of the first language is the main source of difficulty in L2 language learning (Brown, 2007). This hypothesis has been described in terms of 'strong' and 'weak' versions (Wardhaugh, 1970). The strong version of the CAH assumes that L2 learners' pronunciation errors can be predicted through comparing the phonological systems of the two languages (Derwing & Munro, 2015). Therefore, the differences between the first and second sound systems may

cause ‘negative transfer’ and learners might find the pronunciation aspects different from their mother-tongue more difficult to master, while the similarities between the two languages are easier to acquire and cause ‘positive transfer’ (Derwing & Munro, 2015; Khalifa, 2018). However, Wardhaugh (1970) described this version of CAH as unrealistic and impractical, as he found that many learners’ errors were not caused by the interference of their mother-tongue, so that this version of CAH should be disregarded in favor of the weak version. Archibald (2018) also noted that this version of CAH has been rejected due to the fact that not all similarities between the L1 and L2 phonological systems result in ease of learning nor differences result in difficulty of learning among L2 learners.

The weak version of the CAH, also referred to as ‘error analysis’, lies in the notion that language learning difficulties should be analysed in terms of learner interlanguage rather than prediction of L1 interference (Wardhaugh, 1970). Wardhaugh (1970) noted that this version of CAH is more useful and helpful in teaching than the strong version. Wardhaugh (1970) further explained that in this version of CAH, teachers need to use their linguistic knowledge to investigate their learners’ L2 learning difficulties. In explaining the weak version, Brown (2007) states that “as learners are learning the language and errors appear, teachers can utilize their knowledge of the target and native language to understand sources of error” (p.252). However, both versions of CAH have limitations and have been criticised by many researchers. For example, Derwing and Munro (2015) summarised the weaknesses of both versions of CAH as follows; perception and production are treated in combination rather than separately, however, learners may perceive some sounds correctly but be unable to produce them; improvement in learner performance is not clearly accounted for over time; no attention is paid to individual differences among learners, as the types of errors may vary from one learner to another; and they do not shed sufficient light on the processes through which errors in pronunciation take place at a cognitive level.

Other approaches commonly discussed in pronunciation research are the Perceptual Assimilation Model (PAM), and the Speech Learning Model (SLM) both of which presume that “adults’ discrimination of non-native speech contrasts is systematically related to their having acquired a native speech system” (Best, McRoberts & Goodwell, 2001, p.3). According to Derwing and Munro (2015) these two approaches, which claim that learners’ difficulties in production are caused by difficulties in perception, need to be emphasised when discussing L2 pronunciation due to their importance in language acquisition.

In brief, the Perceptual Assimilation Model (PAM) which was developed by Catherine Best in 1988, was designed to account for the way in which native language influences the perception of consonants and vowels of the target language (Tyler, 2019). This model assumes that non-native speech perception is affected by the knowledge that listeners have of "phonological equivalence classes". The model assumes that, at a perception level, listeners tend to assimilate non-native phones to native phonemes, based on the similarities that phones and phonemes share "in the articulators, construction locations and/or construction degrees used" (Best, McRoberts & Goodwell, 2001, p. 4). Derwing and Munro (2015) describe the PAM as the acquisition of a second language by developing perceptual categories that correspond to specific sounds of the native language. In explaining Best's notion of PAM, Derwing and Munro (2015) state that when unfamiliar sounds are heard by adult language learners, they tend to be matched with familiar sounds stored in categories already known in the first language through perceptual process. Therefore, these new sounds are perceived with "a perceptual sieve" caused by interference from the first language (Derwing & Munro, 2015, P. 67). Tyler (2019) further explains that, according to PAM, learners' knowledge of the phonological categories of their native language affects their perception of new non-native sounds which tend to be assimilated into categories from their L1 phonological system. Foote and Trofimovich (2018) state that Best's PAM is mainly concerned with perceiving contrasting L2 vowels and consonants by non-native speakers, and that nonnative speakers' difficulties with perceiving these L2 sounds depend on how these sounds are associated in relation to their native language sounds. Best, McRoberts and Goodwell (2001) confirmed the hypothesis of PAM in an experimental study, showing that listeners tend to assimilate and discriminate the sounds of the target language through relying on the phonetic similarity of their native language contrasts. According to Best et al. (2001) the perceptual assimilation process of new non-native sounds can occur through one of three processes; 1) as a Categorized exemplar of some native phoneme, with which it may fit excellently or poorly; (2) as an Uncategorized consonant or vowel that falls in intermediate areas between phonemes in the native language; or (3) as a nonspeech sound that cannot be assimilated and that does not have any perceivable similarity to any of the phonemes of the native language. However, although this speech model has been popular in pronunciation research, Derwing and Munro (2015) point out that this is an approach that was not developed as a model of L2 learning, but rather was devised to record the ways that listeners would perceive new sounds unknown to them.

The Speech Learning Model (SLM) (Flege, 1995, 2003) is another important theory. It was developed by Flege to describe "the mechanisms and processes by which L1 phonetic interference affects the production of L2 vowels and consonants and accounts for age-related differences in the learning of sounds in an L2" (Flege, 1995, p.161). Flege (1995) developed the SLM with the assumption that the acquisition of new L2 sounds depends on the degree of similarity between the sounds of L1 and L2. From this perspective, if the new learned sound is different from the L1 of sounds, it will be easier for learners to acquire because the difference between the two sounds will be easily noticed. When this happens, a new category for the new sound will be created in the brain. However, if the new sound is similar to the L1 sounds, it will be unconsciously included in an existing L1 category, and thus it is unlikely to be perceived accurately (Flege, 1995; Flege, Mackay & Meador, 1999). According to this model, the capacity of learners to learn L2 sounds does not change across their lifespan, and is fundamental in enabling them to perceive the differences between L1 and L2, on the basis of which they could create the categories stated above (Flege, 2009). Foote and Trofimovich (2018) further argue that in acquiring L2 sounds, long-term memory categories for sounds are created. The speed and the ability with which learners establish these categories depends on how well they can tell apart the phonetic differences between the sounds in L1 and L2. This speech model is similar to the PAM and was developed with the view that difficulties in production are attributable to difficulties in perception (Derwing & Munro, 2015, p.68). According to Derwing and Munro (2015) the SLM assumes that speech production is influenced by perception, and if the distinction between the sounds is perceived correctly, the new sound will be produced accurately over time.

However, Hubais and Pillai (2010) argued that there is still not adequate evidence supporting a relationship between the level of similarity between the sounds of L1 and L2 and the degree of difficulty for acquiring the new L2 sound. In addition, although the PAM and SLM have been popular in pronunciation research and been successful to some extent in explaining how a speaker's L1 influences their L2 perception and production development, these two approaches have been criticised for being limited to only segmental sounds and ignoring other L2 pronunciation aspects, such as the suprasegmental features of the language (Foote and Trofimovich, 2018). However, Lee, Plonsky and Saito (2020) noted that these models, which assume that learners need to perceive the differences between the new L2 sounds and their L1 sounds before they are able to produce them, could also be generalised to suprasegmental features of the language.

Another concept commonly discussed in pronunciation research is 'Markedness', which was first proposed in the Markedness Differential Hypothesis (MDH) by Eckman in 1977 (Al-Saidat, 2010). According to this hypothesis, the sounds that are common in the world's languages (Unmarked) are easier to acquire than those sounds that are rare or less common (Marked) (Derwing & Munro, 2015). For example, the Arabic sound /ʕ/ (ع) is more difficult to acquire by L2 Arabic learners because of its cross-linguistic rarity. Similarly, in English the dental fricatives /θ/ and /ð/ which only occur in 7.6% of all the world's languages might be more difficult to acquire by the speakers of languages in which these fricatives do not exist (Jekiel, 2012). However, similar to the CAH, the MDH was not developed for teaching-learning purposes, except that both theories assume that areas of difficulty for L2 speakers can be predicted (Derwing & Munro, 2015). Derwing and Munro (2015) further note that relying on prediction for areas of difficulty in pronunciation teaching may not lead to successful outcomes.

2.5.3 Effect of other factors on pronunciation learning

There are also non-linguistic factors which are claimed to affect pronunciation learning. These include the personality of learners, their attitude towards the target language, their exposure to it, and their motivation to learn it. These factors may promote or hinder pronunciation learning. For example, learners who are highly motivated and have more exposure to the second language have better opportunities to improve their pronunciation and succeed in learning a new language (Al-Saidat, 2010). Ahmed (2017) also notes that learners with high motivation and positive attitudes tend to learn faster and be more successful in their learning than those who are less motivated. According to Kenworthy (1990) learners who have positive feelings towards the people and the culture of the target language tend to develop more accurate and fluent pronunciation. Gilakjani (2012) also points out that motivation differences among learners contribute significantly to their success in the acquisition of a second language. For example, a study done by Elliot (1995) to investigate Spanish L2 learners' ability to acquire native-like pronunciation found that learners who were more motivated and concerned about their pronunciation achieved better outcomes than those who were less motivated and less concerned about their pronunciation, as measured by the Pronunciation Attitude Inventory (PAI) (Elliot, 2015).

In addition, learners' exposure to the target language contributes to their success in second language acquisition and pronunciation mastery (Gilakjani, 2012). Gilakjani (2012)

notes that exposure to the second language may come from daily interaction or through classroom instruction. However, in both ways the amount of time learners spends on producing and receiving the target language can influence their learning (Gilakjani, 2012). Exposure to the target language is one of the important factors that help language learners achieve better mastery of the pronunciation of the target language (Jones, 1997). Previous studies (e.g. Bongaerts, Mennen & van der Slik, 2000; Gilakjani, 2012; Keyworth, 2014) have found a correlation between pronunciation improvement and the amount of L2 exposure. For example, Bongaerts et al. (2000) found that high motivation, exposure to the target language and intensive pronunciation training all contribute to successful pronunciation learning and can reduce the effect of age on learners' pronunciation acquisition. Keyworth (2014) also found a significant correlation between pronunciation performance and length of exposure, and also that the longer learners are exposed to the pronunciation of the target language, the better performance and fewer pronunciation errors they have. Gilakjani (2012) noted that children may have more exposure to the target language than adults as they tend to be more sociable than adults. Sociable and outgoing people whether children or adults might have more advantage to succeed in their pronunciation learning than those who are shy or less sociable (Lane, 2010). This happens because outgoing people can easily interact using the target language, while shy speakers may have more difficulties creating opportunities to improve their perception and production skills. In summary, the social and psychological factors mentioned above may impede or enhance pronunciation learning and may affect the learners' speech perception and production improvement and reduce or enhance the degree of success among L2 learners.

2.6 Relationships between perception (listening) and production (pronunciation)

Perception and production of speech both play an essential role in language acquisition and development. They also represent two of the most difficult components of the English language for ESL learners to acquire (Gilakjani & Sabouri, 2016). The importance of perception to second language acquisition is vital to production (Khasganinejad & Maleki, 2015). As pointed out by Celce-Murcia et al. (2010), perception and production are two closely related skills and both are necessary for successful oral communication. Successful communication depends on the speaker to produce clear and fluent utterances that are easily understood by listeners, and the listeners' ability to perceive speech clearly and understand the information being conveyed with ease. As mentioned above, Flege's Speech Learning Model hypothsised that perception and production are strongly related, and claimed that improving

perception skills is necessary for improving speech production (Flege, 1995). Çakır (2012) also argues that without improving perception skills, it would be impossible to improve pronunciation or production of learners and thereafter their communicative competence.

Listening has come to be defined as an active process that involves an individual receiving a sound stimulus that is channeled to the brain for interpretation (Xu, 2011). Cognitive psychologists identify two processes of listening: 'Bottom-up processing', which depends on decoding the received messages from individual sounds and words; and 'Top-down processing', which depends on interpreting the data received and using prediction to assist in understanding (Celce-Murcia et al., 2010). According to Jenkins (2000), in the former process, listeners tend to begin comprehension from the smallest units of pronunciation (consonants and vowels) and gradually move to larger units to interpret the speaker's meaning (utterances). In the latter process, the listeners use their knowledge and expectancies of the topic and the context to interpret the received message. Celce-Murcia et al. (2010), however, argue that less proficient listeners tend to depend heavily on top-down processing because they lack the ability to decode the speaker's meaning. This aligns with Wolff's (1987) findings, which show that non-native listeners rely on top-down techniques when they are challenged with receiving content more advanced than their language level (cited in Field, 2004). Field (2004) attributes this behaviour to the learners' lack of confidence in their ability to decode the sounds or words of the target language accurately. His study investigated whether L2 listeners rely on bottom-up or top-down processes and found that L2 listeners mostly use neither bottom-up nor top-down, but rather, they match what they hear with a word that they already know.

Perception and production are positively correlated in many ways. For example, Khasganinejad and Maleki (2015) noted that improving listening skills will lead to clear and more fluent production that makes speech more comprehensible to listeners. If speakers are not able to perceive speech successfully, they argued, they will not be able to convert it to meaning and develop correct and clear pronunciation production, therefore they will not be able to communicate successfully (Khasganinejad & Maleki, 2015). Kusumoto (2012) also claims that perception training is necessary for improving production of speech and that developing perception will automatically have a positive impact on production. As Hahn and Watts (2011) explain, listeners learn speech patterns by listening to others and then reproduce these patterns in spontaneous speech. Research studies in the recent past (e.g. Xiaoyu, 2009; Çakır, 2012; Khaghaninejad & Maleki, 2015; Yenkimaleki & Van Heuven, 2016) all confirm the critical

role that listening has on the learner's ability to successfully both produce and understand L2 speech.

Conversely, Yenkimaleki and Van Heuven (2016) note that explicit pronunciation instruction can also help improve listening comprehension, and learners' abilities to perceive speech with ease. Khaghaninejad and Maleki (2015) conducted a study to investigate the impact of pronunciation instruction on listening comprehension improvement among English L2 learners. Their study found that pronunciation and listening are interdependent skills, and intensive instruction on perception using pronunciation materials leads to both better speech recognition and better comprehensibility.

Despite its clear importance for the development of speech production and pronunciation, some researchers believe that listening as a core skill in L2 acquisition has been for a long time neglected in second language research. However, in recent years, attention has been brought back to the study and development of listening skills, mainly as a result of Krashen's emphasis on the important role played by comprehension and comprehensible input (Flowerdew & Miller, 2005; Brown, 2007). Krashen (1985) proposed a theory called 'the Input Hypothesis' claiming that comprehensible input is the main source of second language acquisition. According to Krashen (1985) "human acquire language in only one way – by understanding messages, or by receiving comprehensible input" (p. 2). In this hypothesis, Krashen claimed that providing learners with explicit comprehensible input with content that is beyond their language competence (i+1) is the only source for learners' second language acquisition, and learners' language acquisition is a result of their listening comprehension (Brown, 2007; Donesch-Jezo, 2011). He also claims that adult language learners will improve their output of a language eventually, once they have acquired effective language comprehension (Brown, 2007; Liu, 2015; Birkner, 2016). However, many researchers (e.g. White, 1987; McLaughlin, 1987; Swain, 2000) have disagreed with Krashen's hypothesis that production has little impact on language development, and have stressed the role that both perception and production play a part in language acquisition. For example, McLaughlin (1987) noted that Krashen's hypothesis lacked evidence that input is the only source for language development. In contrast, Merrill Swain (1993, 1995, 2000) proposed the 'Output Hypothesis' which claims that output also plays a significant role in language acquisition. According to Donesch-Jezo (2011), Swain's Output Hypothesis was proposed as a reaction to Krashen's (1985) Input Hypothesis. In her hypothesis, Swain warned against the inefficacy of the Input Hypothesis, as the learners' linguistic competence does not depend only on their input

of the target language. The Output Hypothesis was described by Swain (1995; 2000) in terms of three major functions of output in L2 learning. First, the noticing function: Swain claimed that through production, learners may notice their own errors when trying to communicate effectively, and thus production helps them be aware of where their language difficulties lie and avoid such problems. Second, the hypothesis-testing function: Swain believed that learners benefit from interaction and the feedback they receive which helps them test out what they know and to modify or improve their production. Third, metalinguistic reflection: Swain claimed that L2 learners benefit from engaging in challenging production tasks because that will lead to more in depth understanding of the language (Swain & Lapkin, 2002; Brown, 2007; Suzuki & Itakagi, 2007; Donesch-Jezo, 2011).

Another important hypothesis commonly discussed in the field of second language acquisition is the Interaction Hypothesis proposed by Michael Long (1981, 1983, 1996). This hypothesis was influenced by Krashen's Input Hypothesis and shares aspects with Swain's Output Hypothesis (Mackey & Gass, 2015). The Interaction Hypothesis assumes that comprehensible input leads to successful language acquisition, and that modified interaction in which conversational tactics such as clarification requests, repetitions, and confirmation and comprehension checks are used, helps in making input more comprehensible, as these techniques create more opportunities for learners to understand the language and use it effectively (Long, 1983; Mackey, 1999; Alkhateeb, 2014). In his hypothesis, Long claimed that modified interaction and negotiation for meaning in oral communication play an essential role in acquiring a language, because meaningful interaction could help learners notice new features and make comparisons between their output and that of other speakers (Long, 1983; Ellis, 1991). According to Mackey and Gass (2015), based on this hypothesis, learners acquire language when they are exposed to it, are given the chance to interact using the language in situations where they can produce what they have learned, make comparisons with other speakers, and receive feedback on their production. Brown (2007) earlier noted that the Interaction Hypothesis had a positive impact on pedagogical research on second language acquisition because it provided teachers and curriculum designers with teaching techniques that are beneficial for learners' comprehensible input and output through meaningful interaction.

Overall, perception and production are essentially related and both need to be taken into consideration for more effective language development (Celce-Murcia et al., 2010). According to Renner (2017), although perception and production tended to be evaluated independently in

L2 speech literature, these two skills complement each other in terms of language acquisition. Renner (2017) states that second language learners tend to start with perceiving the correct pronunciation of the target language in order to understand the spoken language, then apply what is learned in their production. In a recent study by Saito and van Poeteren (2018), it was found that perception and production are strongly related especially at the early levels of language learning, and that improving perception abilities can improve learners' production performance when speaking spontaneously or reading aloud. Darcy, Ewert, and Lidster (2012) further point out that perception is important to help learners become more proficient in their production, and that paying attention to listening skills helps language learners recognise segmental and suprasegmental features as well as identify words in connected speech, and the intended meaning of the information produced. Therefore, they confirmed that pronunciation instruction should pay attention to both perception and production abilities to ensure that learners improve their communicative skills.

2.7 Approaches to teaching pronunciation

Teaching pronunciation is an integral part of teaching a foreign language. It has been recognised as a fundamental part of the communicative language teaching era (Baker, 2018). Over the years, attention to pronunciation has increased and decreased from time to time. For example, pronunciation was the subject of great interest during the prominence of the structural approach in language teaching in the 1950s and 1960s (Euler, 2014). During this period, when accuracy had a higher priority than fluency (Isaacs, 2009), pronunciation was acknowledged as an important component of the English language teaching curriculum and correct grammar and pronunciation were seen important goals in language teaching (Morley, 1991). However, the shift towards communicative language teaching in the 1970s and 80s reduced this emphasis on accuracy, and pronunciation was given less attention in language learning. According to Pennington and Richards (1986) "pronunciation, traditionally viewed as a component of linguistic rather than communicative competence, or as an aspect of accuracy rather than of conversational fluency, has come to be regarded as of limited importance in a communicatively oriented curriculum" (p.207). As a result, communicative teaching approaches in which fluency tends to be favoured rather than accuracy, have received more attention due to its impact on learners' learning needs. Isaacs (2009) states that pronunciation instruction was given less attention in the 1970s to early 1980s, because the way pronunciation was being taught, was not seen to be effective in enhancing learners' communicative competence.

With the advent of the communicative era, the focus on English language teaching shifted from a narrow focus only on linguistic competencies to a wider focus on communication skills as a means of helping language learners become communicatively competent when using English. This also led to a growing interest in revisiting pronunciation beginning in the mid-1980s during which a great number of studies, teaching methods and materials were developed to teach pronunciation for communicative purposes (Morley, 1991). According to Morley (1991) pronunciation received important developments in the eighties which led to a reconsideration of whether perfect pronunciation should be the ultimate goal for pronunciation teaching or whether there was more need for intelligible and comprehensible pronunciation due to the increased focus on communication. Celce-Murcia et al. (2010) point out that the need to use the language for communication has brought attention to pronunciation teaching because learners' pronunciation difficulties have been found to be an obstacle towards success in oral communication despite their mastery of grammar and vocabulary.

Over the years, several instructional methods, approaches, and techniques for teaching pronunciation have been developed and popularised. Some of them have been developed to teach pronunciation explicitly, while others have been developed for other purposes and taught pronunciation implicitly (Celce-Murcia et al., 2010). Overall, however, most pronunciation teaching methods have been developed based on two general approaches, the intuitive-imitative approach and the analytic-linguistic approach (Hashemian & Fadaei, 2011). The intuitive-imitative approach depends strongly on the ability of the learner to listen to and imitate the sounds and rhythms of the language being learnt without the intervention of explicit information (Celce-Murcia et al., 2010). Teaching tools used in this approach are audiotapes, videos, computer-based programs and websites (Hismanoglu & Hismanoglu, 2010). The analytic-linguistic approach was developed to complement the intuitive-imitative approach (Celce-Murcia et al., 2010). This method, in contrast, utilises a variety of information and tools to help listening and production. It helps learners explicitly to focus their attention on pronunciation and informs learners of the rhythms and sounds of the target language (Celce-Murcia et al., 2010; Hashemian & Fadaei, 2011). The tools used in the analytic-linguistic approach include: the phonetic alphabet, articulatory descriptions, vocal charts and contrastive information (Hismanoglu & Hismanoglu, 2010).

The Direct Method

The Direct Method (DM), also called the Natural Method, has long been used to enhance the communicative skills of learners by imitating a model, usually a native speaker mode or a recording. In this method, it is aimed that students develop their pronunciation by trying their best to come close to the model through repetition and imitation (Celce-Murcia et al., 2010; Baker, 2018). It followed the intuitive-imitative approach, and was popularised by Berlitz in the United States and Europe and gained wide currency in other parts of the world throughout the 20th century (Murphy & Baker, 2015). The purpose behind its development was to engage language learners in a target language environment without using the first language or translation techniques for explanation (Larsen-Freeman, 2000). The method's focus on listening comprehension was aimed at giving learners the chance to internalize the sound system, however less explicit instruction was given to phonemic and phonetic information (Mart, 2013; Murphy & Baker, 2015). While the Direct Method was dominant in the 19th and early 20th centuries, especially in private education, its popularity declined in the United States and Europe after 1925 (Brown 2007). Richards and Rodgers (2001) summarise the main principles of the Direct Method as follows: (a) instruction is only given in the target language; (b) authentic materials containing vocabulary and sentences from everyday language are used; (c) grammar is taught implicitly; (d) techniques like questions and answers between the teacher and the students are used; (e) both perception and production are emphasised; f) correct pronunciation and grammar are emphasised.

Never translate: demonstrate
Never explain: act
Never make a speech: ask questions
Never imitate mistakes: correct
Never speak with single words: use sentences
Never speak too much: make students speak much
Never use the book: use your lesson plan
Never jump around: follow your plan
Never go too fast: keep the pace of the student
Never speak too slowly: speak normally
Never speak too quickly: speak naturally
Never speak too loudly: speak naturally
Never be impatient: take it easy

Figure 2.5 **Guideline from the Direct Method**

(adopted from Richards and Rodgers 2001)

The Reform Movement

The Reform Movement emerged between 1888 and 1910 and was seen as a reaction to the Grammar-Translation Method, which was used widely in schools to teach Latin and Greek (Murphy & Baker, 2015). The Grammar-Translation method is a classical foreign language teaching method that focuses on translation and analysis of texts, grammar, as well as rote learning of vocabulary (Heydari, 2015). In the Grammar-Translation Method, teaching pronunciation was not given attention and oral communication was not one of its main instructional objectives (Celce-Murcia et al., 2010). The Reform Movement was the first analytic-linguistic teaching method and established significant reforms in pronunciation by giving priority to the International Phonetic Alphabet (IPA), which was introduced in 1886 (Silveira, 2002; Setter, 2008). In this method, learners are provided with IPA charts to explain how the sounds operate in the phonetic system of the language, thus enhancing learners' pronunciation awareness (Murphy & Baker, 2015). According to Celce-Murcia et al. (2010), the Reform Movement established phonetics as a science that presents analysis and description of the sound systems of the languages. In addition, this method linked, for the first time, the written symbol of the sound with the sound it represented (Celce-Murcia et al., 2010). Murphy and Baker (2015) add that "the Reform Movement had given birth to the modern era by establishing pronunciation teaching as a reputable endeavor and introducing an analytic-linguistic perspective on how to teach" (p. 55). In this method, the learners' role requires them to train their ears and their articulatory systems in order to learn how to produce the sounds shown in the phonetic transcription (Murphy & Baker, 2015). The general principles of this method are that the spoken form should be taught first, that teachers must have good training in phonetics, and that phonetic training should be provided to learners so they take on good speech habits (Celce-Murcia et al., 2010).

The Audio-Lingual Method

In the 1940s, the Audio-Lingual Method (ALM) was developed in America to help military personnel speak the language of enemies and allies in World War II (Brown, 2007; Baker, 2018). This analytic-linguistic method, which continued to be used in the 1950s and 1960s, adopted a behaviourist approach and considered accurate pronunciation of sounds and words as the main goal of instruction (Pennington & Richards, 1986; Brown, 2000). Unlike the Direct Method, the Audio-Lingual Method explicitly taught pronunciation from the start, and teachers encouraged students to produce sounds and words in sentences with correct

pronunciation (Afroogh, 2018). In classes taught using this method, which often took place in language laboratories, dialogues and minimal pair drills were used as part of a memorization-and-repetition model designed to help learners build vocabulary and to obtain better oral proficiency (Brown, 2000). In addition, phonetic transcriptions could be provided through phonetic charts, tapes or audio-visual aids to show how sounds are articulated (Tuan, 2010). During the time of the Audio-Lingual Method, accuracy of pronunciation was given a higher priority than fluency of speech (Isaacs, 2009). In addition, the Audio-Lingual Method is based on the idea that listening leads to better speaking, and emphasises the importance of both segmental and suprasegmental features (Celce-Murcia et al., 2010). Brown (2007) summarises the principles of the Audio-Lingual Method as follows: (a) materials are presented in dialogue form; (b) learners are dependent on the teacher or a model and on mimicking and memorizing new words and sentences; (c) structures are sequenced by means of contrastive analysis and taught one at a time; (d) grammar is given little or no attention in the learning process; (e) vocabulary is strictly limited and learned in context; (f) materials are learned through repetitive drills using audio tapes, language labs, and visual aids.

The Silent Way

The Silent Way was introduced in the 1970s by Caleb Gattegno, based on the concept that "the teacher should be silent as much as possible in the classroom and the learner should be encouraged to produce as much language as possible" (Richards & Rodgers, 2001, p.99). The Silent Way uses both analytic-linguistic and intuitive-imitative approaches, and pays more attention to accurate pronunciation, as well as to how students learn the sounds and how they combine them to make words and phrases through listening and imitation (Celce-Murcia et al., 2010). Celce-Murcia et al. (1996) claim that this method addresses all aspects of pronunciation, and helps learners produce correct suprasegmental features of the language to achieve pronunciation accuracy. To do this, various techniques are employed: working with peers, hand gestures, mouthing words, playing games and using tools including pointers, charts and colourful rods (Silveira, 2002; Celce-Murcia et al., 2010). In addition, the learners are expected to be independent and take full responsibility for their learning and the teacher plays the role of a facilitator and a monitor (Richards & Rodgers, 2001).

Communicative Language Teaching

Communicative Language Teaching (CLT), which has become dominant in language teaching in recent decades, principally uses an intuitive-imitative approach to teaching pronunciation. It uses techniques including listen-and-imitate, phonetic training and minimal pair drills in pronunciation teaching to achieve communicative competence (Celce-Murcia et al., 2010). According to Heydari (2015), this method was developed in the 1980s to help learners achieve the communicative goals of language learning in response to the disappointing outcomes of the methods used previously. This method is appreciated for including the use of authentic materials, and the use of the target language in communicative functions (Heydari, 2015). Harmer (2007) adds that the Communicative Language Teaching method was established following the belief that when "the students are involved in meaning-focused communicative tasks, then language learning will take care of itself" (p. 69). Hence, Communicative Language teaching emphasises fluency over accuracy and focuses on meeting students' needs to use language for communicative functions such as making requests, denials, offers, and complaints (Brown, 2007). The general principles of this method are: (a) focusing on real communication in language learning; (b) fostering learning opportunities for the students to practice what they know using the target language; (c) paying less attention to the learners' errors; and (d) developing both fluency and accuracy (Richards, 2006). The most popular communicative techniques and activities used in the Communicative Language Teaching method include role-play and simulation (Harmer, 2007).

In summary, English language teaching has changed over the years from focusing on accuracy of production and native-like pronunciation to focusing on improving the communicative competence of L2 learners to be comprehensible and intelligible in oral communication. In addition, many teaching approaches and methods have been used to improve L2 learners' communicative skills; some of them have taught pronunciation explicitly, and some have taught pronunciation implicitly. More recently, the focus has been put on investigating the improvement of pronunciation materials and teachers' actual classroom practices that help L2 learners become intelligible and comprehensible speakers, thus shaping a new direction in the pronunciation teaching field (Murphy & Baker, 2015).

2.8 New directions in pronunciation teaching, focusing in particular on suprasegmental-based instruction

The success of the Communicative Language Teaching approaches and methods, in terms of setting communication as a primary purpose for language learning, has helped draw attention to intelligibility and comprehensibility as main goals for language teaching, rather than native-like accuracy (Baker, 2018). As discussed in section 2.2.2, the literature has shown that learners only need to have understandable pronunciation that facilitates their oral communication with others. Therefore, pronunciation instruction has been focused on improving learners' perception and production to the level where they easily understand speech and become easily understandable. The impact of pronunciation instruction on perception and production has been valued greatly in the last four decades due to its importance for effective communication between language speakers and for improving L2 learners' proficiency and communicative skills (Celce-Murcia et al., 2010).

According to Murphy and Baker (2015) since 1980, pronunciation instruction has received more attention, and empirical studies on pronunciation have investigated three main themes: what to teach in English pronunciation (e.g. Derwing, Munro & Wiebe, 1998; Hahn, 2004; Field, 2005; Setter, 2008; Levis & Levis, 2018); how to teach pronunciation (e.g.; Couper, 2006; Tanner & Landon, 2009; Saito, 2012; Saito & Saito, 2016); and the perception of teachers and learners toward pronunciation instruction (e.g. MacDonald, 2002; Jenkins, 2005; Kang, 2010; Sifakis, 2014).

Recent research in the area of pronunciation teaching tends to focus on which pronunciation features have an impact on the comprehensibility and intelligibility of L2 learners' speech and on making this the primary target of pronunciation instruction (Darcy, Ewert & Lidster, 2012; Zielinski, 2015). This has led researchers to investigate the impact of segmental and suprasegmental features on the comprehensibility and intelligibility of L2 speech. According to Saito and Saito (2016), only pronunciation aspects that facilitate understanding should be prioritised in pronunciation classrooms, because covering all aspects of pronunciation in classrooms might not be necessary. For example, Jenkins (2000) proposed a pronunciation syllabus called the 'lingua franca core (LFC)' in which pronunciation instruction should only focus on aspects that lead to international intelligibility between L2 English speakers. Jenkins identified some areas which mostly related to segmental features on which language instruction should focus in order to help L2 English learners overcome difficulties in English pronunciation and become more intelligible in oral communication.

These include vowel quality, consonantal inventory, consonant clusters and contrastive stress. Jenkins (2000) also believed that other pronunciation difficulties can be improved spontaneously without teacher intervention since they do not affect speakers' intelligibility. Munro and Derwing (2006) also investigated the impact of some consonant distinctions on the listeners' perception of accentedness and comprehensibility. Derwing and Munro tested the effectiveness of the notion of functional load which assumes that some segmental contrasts have more impact on comprehensibility of speech than others. Functional load was first discussed by researchers such as Catford (1987) and Brown (1988, 1991) who assumed that some consonant pairs affect listeners' speech comprehension more than others (Derwing & Munro, 2015). For example, the minimal pair words containing /p/ and /b/ tend to have high Functional Load (FL) because many words in English might be altered if the listener gets confused between these two sounds (ie. Pea-bee, pit-bit, pet-bet), while words containing /θ/ and /ð/ have low Functional Load (FL) because these two sounds distinguish fewer words in English (ie. thigh-thy) (Derwing & Munro, 2015). In their study, Munro and Derwing (2006) involved Cantonese speakers who were recorded and judged for segmental errors via selecting utterances that have high FL (e.g. /l/, /n/, /s/ and /ʃ/) and low FL (e.g. /d/, /ð/, /f/ and /θ/). The results of their study found that the utterances that included high FL errors, such as the substitution of /d/ and /z/ or /s/ and /ʃ/, were rated as less comprehensible and more accented than utterances with low FL, such as the substitution of /ð/ and /d/ or /θ/ and /f/. Munro and Derwing (2006) concluded that pronunciation instruction should pay attention to the segmental features that have been proven to impact listeners' perception of comprehensibility of speech, as the ones included in the high functional load. Saito (2011) also investigated the impact of segmental-based instruction on improving learners' production to be more comprehensible and less accented. In his study, Saito focused on teaching segmental sounds involving /æ, f, v, µ, ð, w, l, ô/, and found that teaching segmental features positively improve the comprehensibility of the learners' speech, however no improvement was found in reducing their accentedness.

However, suprasegmental features have also been shown to be important for improving learners' comprehensibility and intelligibility (e.g. Derwing et al., 1998; Derwing & Rossiter, 2003; Levis & Grant, 2003; Hahn, 2004; Landon & Tanner, 2009; Gordon et al., 2013; Bouchhioua, 2016; Saito & Saito, 2016). Some researchers have claimed that these features should be given more priority than segmental features in pronunciation due to their more significant impact on speech comprehensibility and intelligibility (e.g. Gilbert, 1994; Chela-Flores, 2001; Tanner & Landon, 2009; Warren et al., 2009; Gordon, Darcy & Ewert, 2013;

Saito & Saito, 2016). For example, Gilbert (1994) claimed that suprasegmental features are more important than segmental features for improving learners' communicative skills, and that pronunciation curricula should pay more attention to these features to help learners communicate successfully with others. Chela-Flores (2001) similarly advocates the need for giving suprasegmental features more emphasis when teaching pronunciation. Chela-Flores (2001) claims that teaching suprasegmental features would have a positive impact on learners' perception and production of speech, and help them communicate effectively. Hahn (2004) also appreciated the significant role suprasegmental features play in improving learners' production of speech. In her study, Hahn (2004) found that the correct placement of primary stress influences the listeners' comprehension of speech, and makes speech easier to process. Warren et al. (2009) also noted that suprasegmental features contribute to improving comprehensibility. In their study, they found that both naïve and expert raters' evaluation of comprehensibility were affected by the learners' production of suprasegmental features. Similarly, Kang, Rubin and Pickering (2010) acoustically investigated the effect of suprasegmental features on comprehensibility rating, and found that suprasegmental features contribute to improving comprehensibility. Therefore, they recommended that pronunciation instruction be focused primarily on suprasegmental features if the goal of the instruction is enhancing comprehensibility of speech. Levis and Grant (2003) also claim that pronunciation instruction should focus on teaching suprasegmental features more than the segmental features, because the former contribute more than the latter in improving production skills.

Some studies (e.g. Derwing, et al., 1998; Derwing & Rossiter, 2003; Tanner & Landon, 2009; Gordon et al., 2013; Saito & Saito, 2016; Gordon & Darcy, 2016) have also shown empirical evidence that teaching suprasegmental features can result in better outcomes than teaching segmental features, especially for improving comprehensibility of speech. For example, Derwing et al. (1998) investigated the effect of suprasegmental-based instruction on the intelligibility of a group of L2 English learners of different L1 backgrounds in Canada. Their study examined the effects of suprasegmental-based instruction in comparison with segmental-based and no explicit pronunciation instruction. The students in the three groups were administered two tasks for data collection, including reading aloud and picture description. The findings showed that both the segmental-based and suprasegmental-based groups improved significantly in comprehensibility and accent reduction in the reading aloud task. However, in the picture description task, only the suprasegmental-based group showed significant improvement in the students' comprehensibility and fluency. Derwing et al. (1998)

concluded that the group that were instructed on suprasegmental features were better able to transfer what they have learned into their spontaneous speech production. Another experimental study by Gordon and Darcy (2016) was conducted to investigate the effectiveness of suprasegmental-based instruction, compared to segmental-based instruction and no explicit pronunciation instruction, in making L2 learners' production more comprehensible by native listeners. Their study involved 30 EFL intermediate level students of different L1 backgrounds in the United States of America who were distributed into three groups: suprasegmental-based, segmental-based, and no explicit pronunciation instruction. The first group received instruction with suprasegmental lessons, the second group was taught using segmental lessons, and the control group was taught using a traditional teacher-centered approach with no explicit pronunciation instruction. Each group received instruction for three weeks. The participants of the three groups were recorded before and after the intervention, and their comprehensibility was then rated by 12 native English listeners. Despite the short length of the course, the results of their study found that the group that had been taught suprasegmental lessons had improved most significantly in their comprehensibility than the other groups.

Suprasegmental-based instruction has also proven to be effective for improving the production of Arab learners of English. An experimental study by Bouchhioua (2016) involved 36 pre-intermediate Tunisian English learners, who were aged between 22 to 26 years old. The participants divided into three groups (segmental, suprasegmental and no pronunciation instruction groups) and which were taught for one hour a day each, for 8 weeks. The segmental group were taught English pronunciation with an emphasis on segmental contrasts, such as /iː/ vs. /ɪ/, /æ/ vs. /ɛ/, or /ʃ/vs. /tʃ/ while the suprasegmental group were taught suprasegmental features such as word stress, weak forms in function words, intonation and rhythm and the no pronunciation instruction group were taught with a traditional approach. All groups were tested for their production before and after the study. The level of intelligibility and comprehensibility of their production at the beginning and at the end of the course was rated by a team of five American native English speakers. The results of Bouchhioua's study showed that suprasegmental-based instruction was effective at improving the students' intelligibility and comprehensibility, as the ratings showed a significant improvement among the students in the group taught using suprasegmental-based instruction. This type of instruction also proved to be significantly more effective than other types of instruction, as the improvement of the suprasegmental group in comprehensibility and intelligibility from the pre-test to the post-test was markedly higher than that of the other two groups.

These findings were also confirmed by Al-Tamimi and Attamimi (2018) who conducted a study investigating the impact of suprasegmental-based instruction on production of speech by Arab learners of English in a quasi-experimental study. Their study involved 30 Yemeni Arab students learning English as a second language, who received instruction on suprasegmental features for 14 weeks. The participants were tested for their English production before and after the intervention, and their attitudes towards this type of instruction were surveyed. The findings of their study revealed that teaching suprasegmental features can improve Arab English learners' production and enhance their attitudes towards learning English pronunciation.

The literature also shows that suprasegmental-based instruction has a positive impact on improving L2 English learners' perception of speech. For example, Han (1996) found that suprasegmental-based instruction is more effective in helping L2 learners identify sounds and comprehend spoken English, compared to segmental-based instruction. This is because in the former type of instruction, the language is learned in connected speech, while the latter emphasises the importance of learning individual sounds in isolation. Yenkimaleki and Van Heuven (2016) also investigated the impact of suprasegmental-based instruction in improving listening perception of L2 learners. They provided a short, eight-hour pronunciation course, focusing on suprasegmental features, to trainee interpreters for 15 minutes per section for four weeks in Iran, while the control group received no pronunciation teaching. The participants in their study were all tested for their perception before and after the experiment. Their results revealed that teaching pronunciation using suprasegmental-focused instruction can improve the perception skills of the learners of English. Their study further confirmed that the group who received suprasegmental-based instruction improved their perception ability more than the group that did not receive any pronunciation instruction.

Similarly, Khaghaninejad and Maleki (2015) examined the effect of pronunciation instruction on the perception of Iranian learners of English. Khaghaninejad and Maleki's study involved three groups of participants; two experimental groups received, respectively, suprasegmental and segmental instruction, and a control group received no pronunciation instruction. The three groups were tested for their perception before and after the study using Cambridge Key English Test listening materials. The results of their study showed that pronunciation instruction based on suprasegmental features positively impacted the students' listening skills and improved their ability to perceive English production. The groups that received pronunciation instruction also improved the comprehensibility of their English

production more than the group that did not receive any pronunciation instruction. Khaghaninejad and Maleki (2015) concluded that enhancing L2 learners' awareness of intonation, stress, linking and sound discrimination improves their perception abilities and makes them able to perceive English production more accurately. This was also supported by Hussain and Sajid (2015) who conducted a critical review examining the effect of teaching suprasegmental features on comprehensibility of L2 learners. They found that there is a relationship between enhancing learners' awareness of suprasegmental features and their listening skills. Hussain and Sajid (2015) claim that suprasegmental features are of paramount importance in improving learners' perception of English production. However, Hussain and Sajid (2015) urged that there is a need to design pronunciation materials accurately to focus on suprasegmental features, in order to improve L2 learners' perception and production of speech.

This progress in the development of pronunciation teaching, especially in regards to suprasegmental-based instruction, has encouraged researchers from other parts of the world to further investigate its effectiveness with L2 learners of English from different cultural backgrounds. Arab researchers, in particular, have begun investigating the effectiveness of suprasegmental-based instruction on Arab learners' perception and production of speech. They have found this type of instruction to be successful in improving learners' oral proficiency and communication skills (e.g. Alduais & Al-Shamiry, 2013; Bouchhioua, 2016; Al-Tamimi & Attamimi, 2018). However, as mentioned previously, despite the increasing interest of the scientific community worldwide, this type of instruction has not yet been brought to Saudi Arabia. Furthermore, a significant experimental study that explores the effectiveness of the teaching of suprasegmental features on improving Saudi EFL learners' perception and production of speech has not yet been produced. This is the fundamental gap that the present research intends to fill. In recent years, studies predicting that suprasegmental-based instruction would be effective in improving learners' perception and production of speech have been published (Alsofyani & Algethami, 2017; Alsowat, 2017; Alharbi, 2009; Jarrah, 2015; Ababneh, 2018). Other studies have also recently investigated the impact of computer-based instruction on improving learners' awareness of stress (Abu Seileek, 2007) or the impact of using videos to raise learners' awareness of suprasegmental features (Al-Domi, 2017). However, to my knowledge, no experimental study has, to date, provided a complete assessment of using suprasegmental-based instruction to improve EFL learners' perception and production of speech in Saudi Arabia.

The present study investigated the impact of teaching suprasegmental features on improving Saudi learners' perception and production of speech, and enabling them to perceive speech easily and become easily comprehensible to listeners. This study was strongly influenced by successful studies conducted in other parts of the world that have proven the positive impact of suprasegmental-based instruction on L2 English learners' perception and production of speech. The success of these efforts in other parts of the world, especially those trialled with Arab learners of English in Tunisia (Bouchhioua, 2016) and Yemen (Al-Tamimi & Attamimi, 2018) suggest that suprasegmental-based instruction might also have a positive impact on Saudi EFL learners' perception and production and help them comprehend speech with ease and become easily comprehensible in their speech.

It should be noted, however, that although the context of language learning in other Arab countries may be similar to that of Saudi Arabia, certain differences exist. For example, pronunciation is given less attention in Saudi Arabia compared to other Arab regions such as Tunisia and Yemen. Also, the context of Saudi Arabia is more conservative, so the Saudi students might not be trained well to adopt new communicative approaches and methods to learn English pronunciation compared to Arab EFL learners who have already been introduced to more communicative teaching approaches. Therefore, the present study aimed to present the suprasegmental features through interesting and communicative techniques and activities that help in enhancing their motivation toward the suprasegmental-based instruction applied in the course. In addition, the studies undertaken by Bouchhioua (2016) and Al-Tamimi and Attamimi (2018) only investigated the impact of suprasegmental-based instruction on production, while the present study investigated its impact on both production and perception of speech. Therefore, this study aims to fill the remaining gap by providing a thorough assessment of suprasegmental-based instruction on improving EFL learners' perception and production of speech in the Saudi Arabian context.

2.9 Summary of the literature review

In summary, the purpose of this chapter was to shed light on the state of research on current pronunciation teaching methods. It began with a review of the role of pronunciation in oral communication, including definitions and features of pronunciation, goals for pronunciation instruction, and the main concepts related to pronunciation, particularly comprehensibility, intelligibility, accentedness and fluency.

This was followed by a review of the literature regarding how each suprasegmental feature plays an important role in speech and how each is effective for improving learners' perception and production of speech. It showed that knowledge and understanding of stress, intonation, pauses and linking are necessary for L2 learners to become easily understandable speakers and more competent listeners in English. Then, the similarities and differences between the phonological systems of Arabic and English languages were presented, including difficulties faced by Arab learners in terms of English suprasegmental features.

The next section briefly reviewed the main social and psychological factors that influence pronunciation learning and may reduce or enhance the degree of success in language learning among L2 learners. This was followed by a section discussing the relationship between perception and production, and it highlighted how perception is important for production and vice versa. The subsequent section focused on reviewing the most prominent instructional methods, approaches, and techniques that have been developed and popularised for teaching English pronunciation in the last two centuries.

The last section of this chapter included a review of new directions in the field of pronunciation teaching. It showed that suprasegmental-based instruction has gained more attention in pronunciation teaching due to the significant impact of suprasegmental features on speech perception and production. It presented theoretical and empirical studies that have confirmed the usefulness of suprasegmental-based instruction for improving speech perception and production among English L2 learners and identified the research gap: no thoroughly experimentally trialled studies have yet been conducted in Saudi Arabia to investigate the impact of suprasegmental-based instruction on improving the speech production and perception of Saudi EFL learners. The next chapter will present the details of the research methodology used in the present study.

Chapter 3: Research Methodology

3.1 Introduction

The main aim of the present study was to investigate the impact of suprasegmental–based instruction on improving the speech perception and production among Saudi male EFL learners. On the basis of previous research, reviewed in Chapter 2, it was anticipated that this type of instruction would improve Saudi male EFL learners' production and enhance their listening abilities, so they could be more successful when communicating in English with other users of the language.

In this chapter, the research methodology of the present study is described in detail. The chapter explains the research design, where the research was conducted, and the subjects who participated in the study. It describes the procedures and materials used to teach suprasegmental features to the experimental group. It also explains the pre- and post-tests that were given to the participants and the procedures and tools used in the collection and analysis of data. Further, it illustrates the mixed-method design; in particular, how the data were reported qualitatively by theme, and how they were analysed quantitatively through statistical descriptive analysis.

3.2 Research Questions

The present study aimed to investigate whether suprasegmental-based instruction would be effective in improving Saudi EFL learners' perception and production of speech. This research problem was articulated into four research questions:

1. To what extent does suprasegmental-based instruction improve comprehensibility and fluency and reduce accentedness among Saudi EFL learners in spontaneous speech production?
2. To what extent does suprasegmental-based instruction improve comprehensibility and reduce accentedness among Saudi EFL learners in reading aloud production?
3. To what extent does suprasegmental-based instruction improve the listening perception of Saudi EFL learners in terms of their ability to identify words and intonation in English spontaneous speech?
4. What are the responses of both the teacher and the students towards suprasegmental-based instruction?

3.3 Methodology

This study adopted a quasi-experimental, non-equivalent pre- and post-test design, in which only one of two groups received an intervention, while a comparison group did not receive any teaching intervention (Check & Schutt, 2012). A quasi-experimental design was used because it was deemed the most appropriate given the main aim of this study was to investigate the impact of suprasegmental-based instruction on improving Saudi male EFL learners' perception and production of speech. The quasi-experimental design, also referred to as a semi-experimental design, was used to examine the causal effect of an independent variable (suprasegmental-based instruction) and determine whether it caused a change or improvement on two dependent variables, specifically perception and production of speech (Rogers & Révész, 2020).

A quasi-experimental design is similar to a true experimental design as they both are used to investigate the effect of an intervention (Mackey & Gass, 2005; Drummond & Murphy-Reyes, 2018). However, in a quasi-experimental design, the participants of the study are not randomly assigned or selected, whereas a true-experimental design requires a random assignment of participants (Phakiti, 2014; Loewen & Plonsky, 2015). According to Drummond and Murphy-Reyes (2018), the participants in quasi-experimental studies tend to be non-randomly assigned by the researcher into either an experimental group or a control group so they do not have the same chance of being assigned in either of the two groups (Drummond & Murphy-Reyes, 2018). However, Drummond and Murphy-Reyes (2018) further explain that although the groups in quasi-experimental studies are not randomly assigned, the groups under investigation should be comparable so that the differences between the groups can be attributed to the result of the intervention. This was the case with the two groups in the present study.

Quasi-experimental design is usually adopted for its ability to yield valid results through three kinds of validity: internal validity (causal), external validity (generalisability), and measurement (Check & Schutt, 2012). Although true experimental research design is better at achieving internal validity because a direct comparison can be made between control and experimental groups, threats to internal validity in quasi-experimental design can be reduced by ensuring the results of the study are only explained by the independent factor and are not influenced by other factors (Check & Schutt, 2012; Rogers & Révész, 2020). Quasi-experimental design tends to be more favoured than true experimental design in quantitative studies in applied linguistics research because often it is not possible to assign participants

randomly in the study due to the practical or ethical constraints of many research environments (Loewen & Plonsky, 2015). In the case of the present research, a quasi-experimental design was adopted because of the practical constraints present in the institution where this study was conducted.

A typical quasi-experimental study usually uses a before and after intervention design to measure the effectiveness of a treatment (Mackey & Gass, 2005). Rasinger (2013) explains that the effectiveness of a treatment is usually evaluated by comparing the scores of the participants before and after the treatment using a paired sample t-test. Accordingly, the present study administered a quasi-experimental design with pre- and post- tests to investigate whether any improvement on the learners' perception and production of speech was caused by the suprasegmental-based instruction intervention: the test scores of the students before and after the intervention were compared using statistical analysis.

In quasi-experimental study design that involves a control or a comparison group as well as the experimental group, the control group usually receives normal classroom instruction (Rogers & Révész, 2020), that is, the group experiences the conditions typical of, or similar to, what they would regularly experience, as was the case with the quasi-experimental design used in the present study (Rasinger, 2013). The involvement of a control group in the study helps to better examine the effect of the intervention and to determine whether the group that receives the intervention performs significantly better than the other group (Loewen & Plonsky, 2015). Mackey and Gass (2005) explain that in quasi-experimental studies "the control group would typically take the same pre-test and post-test as would the experimental groups but would not have the same treatment in between tests" (p.148).

In a quasi-experimental study, the assignment of participants in a control group is normally done in one of two ways: individual matching, in which participants in the experimental and control groups are very similar on the most important variables; and aggregate matching, in which the two groups have similarities in the aggregate variables, such as average age, learning level and gender, rather than matching individual cases (Check & Schutt, 2012). Although identical matching between groups might not be possible, it is important to ensure that the experimental and control groups are matched as closely as possible (Check & Schutt, 2012). In addition, since the experimental and control groups are similarly tested before and after the experiment, Rasinger (2013) suggests that their performance before and after the teaching are best statistically compared using either independent sample t-test,

one-way ANOVA, Mann-Whitney U test, or Kruskal-Wallis test. These considerations were noted and applied in the present investigation.

3.4 Research Design

The present study involved 32 Saudi male students learning English as a foreign language (EFL) at a private English teaching academy in Riyadh, Saudi Arabia. For the purpose of this study, the 32 students participated in two parallel groups, namely the experimental group and the control (comparison) group. Each group consisted of 16 students and was taught by the same English teacher for the same duration. The control group matched the experimental group in the aggregate variables, such as level of learning, gender, age, number, and the same teacher. Both groups participated in their regular speaking and listening course at the academy for two hours a day for five days a week. However, the experimental group were involved in a four-week intensive course on English pronunciation, with a focus on the suprasegmental features of the language, as part of their regular course at the academy. The course comprised a 40-minute session included at the end of their regular two-hour class, five days a week for a total of 13.5 hours in four weeks. In contrast, the control group participated in the pre- and post-tests without receiving any intervention. The students in the control group only participated in their regular two-hour class that was taught using the institution's standard teaching curriculum at the private English academy, which did not adopt any explicit pronunciation instruction, for the same length of course time.

The present study adopted the quasi-experimental design outlined above, together with a combination of quantitative and qualitative analyses of results of pre- and post-tests in order to measure the impact of suprasegmental-based instruction on any improvement of the experimental group's performance, and in comparison with the performance improvement of the control group in order to determine whether the experimental group performed significantly better than the control group that received no explicit pronunciation instruction.

A mixed approach was chosen in the present study, in order to gain a better understanding of the results. The researcher followed the recommendations of established literature, which suggests that using either a quantitative or qualitative approach alone would not provide an accurate representation of the results, as each has serious strengths and weaknesses (Creswell, 2014). For example, the qualitative approach is a flexible method and uses open-ended responses to provide the participants' views in depth, but it lacks objectivity and accuracy (Choy, 2014). On the other hand, the quantitative approach is an accurate method

that uses closed questions and various strategies and instruments in order to provide statistical data (Creswell, 2003). However, this latter approach lacks flexibility in providing in-depth interpretation of the participants' responses (Choy, 2014). Therefore, a combination of these two approaches should provide a deeper and richer investigation of the data. A combination of these two approaches, Creswell (2003) suggests, can be expected to neutralise the shortcomings of both and allow the researcher to achieve a deeper understanding and more accurate interpretation of the results. Mackey and Gass (2005) and Ali (2011) have argued, respectively, that the use of a mixed approach helps enrich the study and lead to more valuable data; using two different methods for data collection helps reach an agreement between different data sources, which further increases the level of reliability of the data interpretation. Based on these recommendations, quantitative and qualitative methods were combined to achieve a better investigation in this study.

For data collection, both the experimental and control groups were assessed for their perception and production of speech. Survey questionnaires and classroom observations were also conducted in the experimental group class. The quantitative data was collected using spontaneous speech and reading aloud production tests, perception tests in the form of multiple-choice tasks, and a questionnaire with closed questions was given to the students in the experimental group at the end of the course (see section 3.5 for further detail). The qualitative data was collected using open-ended, end-of-course questionnaires that were given to both the students and the teacher, and using the researcher's classroom observation.

The results of both the perception and production tests that were given to both groups before and after the study were analysed quantitatively, using a paired sample t-test to determine any improvement in the performance of the students in the experimental group, as a result of suprasegmental-based instruction, and of the students in the control group, as a result of the institution's standard teaching method with no explicit pronunciation instruction. In addition, a comparison of the levels of improvement in performance of the two groups was undertaken using independent sample t-test and one-way ANOVA. This was done to show whether the difference between the two groups' improvement was significant. Both an independent sample t-test and one-way ANOVA were used to ensure the comparison between the two groups was accurately measured. The statistically significant value used in this study was set at 0.05, which is the value most commonly accepted for significant improvement in second language research (Mackey & Gass, 2005). In addition, an effect size using Cohen's d test to identify the magnitude of the improvement of each group as a result of the type of

instruction used with the group, and between the performance improvement of the two groups in each test was reported. Effect size is defined by Turner and Bernard (2006) as "an index for describing the magnitude of an intervention's effect" (p. 43). The effect size is a statistical measurement used to describe the practical significance in the difference between two means in terms of the standard deviation (Hahn, 2004; Loewen & Plonsky, 2015). According to Loewen and Plonsky (2015) the use of effect size has increased significantly in the last few years, and it has been a requirement for many applied linguistic journals, as it helps researchers to investigate the significant difference in performance in more detail, especially for smaller sample sizes. Mackey and Gass (2005) also note that reporting effect size is important because it provides a better analysis of the research outcomes. Effect size is commonly measured using Cohen's d values: an effect an effect size of 0.2 is considered as a small effect size, an effect size of 0.5 is considered as a medium effect size, and an effect size of 0.8 is considered as a large effect size (Mackey & Gass, 2005). However, it should be noted that in the current study, effect size will only be reported with significant results.

In addition, the results of the students' survey questionnaires were analysed quantitatively and qualitatively, using descriptive and thematic analysis, respectively. Both the teacher's feedback questionnaire data and classroom observations data were analysed qualitatively, using thematic analysis. Gathering information qualitatively from the participants helps in collecting a broader image about the effectiveness of the intervention (Kothari, 2004).

3.4.1 Location of the study

This study was conducted in a private English teaching academy in Riyadh, the capital city of Saudi Arabia. The academy is one of the largest education and training schools in Saudi Arabia, and has three branches in the Kingdom, in Riyadh, Jeddah, and Dammam. Hundreds of Saudi students learn English as a foreign language at the academy. They are either enrolled in extensive English curricula, with courses focused on basic skills (listening, speaking, reading and writing), or they participate in intensive short courses aimed at the development of specific competencies, such as public speaking, giving personal interviews, and formal letter writing.

At the academy, courses are held five days a week for four weeks, and classes follow a skills-based communicative curriculum, with one two-hour class on speaking and listening (with no explicit pronunciation teaching) and another two-hour class on reading, writing, and grammar, for a total of 10 hours per week for each class. The teaching materials used in the

standard curriculum taught at the academy are mostly taken from the *New Headway* and *Qskills* book series, among others. Although the text books contain specific instruction in pronunciation, these lessons are given scant attention at the academy. Teachers working at the academy are from diverse countries and hold diverse expertise. Arabic teachers from countries such as Jordan, Syria, Sudan and Egypt teach English at the beginner level and assist Saudi students in their native language using methods similar to the Grammar Translation Method. Native English teachers from countries such as the United Kingdom, Australia, America, Canada and South Africa, teach at the higher levels. Before being appointed, all teachers are required to take a Validity Test administered at the academy, which assesses their academic qualifications, linguistic competence and teaching skills.

This English teaching academy was selected for the study as it is one of the largest educational and training schools in Saudi Arabia and has been recognised by the Ministry of Education (MoE) as an international center for testing IELTS and TOEFL exams in Saudi Arabia. However, English pronunciation teaching is usually given little attention at the academy.

3.4.2 Ethical dimensions of the study

Prior to the data collection, an Ethics Application form was submitted to the Human Research Ethics Committee (HREC) at the University of Canberra (Australia). The researcher sought approval to conduct field research between January and March, 2017. In addition, a formal invitation letter was sent to the General Manager at the private English teaching academy to obtain permission to conduct the intensive course on suprasegmental features in their institute and have students and one teacher participate in the study. The potential participants, both students and teacher, were supplied with information describing the procedures and purposes of the study. According to Mackey and Gass (2005), the participants of any study need to be adequately informed about the procedures and purposes of the research, and also the benefits and potential risks to help them make their decisions about participating in the study. Therefore, it was clearly explained to the participants what they would be required to do and the type of instruction that would be used in the experiment. They were also assured that their participation in the study was completely voluntary and students could, without any penalty, decline to take part or withdraw at any time without providing an explanation, or refuse to answer a question. In addition, all their questions were answered clearly and to their satisfaction. In addition, the participants were assured that their individual information would

be kept confidential, reporting the results would contain no information that could identify any individual and all information would be kept in the strictest confidence. Finally, both the students and the teacher signed consent forms to participate in the study.

3.4.3 Participants of the study

After the permission was obtained, the head of the English department at the academy called for volunteer teachers to participate in the experiment. Only native English teachers were invited to participate in the study because Arab English teachers only teach English at the beginner level at the academy, and they had little or no experience in teaching English pronunciation as had been advised by the head of English department at the academy. The particular teacher who became involved in the research was selected because he was eager to participate in the study and had considerable experience in teaching English pronunciation. The teacher was also highly recommended by the Head of the English department due to his teaching skills and experience. This teacher, a native English speaker from Canada, was asked to teach both the control and experimental groups. This was requested by the researcher in order to maintain consistency in the teaching of English to all the students participating in the study and to avoid any unreliability in the results produced.

The participating teacher was recruited to teach both groups for five 40-minute daily classes for four weeks, 13.5 hours in total, as part of his usual duties. Before his involvement in the study, the teacher was clearly informed about the nature and aims of this research project. He was also supplied with all the suprasegmental course materials from the *English Pronunciation in Use, Intermediate Level* (Hancock, 2013), as well as lesson plans for the lessons (see Appendix 1). The researcher also maintained contact with the teacher before and during the intervention, to make sure the teacher could follow the guidelines provided for him for teaching the course. Before signing the consent form, the teacher was also told that his involvement in this study would be on a voluntary basis, and there would be no financial compensation beyond his normal salary. The teacher's questions about his role and the study were fully and clearly answered before starting the experiment.

After that, students at intermediate level were then invited to participate in the study. The researcher intended to assign those who showed their interest in participating in the study into two groups to conduct the experiment for both groups at the same time. However, due to time restrictions at the academy, teaching two groups in the same time period by the same

teacher was not possible. Therefore, in order to make it possible for both groups to be taught by the same English teacher the experiment had to be conducted in consecutive time periods. This also helped to avoid the students in the two groups communicating about the experiment outside class, which may have affected the validity of the study, as noted by Rogers and Révész (2020). Therefore, the students who showed interest in participating in the study in the first term (in January) were assigned to the control group and were taught in their regular course between 15 January 2017 and 9 February 2017. In the second term (in February), students at the same intermediate level were invited to participate in the experimental group and were taught using suprasegmental-based instruction between 12 February 2017 and 9 March 2017. The experiment started with the control group so that the teacher's practice in that group would not be influenced by his teaching of the experimental group. The researcher also had initially hoped to involve a larger sample size in the study, however the students at the intermediate level at the academy were limited in number at that time, so it was not possible to involve more interested students in the study.

Nevertheless, the final number of participants was considered adequate since other pronunciation studies (e.g. Zhang, 2006; Gordon, Darcy & Ewerd, 2013; Saito & Saito, 2016; Levis & Levis, 2018) have used a similar sample size. For example, the study by Saito and Saito (2016) involved 20 Japanese university students, learning English as a second language, who were divided into an experimental group (N=10) and a control group (N=10). The study examined the efficacy of suprasegmental-based instruction in improving the students' comprehensibility and the development of some suprasegmental features, such as word stress, intonation and rhythm. Saito and Saito's (2016) study showed that the experimental groups' comprehensibility significantly improved as a result of suprasegmental-based instruction. Moreover, MacDonald (2018) points out that pronunciation training might work better with small groups than large groups, because that enables the teacher to check each student's performance.

As mentioned previously, the participating students in both groups were all at intermediate level and were aged between 17 and 28 years-old. They were all native Arabic speakers and all had enrolled in an extensive English course at the academy with the primary aim of improving their communicative competence in English. All the students participating in the study, both in the control and experimental groups, shared similar characteristics, such as all were Saudi citizens, and all were already learning English in Saudi Arabia. In addition, the students of both groups were assessed by the academy at the beginning of the course as

intermediate (Level 5). No other factors other than their language proficiency, were considered, for example factors such as educational level, motivation or desire to improve pronunciation.

During the course, the students attended their classes regularly with very little absenteeism; the attendance level was about 97%.

3.4.4 The teaching intervention

The type of instruction adopted in the present study emphasised the importance of teaching suprasegmental features to improve the students' perception and production of speech so they can easily understand speech and become easily understood when engaging in oral communication using English. Accordingly, the intensive suprasegmental-based course was administered to the students in the experimental group in 40-minute long lessons, for four-weeks, as part of the standard course taught at the academy. It focused in particular on enhancing the students' knowledge about suprasegmental features, in order to help them process speech clearly and easily, and produce speech that is easily processed by listeners.

Before commencing any pronunciation course, it is desirable to conduct a needs analysis so as to determine the precise pronunciation needs and desires of the student group (Derwing & Munro, 2015). This is commonly done by conducting a diagnostic test that helps to prioritise the pronunciation features that met the students' pronunciation needs and desires, and could most effectively impact their speech perception and production and help them become more successful in their oral communication (Saito & Saito, 2016). However, due to time constraints, conducting a diagnostic test for the students' pronunciation difficulties accurately was not possible in this study. Therefore, the researcher relied on the recommendations of the head of the English department at the academy and the native English teacher who participated in teaching the course as well as the recommendations of previous studies conducted on Saudi EFL learners to make a selection of the suprasegmental aspects that would be addressed in the course.

Previous researchers who have analysed the pronunciation difficulties that Saudi learners of English encounter when communicating in English (e.g. Basalamah, 1990; Abu Seileek, 2007; Alharbi, 2009; Hamouda, 2013; Bataineh & Al-Qadi, 2014; Jarrah, 2015; Al-Ahdal et al., 2015; Al-Domi, 2017) have recommended the teaching of suprasegmental features of English, including word and sentence stress, intonation, rhythm, linking and pauses, to improve Saudi learners' perception and production of speech. The students involved in these

previous studies were similar to those who participated in the current study in terms of first language background, lack of familiarity with suprasegmental features, and level of language competence. Therefore, it was anticipated that the pronunciation difficulties of students in the present study would be generally similar to those identified in the previous research. In addition, in order to better understand the students' pronunciation difficulties, the researcher met with the teacher and the head of the English department at the academy, both of whom knew the academy students' level of proficiency and their needs well, before making final decisions about what pronunciation features to include in the course. Both the teacher and the head of the English department explained that the students lacked an understanding of English suprasegmental features, and this often meant they were unable to understand speech easily and their speech was difficult to understand. The recommendations of the teacher and the head of the English department were consistent with the recommendations of previous studies. As a result, a range of suprasegmental features such as word stress, sentence stress, linking, intonation patterns and pauses were chosen to be the focus of the suprasegmental-based course. A full inventory of the features addressed in the course is presented in Appendix 2.

The teaching materials used for the course were based on *English Pronunciation in Use, Intermediate Level* (Hancock, 2013). The materials included theoretical explanations of the target features, recordings of authentic language use, for example short conversations produced by native English speakers, short stories, and songs, and aimed to facilitate the use of spoken language in English conversation as well as exercises which the students could do in class or as homework. The materials were presented through interactive activities and techniques to facilitate their delivery and make learning more effective (Yates, 2002). A range of fluency-building activities (ie. Short conversations), accuracy-oriented exercises (ie. Listen and repeat) and multisensory learning techniques (ie. Visual, auditory and physical techniques) were used to enhance the teaching of the suprasegmental features targeted in the course following the advice of Albiladi (2019) who stresses that pronunciation instruction should involve many interesting and engaging activities in order to enhance motivation and hence pronunciation learning.

Activities of this kind have been claimed to be effective in improving learners' speech production and listening perception (e.g. Richards & Rodgers, 2001; Yates, 2002; Gilbert 2008; Yates & Zielinski, 2009; Celce-Murcia et al., 2010; Lane, 2010). Brown (2007) argues that a successful classroom is one that involves different learning styles, as learners have different preferences about learning strategy. Some learners might prefer visual aids, such as reading

from a whiteboard, charts and drawings, while others might prefer auditory aids, such as listening to the teacher or an audio file. Other preferred styles of content delivery are kinesthetic or physical techniques, including using hand movements and clapping. Therefore, each lesson in this course involved teaching techniques and activities that were aimed at helping introduce the suprasegmental feature addressed in the lesson effectively.

Each 40-minute lesson in the course was structured based on four processes: (1) Explanation process; (2) Perception process; (3) Practice process; and (4) Production process.

(1) Explanation Process

The literature shows that Saudi learners generally have little understanding of the suprasegmental features of English (Abu Seileek, 2007; Hamouda, 2013; Jarrah, 2015; Al-Ahdal et al., 2015; Al-Domi, 2017; Misfer & Busabaa, 2019). To account for this, the classes in the suprasegmental-based course were structured based on a dual-focus approach in which the features in focus were introduced theoretically in a controlled setting before the students were engaged in communicative activities (Darcy, 2018). According to Ellis (2015) this form of explicit instruction is preferable with older language learners and can lead to satisfactory results. Venkatagiri and Levis (2007) also noted that explicit teaching of pronunciation is effective, and found that for adult learners, prior phonological awareness can lead to better perception and production performance. In addition, Saudi students, according to Alghazo (2015), prefer to receive an explanation about the target feature before being engaged into practice believing that doing this would help them use the feature effectively. Therefore, each lesson in the course started with an explicit explanation about the suprasegmental feature being taught to raise the learners' awareness.

For example, in the lesson about silent pauses, the teacher first explained the role of silent pauses in speech and how they contribute to organising speech such in a way as to make the speaker sound fluent and comprehensible. The teacher also explained that speakers tend to pause after thought groups, before and/or after names, and when separating additional information in a sentence. After that, the teacher wrote on the board and played some examples to direct the students' attention to pauses in speech. A similar technique was used in other lessons of the course, and each feature was similarly presented and explained thoroughly to learners using audio and visual tasks before engaging the students in practice using communicative activities. This process of explanation took approximately eight minutes, to

make sure the students received a thorough explanation of the feature which would be practiced communicatively later in the lesson.

(2) Perception Process

Next, the perception process aimed at enhancing the students' perception of the suprasegmental features of English speech production. In each lesson, this process took place for about five minutes. Audio files containing conversations and short stories were played to the students. The students listened carefully to the content of the conversation or the story with the script in front of them. Then, the teacher played it again and directed their attention specifically to the target feature. This process was intended to help the students improve their perception skills by directing their attention to specific suprasegmental features in English connected speech. Enhancing the students' perception of the suprasegmental features would help them perceive running speech in English clearly and easily.

As discussed in the literature review (Section 2.6), perception and production are two interrelated skills, so that pronunciation instruction can help in improving listening abilities and vice versa (Vandergrift & Goh, 2009; Adams-Goertel, 2013; Darcy, 2018; Lee, Plonsky & Saito, 2020). Lee et al. (2020) state that helping learners perceive speech accurately and clearly would help them produce more accurate and comprehensible speech. Darcy (2018) also points out that improving learners' perception is necessary in pronunciation instruction because it helps them improve their comprehensibility of speech and positively impacts their production. Jones (1997) also argues that pronunciation teaching methods must aim at raising the learners' awareness of the forms of the target language production by exposing them to perception activities. Therefore, in the present study, attention was also paid to improving learners' perception abilities to help students have better input for English native speaking production and to lower the level of stress and anxiety that they normally bring to class. It was hoped that this process would, therefore, provide the learners with more exposure to the language, allow them to be more receptive to language production, and then be able to produce more comprehensible and intelligible output.

(3) Practice process

After the explanation and perception processes, the students were encouraged to practice the suprasegmental feature in focus through a sequence of scaffolded activities. This

involved providing initial support to the students to familiarise them with the tasks to be completed in the course, and then encouraging them to do the tasks independently with the teacher only providing support when necessary (Hammond, 2001). At first, the students were asked to repeat after the teacher or an audio recording, to activate their conscious and unconscious learning processes. For example, when teaching sentence stress, the teacher used non-verbal vocable techniques (ie. la la la & na na na) to direct the students' attention to the content words in the sentence, and asked the students to repeat after him. Yates (2002) argues that non-verbal vocables are effective when the students are taught the weak and strong forms of stress, so they can practice the rhythm of sentences using stressed and unstressed syllables. An example of a non-verbal vocable activity used is the following. The teacher, for example, asked: **Tea** or **cof**fee**?** (**La** la **La** la), then he added more phrases to the sentence: Do you want **tea** or **cof**fee**?** (la la la **LA** la **LA** la?). The students were required to repeat the phrase and the rhythm of the phrase after the teacher. In addition, the teacher used kinaesthetic gestures, which he asked the students to repeat after him. These included clapping and raising hands or beating feet on the ground to highlight the rising or falling of tones, as well as word and sentences stress. A variety of techniques best suited to the suprasegmental feature in focus were suggested in the lesson plans provided for the teacher. The use of different techniques helped the students clearly understand the features being taught. This process took approximately 12 minutes in each lesson.

(4) Production Process

In the final part of the lesson, the teacher encouraged the students to be proactive in practicing the taught features, while he provided limited assistance. In this process, the students were engaged in pair and group activities while the teacher walked around the groups and provided feedback. They practiced short conversations, recorded themselves and then evaluated their own and each other's production. In some lessons, the teacher divided the students into two teams and had them play a ping-pong game. In this game, a player of one team would throw the ball to another player from the opposite team. Then they would test each other's production by asking and answering questions. In addition, the students provided feedback on their own production and corrected each other in pair and group activities. According to Alghazo (2015), providing students with immediate feedback on their pronunciation errors would help them become aware of their own strengths and weaknesses and learn better. This process took approximately 15 minutes in each lesson.

3.5 Data collection and analysis

In the present study, as described in section 3.4.3, the data was collected through four instruments, including perception and production tests, survey questionnaires, and classroom observation.

The same perception and production tests were used before and after the course, to increase the reliability of the results. The production tests consisted of a spontaneous speech task, in which the students were required to describe one of four pictures of famous places in Saudi Arabia, and a reading aloud task taken from the *Connected Speech* e-book (Protea Textware, 2009) (see appendices 3 and 4).

The perception test (see appendices 5 and 6) was composed of two parts. The first part aimed to assess the students' ability to correctly perceive and identify words in English connected speech as a result of suprasegmental-based instruction. The second part aimed to assess the impact of this type of instruction on improving the students' ability to correctly perceive and identify the speaker's intonation in English connected speech, because, as mentioned previously, failing to perceive words and intonation patterns in spontaneous English speech may cause difficulties in oral communication.

In addition, the experimental group was asked to complete an end-of-course questionnaire designed to record their attitudes and beliefs about the suprasegmental based course. The questionnaire was presented in both Arabic and English and consisted of seven closed questions and four open-ended questions (see appendix 7).

The native English teacher was also asked to complete a questionnaire consisting of four open-ended questions intended to survey his opinions and impressions about the suprasegmental-based instructional course (see appendix 8).

Finally, the researcher attended the classes taught by the teacher every day as an external observer, and recorded how the students in the experimental group reacted to the suprasegmental-based course.

3.5.1 Production tests

The same production tests were conducted before and after the study, using two test types:

- First, the students in both groups were asked to talk spontaneously, for one minute, about a picture. They were invited to choose one of four given pictures (see appendix 3) all of which represented familiar places or events in Saudi Arabia.
- Second, the students were asked to read aloud a passage taken from the *Connected Speech* e-book (Protea Textware, 2009) (see appendix 4).

The picture description elicited a free task and the reading aloud task elicited a controlled speech task. The students were recorded while performing each task, using a Philips MP3 high quality digital recorder in a quiet room in the academy. The students were recorded one by one, to avoid any noise or distraction that may have affected the quality of the recordings.

The choice of this combination of tests for the production tasks, as well as the choice of relevant content used, was made on the basis of scholarly literature, which shows that a combination of tests is more effective in obtaining accurate results on learners' production. Reading aloud tasks are most commonly used in pronunciation assessment (in almost 73 percent of L2 pronunciation studies) (Derwing & Thomson, 2014), however an ideal study would combine reading aloud with a spontaneous speech task for assessing learners' pronunciation abilities because the latter provides a better reflection of natural communication and more extensive information about whether improvement in comprehensibility has occurred in the learners' production (Morley, 1994; Levis & Barriuso, 2012; Derwing & Thomson, 2014). Therefore, this study used a combination of both reading aloud and spontaneous speech tasks to assess the students' production using a reading text and prompt pictures that were considered appropriate to their level.

Ferris (2010) also argues that the tasks used to evaluate the production proficiency of non-native speakers should be flexible, reasonably fair, applicable, and realistic for the participants. For this reason, the pictures used in the spontaneous speech task portrayed famous places and events in Saudi Arabia which the students were familiar with and could describe easily. The pictures chosen for this task were the Holy Mosque in Makkah City; an aerial view of Riyadh city; a composition of a carafe of coffee, copper cups and a bowl of dates; and the Vision 2030 logo (see Appendix 3). In addition, the text chosen for the reading aloud task was taken from *Connected Speech* (Protea Textware, 2009). The text consisted of 108 words and it was used to avoid any grammatical and vocabulary errors that might make the students unable to process their speech, and affect the listeners' judgment of their production. It was also chosen because it was anticipated that it was appropriate to the students' level of English proficiency (see Appendix 4). According to Derwing and Munro (2015) students might be disadvantaged

when they are provided with a text that is beyond their level of proficiency because the reading aloud is a specialised skill. Furthermore, to increase the reliability of the results, the text and the pictures used for the production test at the beginning of the course were the same as the ones used at the end, without including them in the materials used during the course. Derwing and Thomson (2014) note 'it is preferable to avoid using test items during instruction to determine whether learners can generalize on the test' (p. 12).

3.5.1.1 Production tests: evaluation criteria

As mentioned in chapter 1, the present study assessed the impact of suprasegmental-based instruction on the production of Saudi EFL learners in spontaneous speech production based on three dimensions, comprehensibility, fluency and accentedness, as had been done in previous studies (e.g. Derwing et al., 1998; Derwing & Rossiter, 2003; Kennedy & Trofimovich, 2010; O'Brien, 2014; Trofimovich et al, 2017; Galante & Thomson, 2017).

In assessing the students' reading aloud production, the present study also focused on comprehensibility and accentedness. However, fluency in reading aloud speech was not assessed because fluency aspects, such as filled and unfilled pauses, hesitation, speech rate, false starts were infrequent in the students' reading aloud production. In addition, reading aloud is not considered to be natural speech and the reading aloud task did not require the students to search for vocabulary and grammatical forms to express their meanings and they were provided with a text that included punctuation marks which helped them avoid any dysfluencies in their production. According to Cucchiarini, Strik and Boves (2002), L2 learners tend to be more fluent in reading aloud tasks than in spontaneous speech tasks because learners can easily control their fluency when reading a text. Similarly, Isarankura (2013) and Wagner and Toth (2017) noted that L2 readers encounter fewer problems with fluency features when reading a text because most of the planning and organizational characteristics are not present in reading aloud production as they are in spontaneous speech production.

Furthermore, these fluency features have been found to be more related to spontaneous speech production than reading aloud speech (Cucchiarini, Strik & Boves, 2002; Lee, 2014). Wagner and Toth (2017) add that hesitation markers, which include filled and unfilled pauses, false starts, repetitions and self-corrections are characteristics of spontaneous speech production because they tend to be more common in unplanned speech than planned speech as in a reading aloud production. They also point out that speech rate is not a good predictor of

perceived fluency in reading aloud production because a slower speech rate tends to be more comprehensible and intelligible than faster speech. Therefore, the current study, unlike other studies that used fluency in the evaluation of the learners' reading aloud production (Kennedy & Trofimovich, 2010; Trofimovich, et al., 2017), followed Derwing et al. (1998), Kraut and Wulff (2013), and Isbell (2018) who used only comprehensibility and accentedness as criteria for evaluating the students' reading aloud production. Derwing et al. (1998) explained that fluency was not assessed in the reading task because the task did not require spontaneous generation of the language, and thus improvement in fluency would be minimal in the students' production.

3.5.1.2 Production tests: evaluation procedures

The evaluation of the students' production involved 11 native English-speaking listeners who were invited to assess the speech of each participant in spontaneous speech and reading aloud production. This method of human judgment is common and used in most pronunciation assessment studies (e.g. Derwing & Rossiter, 2003; Derwing, Thomson & Munro, 2006; Isaacs & Thomson, 2013; O'Brien, 2014; Kang, Vo & Moran, 2016; Galante & Thomson, 2017; Trofimovich et al., 2017). The researcher purposely did not participate in the evaluation of the students' production, so as to avoid any bias in the results. Therefore, an advertisement was placed on the faculty website calling for native speakers of English to participate in the study who had little or no exposure to Saudi English accent, with reasonable linguistic awareness, and a willingness to participate in the study, to apply for participation. After that, 11 native English speakers showed their interest to participate in evaluating the students' production in both spontaneous speech and reading aloud tasks. The criteria followed in choosing the raters were similar to other pronunciation studies. According to Yan and Ginther (2018), in most pronunciation studies, listeners are recruited for evaluating production based on characteristics like: no previous exposure to the accent, no familiarity with the speech topic, attitude, motivation, language proficiency and linguistic awareness. The 11 listeners who showed their interest in participating in the current study were native Australians pursuing a postgraduate degree in TESOL at the University of Canberra, and included eight females and three males aged between 25 and 40. They were all interested in language teaching, motivated to participate in the evaluation, had no familiarity with the topics used for the production tasks, and limited exposure to the Saudi accented English.

The listeners were provided with a survey questionnaire in the beginning of the listening session, and were asked about their qualifications, teaching experience, pronunciation assessment experience, and exposure to Saudi Arabian accented English (see Appendix 9). All listeners, except one, indicated that they had had no previous experience in L2 pronunciation assessment, and all had no or limited teaching experience. In addition, although the listeners stated that they had regular contact with nonnative speakers of English, they indicated that they had no or limited exposure to Saudi accented English. Further, the listeners were not provided with any formal training in L2 pronunciation evaluation, and none had been engaged in the evaluation of Arab English learners' pronunciation before. Also, none of the listeners had any hearing or language problems, nor had any studied Arabic. Previous studies (e.g. Derwing & Munro, 1997; Derwing et al., 2004; Derwing & Munro, 2006; Isaacs & Thompson, 2013) have revealed that untrained raters are reliable for assessing L2 speech for comprehensibility, accentedness and fluency. Therefore, in the present study, untrained native English raters who had an interest in linguistics and minimal teaching experience were involved in order to achieve reliable results and ensure consistency in their ratings.

3.5.1.2a Preparation of the recordings

The speech samples of both pre- and post-tests from both the reading aloud and spontaneous speech tasks were saved individually. Then, following Derwing et al. (2004), the speech samples in both tasks were shortened to 30 seconds to reduce potential mental fatigue if listeners had to rate lengthy recordings. Previous studies (e.g. Derwing et al., 2004; Derwing et al., 2007; Trofimovich et al., 2017; Galante & Thomson, 2017) have used the first 20-30 seconds from each speech sample for assessment, excluding false starts and hesitations from the beginning of each speech sample. According to Isaacs and Thomson (2013) raters can make reliable judgements when they listen to 20-30 second speech samples. Speech samples of 30 seconds were used in the current study due to the presence of some fluency markers in the students' production which might make assessing comprehensibility and accentedness more difficult in a 20 second speech sample, and thus make judgment less reliable.

It is also necessary to note that to make the evaluation of the students' reading aloud production accurate and comparable across all the students, the first 4 sentences from the text were extracted for the evaluation (20-30 seconds each). Due to individual differences in terms of reading proficiency, learners would vary in the speed of their reading. Therefore, it was assumed that making all speech samples comparable would make the evaluation more accurate.

After that, each speech sample was assigned a code and the recordings of the experimental and control groups for each task were mixed together in one folder, and then randomised differently for each listening session. Randomising the speech samples aimed to help to avoid that the same audio files occurring at the end of identical lists to be rated with less accuracy due to the listeners having mental fatigue as a result of the length of the listening sessions.

After the speech samples were prepared for evaluation, the listeners were invited in small groups (2-3 listeners each) to a quiet room in the university library with a loud speaker connected to the computer. The nature of the research and what listeners were required to do was explained to all of the raters to ensure they all clearly understood the rating task. This procedure was carried out to avoid any misunderstandings in the scaling techniques, which might lead to unreliable results (Southwood & Flege, 1999). In addition, the listeners were told that the spontaneous speech task would be evaluated for the dimensions of comprehensibility, accentedness, and fluency, while the reading aloud production would be evaluated for only comprehensibility and accentedness. After that, the listeners were then given brief instructions of how the rating task should be performed. Only limited instruction about the three dimensions was given to avoid any influence on their judgement of the production. The instruction also included brief definitions of the dimensions under evaluation (see Appendix 10). In addition, evaluation sheets were developed for evaluating the participants' production in the spontaneous speech task and their production in the reading aloud task. However, it is important to note that the listening sessions for the spontaneous speech and reading aloud tasks were done on two separate days to avoid any fatigue or confusion in the rating task.

In each session, the listeners listened to 64 speech samples, and the evaluation sessions took about 2 hours each. However, a mandatory break was given at mid-point after the raters completed listening to 32 speech samples to give them some time to rest and avoid any fatigue. Drinks and snacks were also provided for listeners in the break.

3.5.1.2b Production rating scales

In both tasks, the variables assessed were evaluated based on a Likert scale from 1 to 9, wherein 1 indicated the minimum and 9 the maximum score (see Appendix 10). In consistency with previous studies, the scales were designed with only endpoint labels with no rating descriptors between the scaling endpoints. Previous studies have typically used different

scale points for L2 pronunciation assessment, five-point scales (e.g. Isaacs & Thomson, 2013; Sereno et al., 2016) seven point scales (Southwood & Flege, 1999; Derwing et al., 2007; Rio, Juan-Garau & Pérez-Vidal, 2018), nine point scales (Derwing et al., 1998; Derwing & Rossiter, 2003; Derwing et al., 2004; Kang, Vo & Moran, 2016; Galante & Thomson, 2017; Shepard, Elliott & Baese-Berk, 2017; Isbell, 2018), and more recently a 1000 point sliding scale has been used (Crowther et al., 2015; Crowther et al., 2017). However, a nine-point scale is the most commonly used scale in L2 pronunciation research (Isbell, 2018). It has also been shown to be more practical, easier to use, more reliable, and make the results comparable to other studies (Isaacs & Thomson, 2013; Thomson, 2018; Munro, 2018; Isbell, 2018). Munro (2018), for example, compared the use of different scale points, and found that a nine-point scale is easier to use by raters and yields reliable results. Thomson (2018) further notes that although the use of different point scales has been shown to yield reliable results, the use of a 9-point scale is more highly recommended due to its ease of application in L2 pronunciation studies. Derwing and Munro (1995) also note that the use of a 9-point scale is effective in assessing the production of nonnative English speakers. In addition, Southwood and Flege (1999) point out that it is important to use at least a nine-point Likert scale because it usually yields accurate and satisfactory results. Similarly, Saito, Webb, Trofimovich and Isaacs (2015) thought that "by using simple 7- or 9-point Likert-type scales, raters can reliably judge various linguistic domains of L2 speaking performance" (p.5).

Therefore, in the present study, a nine-point scale was used in order to make the assessment consistent with the majority of evaluation approaches used in research (e.g. Munro et al., 1998; Derwing & Rossiter, 2003; Trofimovich & Isaacs, 2012; Isaacs & Thomson, 2013; Kang, Vo & Moran, 2016; Galante and Thomson, 2017; Shepard, Elliott & Baese-Berk, 2017). The listeners were encouraged to use the whole range of the scale by writing a number between 1 and 9 in the evaluation sheet for each speech sample on each variable being assessed. It should be noted that previous studies have varied in terms of the direction of the 9-point scale. For example, Derwing et al. (1998), Derwing and Rossiter (2003), Kennedy and Trofimovich (2008), O'Brien (2014), Saito, Trofimovich and Isaacs (2016), Galante and Thomson (2017) followed Derwing and Munro (1995) in setting 1 as the highest score and 9 is the lowest, while, Trofimovich and Isaacs (2012), Isaacs and Thomson (2013), Kang, Vo & Moran (2016), and Shepard, Elliott & Baese-Berk, (2017) used the opposite and made 1 the lowest score and 9 the highest. In the current study, however, the direction of the scale where 1 is the lowest and 9 is the highest was followed in consideration of the fact that the listeners had no previous

experience in pronunciation assessment, and the use of the other direction might not be clear or be clearly understood by them.

At the beginning of the rating sessions, as mentioned previously, the listeners were shown the pictures that the students' production was based on to familiarise themselves with the task and were allowed to ask questions about the pictures. However, the text used for the reading aloud task was not shown to the listeners because it was thought that familiarizing them with the text would influence their judgements, and possibly lead them to predict and anticipate the difficulties that would occur in the students' reading aloud production. This would make their judgement less reliable. In addition, the listeners were provided with two samples of native speakers' production from each task, and they were asked to rate these two samples based on the aforementioned variables. This was done as a warm-up to ensure that there is an agreement among listeners in terms of understanding of the three dimensions under evaluation and the nature of the task (Munro & Derwing, 2006; Galante & Thomson, 2017). After that, the speech samples were played one by one with a pause of 5-10 seconds after each speech sample to allow the raters to note their scores.

To evaluate **comprehensibility**, the listeners were told that this term is associated with effort and speech processing difficulty (Derwing, 2017), and the goal is to assess the degree of effort that listeners need to make in understanding the speech samples following Derwing and Munro (1995). According to Derwing et al. (2007) comprehensibility is defined as the degree of ease and difficulty for a listener to understand L2 accented speech. Therefore, the listeners' perception of how easy or difficult for it is them to understand the students' production was evaluated in this dimension. The listeners were asked to rate the students' production by writing a number between 1 and 9, where 1= Very hard to understand and 9= Very easy to understand (Derwing & Munro, 1995; Derwing, Munro & Wiebe, 1998, Derwing & Rossiter, 2003, Derwing & Munro, 2006; Kennedy and Trofimovich, 2008; O'Brien, 2014; Saito, Trofimovich & Isaacs, 2016; Galante & Thomson, 2017) (see Appendix 10).

The listeners also rated the students' **accentedness** in spontaneous speech and reading aloud tasks. Accentedness refers to "the extent of the differences between native speaker and non-native speaker productions" (Munro & Derwing, 2006, p. 521). In the rating information sheet, accentedness was defined as "A listener's perception of how different a speaker's accent is from that of the L1 community" (Derwing & Munro, 2005, p. 385). No further direction was given to the native listeners, as was done by Munro and Derwing (2006), to ensure that their

judgement was not influenced by the information given. According to Derwing and Munro (2009) native listeners can easily detect the presence and absence of a foreign accent. Therefore, the native listeners involved in the present study were asked to evaluate the degree of the foreign accent present in the Saudi EFL students' production. Similar to comprehensibility, accentedness was rated using a 9-point Likert scale, where 1= Very strong foreign accent and 9 = no foreign accent at all (Derwing & Munro, 1995; Derwing & Munro, 2005; Munro & Derwing, 2006; Galante & Thomson, 2017). (see Appendix 10)

The listeners also rated the oral **fluency** of the students' production in the spontaneous speech task. Oral fluency, also referred as automaticity of production, is important for successful communication (Derwing et al., 2007). Fluency is interpreted in L2 pronunciation studies as the listeners' judgement of the fluency of a speaker based on their perceptions of how smooth the speaker's speech is (Bosker, et al., 2012; Tavakoli, Campbell & McCormack, 2016). According to Derwing et al. (2007), listeners' perception of fluency is negatively affected by the speaker's filled pauses, excessive pausing, pausing in inappropriate places, false starts and a slow speech rate. Bosker et al. (2012) also note that there are many aspects which contribute to making speech sound fluent and which influence listeners' judgement of the speaker's fluency, which include pausing, speech rate, repetitions and self-corrections, etc. As mentioned in the literature review chapter, fluency in this study is used to refer to the fluidity of speech or speaking the second language with ease and without hesitations, despite having limited grammatical ability, limited knowledge of vocabulary or poor pronunciation (Thomson, 2015).

Therefore, fluency, in the current study, was rated based on the degree to which speech was smooth and flowed easily without pauses, false starts, repetitions, corrections and very slow or very fast speech rate (Derwing & Munro, 2015). In addition, the raters in this study were told that in their evaluation they should only take into consideration the students' fluency in terms of the flow and smoothness of speech, and that overall proficiency, including the use of grammar and vocabulary, should not be taken into consideration. This was done following the directions used by Derwing et al. (2004), Derwing et al. (2007) and Galante and Thomson (2017). So, the raters were told to focus on temporal variables such as pauses, false starts, and self-repetitions, self-corrections, inappropriate speech rate that may occur in the students' production and their overall flow of speech (Galante & Thomson, 2017). As with comprehensibility and accentedness, fluency was also rated using a 9-point Likert scale where

1= extremely dysfluent and 9 = very fluent (Derwing & Rossiter, 2003; Derwing et al., 2004; Galante & Thomson, 2017). (see Appendix 10)

After the native listeners completed their evaluation of the students' spontaneous speech and reading aloud productions, they were thanked for their participation in the study and each received a payment of 100 Australian dollars as compensation for their time. After that, the evaluation sheets were collected from the raters and the scores were analysed to determine the impact of suprasegmental-based instruction on the students' production. In particular, as mentioned in section 3.4, the scores of the experimental group were analysed using a paired sample t-test, to investigate whether suprasegmental-based instruction can help students significantly improve their spontaneous speech and reading aloud production. This was done by comparing the group's performance before and after the intervention. In addition, the performance of the control group was also analysed using a paired sample t-test to investigate whether the instruction with no explicit pronunciation teaching had a significant impact on their spontaneous speech and reading aloud production as well. Then, a comparison between the means of improvement was made using independent sample t-test and one-way ANOVA, to investigate whether the difference in improvement between the two groups was significant. Again, the value of statistical significance used in this analysis was set at 0.05. In addition, an effect size of the means of improvement using Cohen's d test was reported for the investigation of the strength of the improvement within and between the two groups in each variable evaluated by the listeners in the spontaneous speech and reading aloud production.

3.5.1.3 Production tests: acoustic data analysis

In addition to the listeners' judgement of the production of the Saudi EFL learners, acoustic analysis was used to evaluate the students' speech samples and assess the impact of suprasegmental-based instruction on their production. The Praat computer software program was used to provide an objective and reliable acoustic analysis of the speech samples. Praat is a flexible program for carrying out an acoustic-phonetic analysis and thus can be employed in the evaluation of students' pronunciation production and of their improvements in speech (Tajeldin, 2011). Following previous studies (e.g. Kang, 2010; Kang, Robin & Pickering, 2010; de Jong et al., 2012; Pinget, Quené and de Jong, 2014), this study used acoustic analysis to investigate some temporal measures of fluency that influence listeners' judgement of perceived comprehensibility and fluency and make speech production easier to understand. Although Praat is not an equivalent to human judgment, it is used to complement the analysis process

and to improve its accuracy. Furthermore, as explained above, it is useful in investigating the impact of suprasegmental-based instruction on the students' production in areas than cannot be easily evaluated by human ears. According to Thomson and Derwing (2014) computer-driven acoustic analysis gives valuable information but cannot be used alone, without human judgment.

Boersma and Weenik developed the Praat software program in 2002 to assess participants' production of the prosodic aspects of the language. It provides a visual representation of pronunciation patterns that human judgment cannot easily investigate, such as formant, fundamental frequency, intensity and duration (major acoustic features) (Hubais & Pallai, 2010). These acoustic features are very important for oral communication (Kang, Rubin & Pickering, 2010). However, for the purpose of this study, the analysis only focused on the two main features which are considered to affect the oral communication of L2 learners and make speech more fluent and easily comprehensible to listeners: (1) duration of silent pauses in spontaneous speech; and (2) speech rate in spontaneous speech production. Pauses and speech rate are two correlated aspects of fluency, both affect the speaker's fluency and comprehensibility (Tavakoli, Campbell & McCormack, 2016). Lack of competence in one will have a negative effect on the other because when pauses are long, the rate of speech tends to be slow to the level where listeners might perceive speech with difficulty (Pinget et al., 2014). According to Pinget et al. (2014) speech rate and pauses are two important measures of fluency which influence the listeners' judgement of the fluency of the speakers. A study done by Bosker, Quené, Sanders, and de Jong (2014) found that speech rate and duration of pauses are important aspects affecting the perceived fluency and comprehensibility of listeners of both native and nonnative speakers. However, it should be noted that the acoustic measurement of the students' fluency was limited to their production in the spontaneous speech task because fluency markers are not frequent in the students' production in the reading aloud production as these fluency features are characteristics of spontaneous speech production (Wagner & Toth, 2017).

3.5.1.3a Duration of pauses measurement

Pauses refer to "the silent or filled time between two runs (uninterrupted speech between two silent pauses)" (Ghanem & Kang, 2018, p.119). As mentioned in Chapter 2, there are two types of pauses: silent or unfilled pauses and verbal or filled pauses. According to Zellner (1994), pauses contribute to improving listeners' understanding and make speech

more intelligible and easier to understand. However, long and irregularly positioned pauses are considered as dysfluency pauses because they confuse the listeners, and make speech more difficult for the listener to process (Zillner, 1994; Kormos & Denes, 2004). De Jong and Bosker (2013) also found that there is a strong correlation between the duration of pauses in spontaneous speech and perceived fluency.

For the purpose of the present study, the duration of silent pauses was analysed as it has been shown to be an indicator of speakers' fluency and it affects the comprehensibility of speech (de Jong et al., 2012; Bosker et al., 2014). The average duration of silent pauses in spontaneous speech was assessed by dividing the length of the silent pauses between words and sentences by the total number of silent pauses of each speaker (Cucchiarini et al., 2002; Kang, 2010; de Jong et al., 2012; Bosker et al, 2012; Kang & Pickering, 2013; De Jong & Bosker, 2013; Pinget et al., 2014; de Jong, 2018). Following previous studies (e.g. Goldman-Eisler, 1968; Zellner, 1994; Towell, et al, 1996; de Jong et al, 2012; de Jong & Bosker, 2013; Pinget, et al., 2014; Tavakoli et al., 2016; Al-Ghazali & Alrefaee, 2019), any absence of sound of 250 milliseconds or longer in the spontaneous speech production was considered as a long pause.

However, the literature shows no general consensus on what length of pauses should be considered a long pause. Previous studies have used different measurements of the length of silent pauses. For example, Lennon (1990) Zellner (1994) de Jong and Perfetti (2011) used 200 milliseconds for identifying a long silent pause, others (Goldman-Eisler, 1968; Towell et al., 1996; de Jong & Bosker, 2013; Tavakoli et al., 2016) have used 250 milliseconds for long silent pauses, and still others (Riggenbach, 1991; Derwing et al., 2004; Trofimovich & Isaacs, 2012) have used 400 milliseconds. The present study used a duration of pauses of 250 milliseconds for identifying long silent pauses because it has been found to be a reliable criterion for setting pauses duration (Towell et al., 1996; Bosker et al., 2012; Pinget et al., 2014). According to Bosker et al. (2012), any silent or nonverbal filler of 250 milliseconds or longer in speech makes the speaker sound dysfluent, however pauses shorter than 250 ms are classified as micro-pauses and are not considered as a hesitation phenomenon. Therefore, the pauses shorter than 250 ms were not counted in the analysis. In addition, filled pauses, such as uh, ah, and um were excluded from analysis because previous studies (e.g. Goldman-Eisler, 1968; Kormos & Denes, 2004; Kang & Johnson, 2018) have shown that number and length of filled pauses are not reliable indicators of oral proficiency. In the present study, silent

pauses were measured by detecting them using the waveform, and the duration of each pause was measured in milliseconds as shown in the graph below.

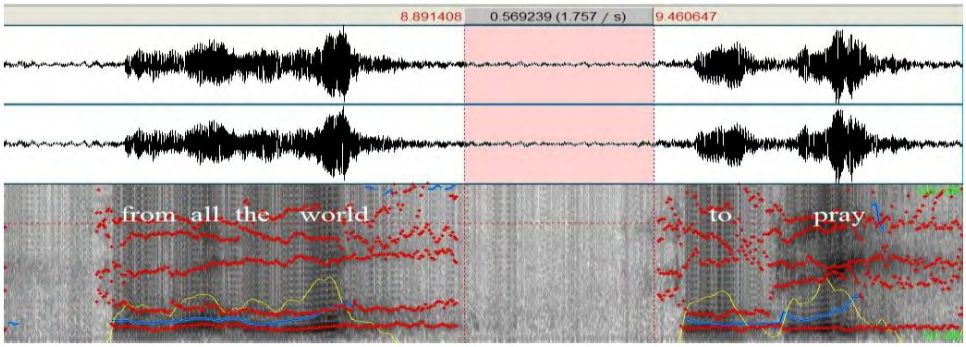

Figure 3.1 **Measurement of silent pauses in the students' production**

3.5.1.3b Speech rate measurement

The second element measured in the acoustic analysis was the rate of speech, an aspect of speech fluency that was found to be a reliable indicator for improving fluency and make speech easier to comprehend by listeners (Pinget, Quené and de Jong, 2014). Speech rate refers to "the pace at which a person speaks" (Derwing & Munro, 2015, p. 61). Saito and Hanzawa (2016) similarly defines speech rate as "how quickly or slowly someone speaks" (p. 24). According to Saito and Hanzawa (2016) speaking very quickly or very slowly can make speakers less fluent and their speech become more difficult to understand. Speech rate has been measured using different techniques, however it is commonly measured by calculating the total number of syllables or words per total time, including hesitations (de Jong, et al., 2012). In the present study, the measurement of speech rate was done by calculating the total number of syllables produced by each speaker divided by the total speaking time (syllables/second), including pauses. According to Kendall (2013), measuring speech rate using syllables per second provides a more accurate and precise unit of measure than words per minute. This simple formula was also used in a number of important studies, including those of Bradlow et al. (2010), de Jong et al., (2012), O'Brien (2014) and Ghanem and Kang, (2018). Analysing the students' rate of speech therefore enabled the researcher to evaluate the effects of suprasegmental-based instruction on improving the students' speech production.

Praat software was used to calculate the total number of syllables produced by each participant (see figure 3.2 below). Praat analysis was further confirmed by transcribing manually the speech samples, and then calculating the total number of syllables produced by

the participants. It is important to note that this comparison was only necessary in the spontaneous speech task.

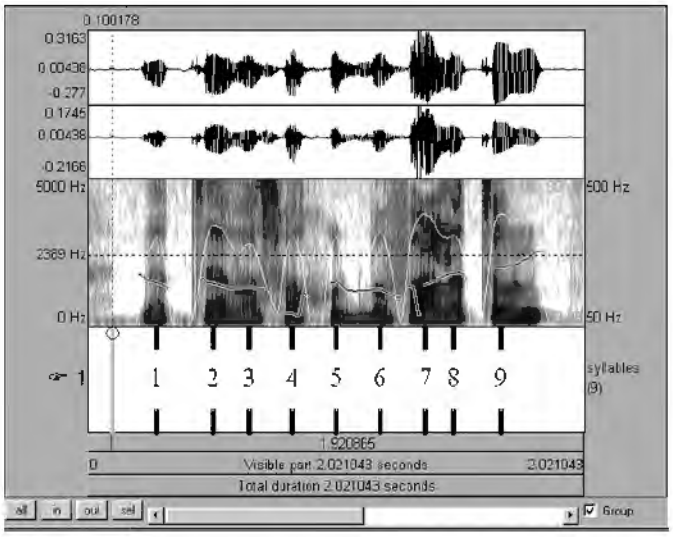

Figure 3.2 **Counting the number of syllables in Praat**

(adapted from de Jong and Wempe, 2009, p. 387)

Finally, the duration of pauses and speech rate of the students in the experimental group were analysed using a paired sample t-test to investigate whether suprasegmental-based instruction was effective in significantly reducing the duration of silent pauses and in increasing the speech rate in spontaneous speech production. This was done by comparing the group's performance before and after the intervention. In addition, the performance of the control group was also analysed in the same way. Then, a comparison between the means of improvement of the two groups was made using an independent sample t-test and one-way ANOVA to investigate whether there was a statistically significant difference between them. Again, the value of statistical significance used in this acoustic analysis was set at 0.05. In addition, an effect size of the means of improvement using Cohen's d was reported for the investigation of the strength of the improvement within and between the two groups in each aspect measured in the acoustic analysis.

3.5.2 Perception tests

The students were also assessed for their listening abilities. To test the students' perception, the students were invited to a studio room at the private language academy which had a desktop and loudspeakers designed specifically for testing listening ability. The testing equipment for this task was prepared on the first and last day of the course. The students

received an explanation of what they were required to do and they were informed that the test would be similar in form to the tests they take at the academy. In addition, the students were given written instructions in Arabic on how the two tasks in the test would be conducted to ensure a full understanding of the structure, aims and purposes of the test. The participants in both the experimental and the control groups were told that they would be given a listening test made up of two parts, containing 22 sentences in total, and presented in a multiple-choice listening format. The perception tests were designed to resemble in form the previous tests taken by the students at the academy. Moreover, carefully designed multiple-choice tasks are a reliable method and commonly used for testing learners' listening ability in experimental studies (Buck, 2001; Hemmati & Ghaderi, 2014). The tests used materials with a level of difficulty commensurate with the linguistic competency of the students. The familiarity of the students with the task-type was important in order to ensure the reliability of the results. Harmer (2007) points out that testing learners' listening ability has to be done with appropriate challenge, that is the tasks should become difficult but at the same time be achievable. For this reason, this study used tests that were at a level appropriate to the level of the participating students and texts that were either too easy or far too difficult, or that contained topics with which they were not already familiar were avoided.

The tests used to assess the students' perception were also presented in short sentences rather than as long texts. Thompson and Rubin (1996) argue that listening to long texts negatively impacts learners by causing them to experience boredom and anxiety. Similarly, Derwing, Thompson, Foote and Munro (2012), in their study on investigating natural development of speech over time in the absence of pronunciation instruction on the speech perception of L2 learners, did not use long texts to test the learners' knowledge of English suprasegmental features. Instead, they asked the participants to listen to some words and short sentences.

Moreover, the sentences chosen for this task were taken from authentic everyday life conversations. They were produced by English native speakers at a natural speed. In addition, the researcher also took care not to include materials in the test that had been included in teaching the experimental group. This was done in order to avoid students memorising them.

The sentences used in the perception tests were stored in a high-quality audio format and were printed on one sheet: each student was given the answer sheet for two minutes before

the beginning of the test in order to familiarise themselves with the sentences that would be played.

The first part of the test consisted of a word identification task, which assessed the students' ability to correctly perceive and identify words in English connected speech. Here, the students were prompted to differentiate between English words which have similar pronunciation and identify the correct word pronounced by the speaker. This part of the perception test consisted of 14 sentences taken from *English Pronunciation in Use* (Hewings, 2007) (see Appendix 5). Each sentence had two options, and the students had to underline the correct utterance produced by the speaker. For example, the sentences contained words that are similar in pronunciation, like *tried/ to ride* and *across/ cross*, and the inability of the listener to identify the correct word pronounced by the speaker would make understanding the meaning more difficult.

It should be noted however that the sentences chosen for this test were not selected because they contained particular segmental sounds that are difficult for Saudi EFL learners, but rather selecting sentences containing options of two words that differ in only one phonological element and have distinct meanings, and if the correct word produced is not perceived correctly it might be difficult or impossible to understand the meaning of the sentence (Levis, 2018). Saudi EFL learners might be able to identify words when they are said in isolation, however they often seem to lack the ability to segment easily and identify important words when they are produced in full sentences due their lack of knowledge about suprasegmental features (Hamouda, 2013). Hayes-Harb, Smith, Bent & Bradlow (2008) point out that segmental features significantly contribute to understanding words in isolation, however words are influenced by suprasegmental features when are pronounced in sentences. According to Mehler, Bertoncini, Dupoux and Pallier (1994), listeners who have knowledge about suprasegmental features are able to segment speech into logical chunks and understand meaning more easily than those who only have knowledge about segmental features. Learning suprasegmental features, especially stress and intonation, helps language learners improve their recognition of words in a stream of speech (Gilbert, 2008; Alameen & Levis, 2015; Levis, 2018). For example, students who lack knowledge about suprasegmental features, might perceive *foreign* as *for rain*, and *dessert* as *desert* when produced in a sentence (Gilbert, 2008). Gilbert (2008) notes that learners tend to rely on the pronunciation of words the way they are pronounced in dictionaries, however words may change in their pronunciation if produced in connected speech. Alameen & Levis (2015) further point out that nonnative English learners

might not be able to identify words in speech easily and clearly if words are pronounced in a way different from what they expect. Therefore, according to Alameen and Levis (2015), explicit instruction on how words are linked or connected together speech should help learners improve their comprehensibility of speech. So, following the recommendations of previous researchers (Hamouda, 2013; Alameen & Levis, 2015), the present study aimed to assess the students' listening ability to correctly perceive and identify words in a stream of speech, as the students' identification of these aspects is important for understanding speech easily and communicating successfully in English.

The second part of the perception test consisted of a suprasegmental feature identification task which required the students to identify the correct intonation patterns produced by the speaker. The perception of intonation patterns is important for L2 learners, and is recommended to be the starting point for teaching intonation (Vaissaire, 2004; Tanner & Landon, 2009). According to Vaissaire (2004), listening tests can provide reliable assessment of learners' awareness of intonation. Tanner and Landon (2009) also stated that perceiving falling and rising intonation at the end of utterances is one of the functions that EFL learners should begin with when learning English suprasegmental features. Therefore, this study aimed to test the Saudi EFL learners' knowledge about intonation and their ability to identify the intonation of the speaker in fluent English speech through the listening test. This part consisted of eight sentences taken from *The Sound of English* e-book (Hudson, 2012) (see Appendix 6). The students were required to identify the correct intonation of the sentence pronounced by the native English speaker in the audio file (rising ↗, falling ↘, and falling-rising ↘↗ intonations). According to Levis (2018) although intonation might not affect intelligibility at the word level, it is important for comprehensibility of speech because it can help to make messages and intentions easier to follow, and it can impact the processing of speech in oral communication. In addition, Ar-Riyahi (2015) found that the use of rising and falling tones is one of the main difficulties Arab EFL learners face in learning pronunciation. Also, Batainah & Al-Qadi (2014) found that Saudi EFL learners' lack of awareness of intonation, stress and pauses affect their perception ability. Therefore, the present study aimed to examine the impact of suprasegmental-based instruction on improving Saudi EFL learners' perception of English intonation. Although the number of items in this perception test was small, other studies have used a similar number and produced reliable results (e.g. Zhang et al., 2010; Alameen, 2014; Ar-Riyahi, 2015).

After the tests, the answer sheets of the pre- and post-tests were collected from the students in both groups. The results of each test were first recorded by the researcher and then reviewed by the English teacher who had taught the control and experimental groups, and the scores of each student's pre- and post-tests were listed in a table. In these tests, each correct answer was worth one point. This means that the total of scores in this listening test would be a maximum of 14 points in the first task, and eight points in the second task.

The test scores were analysed using a paired sample t-test to determine any improvement in listening abilities within each group. In addition, a comparison of the levels of improvement in performance of the two groups was undertaken using independent sample t-test and one-way ANOVA. This was done to show whether the difference between the two groups' improvement is significant. Both independent sample t-test and one-way ANOVA were used to ensure the comparison between the two groups was accurately analysed. The value of statistical significance used in this analysis was set at 0.05. In addition, an effect size of the means of improvement was reported using Cohen's d to investigate the strength of the improvement within and between the two groups in each task in the perception test.

3.5.3 Students' and teacher's survey questionnaires

In addition to the perception and production tests, the students participating in the experimental group, as well as the teacher, were asked to complete an end-of-course questionnaire. As explained above (see section 3.5), this recorded their opinions and experience with the suprasegmental-based instructional course from both learning and teaching viewpoints. The literature supports this methodology, as survey questionnaires are considered important in recording the students' experience and opinions about their learning environment. Kim (2008), for instance, argues that survey questionnaires are necessary to gather information about the most effective factors of learning and teaching, and these include feelings, motivation, attitudes, beliefs, and preferences. A questionnaire that elicits learners' feelings, attitudes and preferences would contribute to making a better assessment of the suprasegmental-based instruction course and help make more effective suggestions for future application of the suprasegmental-based course. Therefore, the questionnaire was given to the students in the experimental group at the end of the study to explore how they received the suprasegmental-based lessons and activities given during the course. The questions used in the questionnaire were designed to produce information about their perceived improvement in

perception and production, their feelings towards the suprasegmental-based instruction and their perceived understanding of each suprasegmental feature taught in the course.

The questionnaire was presented in English with Arabic translation to make sure the students understood clearly what they were required to do. It consisted of seven Likert-scale items (closed questions) and four open-ended questions (see Appendix 7). The closed questions provide concise data and allow participants to briefly report personal information (Corbin & Strauss, 2008; Creswell, 2008). The open-ended questions were included to encourage the students to give in-depth answers about the suprasegmental-based instruction materials and activities, and to help evaluate the appropriateness of the lessons for the students' level of English and their preferences for the different activities that can be suggested for teaching English suprasegmental features to Saudi male EFL students. Kothari (2004) notes that open-ended questions are effective in gathering information about the participants' feelings and attitudes. Finally, the results of end-of-course questionnaires were analysed quantitatively (closed questions) using statistical descriptive analysis and qualitatively (open-ended questions) using thematic analysis.

In addition, the questionnaire completed by the teacher at the end of the intensive course consisted of four open questions, focused mainly on the most effective and challenging aspects in teaching the course, and the opinions and suggestions that can be included to make the implementation of suprasegmental-based instruction more effective in future applications (see Appendix 8). The answers to this latter survey were analysed qualitatively using thematic analysis.

3.5.4 Classroom observation

Classroom observation was also included in the data collection procedures in order to provide further insights into the materials, tasks and activities used to teach the suprasegmental features to investigate whether they are appropriate for teaching English suprasegmental features to Saudi male EFL learners. It also allowed the researcher to reflect on the effectiveness of these in enhancing the motivation of the students in the experimental group in order to provide some suggestions of what might work better with Saudi male EFL learners when teaching English suprasegmental features. According to Mackey and Gass (2005), classroom observation plays a vital role in classroom research, as it helps to gather in-depth information about the materials and activities used in the classroom. For this reason, the study adopted a classroom observation instrument to complement the other results of the study. The

researcher conducted this observation after receiving permission from the head of the English department at the academy, as well as from the teacher, to attend the pronunciation classes and observe the application of the pronunciation course. The researcher intended to observe the application of the suprasegmental-based instruction by the native English teacher, and report on the effectiveness of teaching the suprasegmental features targeted in the course through the different oral, auditory and physical activities. According to Levis (2018), pronunciation features are better presented through a variety of techniques and activities which include oral, auditory and physical tasks which help make pronunciation teaching communicative and more successful. In addition, the researcher intended to document the students' behaviour in response to these materials, activities and tasks by taking notes from every lesson. The classroom observation was only carried out in the experimental group class, and a checklist with the observation procedure was used. Richards and Farrell (2011) define the checklist as "a list of different features of a lesson, which you complete while observing the lesson" (p. 95).

Before starting the observation, a specific observation sheet was created to help the researcher be precise in taking notes during the class (See Table 3.1). The sheet covered the main techniques and activities used in the suprasegmental-based course. The observation took 40 minutes and was conducted daily over four weeks. It was aimed at observing both the teacher's application of the suprasegmental-based instruction, use of the activities and materials, and the students' reactions. Therefore, an observation sheet, adapted from Richards and Farrell (2011) and modified to suit the needs of the present study, was designed in the form of a checklist focused on checking the presence or absence of the main aspects of the suprasegmental-based course. In this checklist, 15 teaching techniques and activities representing the main activities and techniques most frequently used in the suprasegmental-based class were included (Table 3.1).

Table 3.1 **Classroom observation checklist**

Statements
1- The teacher asks questions in the class.
2- The students answer questions and make comments.
3- The teacher promptly corrects the students' errors.
4- Students are willing to participate in the class activities and tasks.
5- Students listen attentively when the teacher speaks.
6- The teacher asks the students to work in pairs or groups.
7- Students use their mother tongue (L1: Arabic language) in class.

8- The teacher asks the students to read aloud from the book or the board.
9- The teacher asks the students to repeat words or sentences after him or the audio file.
10- The teacher uses visual aids in class.
11- The teacher uses auditory aids in class.
12- The teacher uses oral activities in class.
13- The teacher uses kinaesthetic activities in the class.
14- The teacher uses humming, clapping and other non-verbal activities in the class.
15- The teacher gives homework to the students.

In addition to the checklist above, a blank page was used to record more details about the apparent effectiveness of these activities and the learning styles used in the class and also about any other activities or techniques that were used in the classroom during the course but were not listed in the checklist. As mentioned above, the suprasegmental course involved various teaching activities and learning styles in the classroom. These included oral, visual, auditory and physical activities, as well as group discussions in class to help make the learning environment communicative, relaxing and comfortable, and the learning process successful. It is worth mentioning that the data gathered from the classroom observation were used qualitatively using thematic analysis.

3.5 Conclusion

This chapter began by presenting an overview of the methodology of the present study, briefly stating the aims of the study, and setting out the research questions. It presented details of the research design, including how and where the participants were chosen, as well as what procedures were followed to implement suprasegmental-based instruction, and how it was taught to the experimental group. Furthermore, it explained how the data was collected and analysed quantitatively and qualitatively.

It was explained that this study aimed to investigate the impact of suprasegmental-based instruction on improving the speech perception and production of Saudi male EFL learners in Saudi Arabia. The chapter also explained the approach adopted to assess the impact of suprasegmental-based instruction in improving the students' production in spontaneous speech and reading aloud to make their speech easier to understand, and their listening perception to be able to correctly perceive and identify words and intonation patterns in English connected

speech. In addition, the approach to collecting feedback on the suprasegmental-based course from the teacher and the students in the experimental group towards the suprasegmental-based course as well as the researcher's observation on the effectiveness of the materials, tasks and activities used to teach the suprasegmental features were explained.

As mentioned previously in the chapter, the present study involved two groups of participants from a private English teaching academy in Saudi Arabia. An experimental group was taught English suprasegmental features using suprasegmental-based instruction, as part of their regular course at the academy. A control group, instead, received only the academy's standard language course, without any explicit pronunciation instruction. Both groups were tested for their perception and production performance before and after the study. In addition, the experimental group and the native teacher were surveyed at the end of the course. A classroom observation was conducted in the experimental group's class to gather more information about their attitudes towards the suprasegmental-based instruction. The quantitative data gathered were then analysed using paired sample t-tests, independent sample t-tests one-way ANOVA tests, and effect size (Cohen's test) and the qualitative data were analysed using thematic analysis.

In the next chapter, the results of the quasi-experimental study and the findings that relate to the main research questions used in the study will be described.

Chapter 4: Data analysis and findings

4.1 Introduction

This chapter describes the results of the quasi-experimental study and the findings that relate to the main research questions used in the study.

As explained in Chapter 1, the aim of this study was to assess and explore the impact of suprasegmental-based instruction on improving the speech perception and production of Saudi male students of English. In particular, the study aimed to investigate the impact of suprasegmental-based instruction on improving the production of Saudi learners of English in both spontaneous speech and reading aloud, as well as their listening perception abilities to perceive and identify words and intonation patterns in English fluent speech. The study also investigated the students' responses to this type of instruction when learning English pronunciation in a Saudi Arabian context, and the native English teacher's feedback on suprasegmental-based instruction, to individuate its strengths and weaknesses when applied to Saudi learners of English.

In order to accurately investigate the impact of this type of instruction and answer the main research questions of the study, the data collected were analysed using both quantitative and qualitative measures. In this chapter, the analysis of the data is organised into six sections:

4.2 Quantitative analysis of the native listeners' evaluation of the students' spontaneous speech production.

4.3 Quantitative analysis of the native listeners' evaluation of the students' reading aloud production.

4.4 Quantitative results of the acoustic analysis of the students' production.

4.5 Quantitative analysis of the results gathered from the perception tests.

4.6 Quantitative and qualitative analysis of the questionnaires investigating the students' attitudes towards suprasegmental-based instruction.

4.7 Qualitative analysis of the classroom observation and the teachers' feedback questionnaire on teaching the course.

The quantitative analysis used in the present study includes a presentation of the mean scores from each group's pre- and post- tests and a comparison of the means of performance of each group from pre- and post-tests using a paired sample *t*-test to assess whether a significant improvement existed within each group's performance as a result of the type of instruction used with the group. The performance improvement between the two groups was also compared using one-way ANOVA and an independent sample *t*-test to evaluate if suprasegmental-based instruction used with the experimental group produced a significant difference in mean improvement, compared to the instruction with no explicit pronunciation teaching used with the control group. In addition to the paired and independent sample *t*-tests and one-way ANOVA, an effect size (Cohen's d) was computed to identify the magnitude of the improvement within each group's improvement from pre- and post-tests, and between the improvement of the two groups. In the present study, as mentioned in Chapter 3, effect size is only reported with significant results, and an effect size of 0.2 is considered as a small effect size, an effect size of 0.5 is considered as a medium effect size, and an effect size of 0.8 is considered as a large effect size (Mackey & Gass, 2005).

On the other hand, the qualitative data collected from the students' and the teacher's survey questionnaires about the course and the researcher's classroom observation was analysed thematically to investigate in depth the effectiveness of the suprasegmental-based instruction course.

In the present study, four research questions were used to investigate the impact of suprasegmental-based instruction on the speech perception and production of Saudi learners of English:

1. To what extent does suprasegmental-based instruction improve comprehensibility and fluency, and reduce accentedness of Saudi EFL learners in spontaneous speech production?
2. To what extent does suprasegmental-based instruction improve comprehensibility and reduce accentedness of Saudi EFL learners in reading aloud production?
3. To what extent does suprasegmental-based instruction improve the listening perception of Saudi EFL learners to correctly perceive and identify words and intonation of the speaker in English spontaneous speech?
4. What are the responses of both the teacher and the students toward suprasegmental-based instruction?

The results of the study show that, overall, explicit pronunciation instruction with a sole focus on suprasegmental features contributed to the improvement of both perception and production of speech. The analysis of the performance of the experimental group showed the suprasegmental-based instruction applied in this study was useful for improving the learners' spontaneous speech and to a lesser extent reading aloud production, as well as their perception abilities to correctly identify words and the speaker's intonation in English connected speech. These results were achieved by comparing the experimental group's performance before and after the intervention using paired sample *t*-test, and calculating effect size using Cohen's d. In addition, the comparison of performance improvement between the two groups using one-way ANOVA test and independent sample *t*-test as well as effect size using Cohen's d, showed that suprasegmental-based instruction helped the students in the experimental group improve their perception and production of speech to a higher degree than the control group which received no explicit pronunciation instruction. The findings from the survey questionnaires of both the native English teacher and the students in the experimental group, as well as the classroom observation, showed that suprasegmental-based instruction was perceived to be useful and effective, and generally thought to have a positive impact on the students' production and perception skills.

4.2 The listeners' evaluation of the students' spontaneous speech production

As explained in Chapter 3, the students' spontaneous speech production was evaluated by 11 native English listeners, using 9-point Likert scales addressing three important speech dimensions, comprehensibility, accentedness and fluency, on which listeners usually base their judgement of speakers' production.

This was done to answer the first research question in this study which aimed to investigate whether teaching suprasegmental features is effective in improving learners' spontaneous speech production, specifically resulting in making it easily comprehensible to listeners, and more fluent and less accented. This was done by comparing the results of the experimental group before and after receiving suprasegmental-based instruction. In addition, the results of the experimental group were compared to those of the control group, in order to evaluate whether suprasegmental instruction was more effective than the normal course of instruction in which there was no explicit pronunciation instruction.

4.2.1 Assessment of normality of data and inter-rater reliability

To choose the most accurate statistical test for analysing the data gathered from the listeners' ratings of the comprehensibility, accentedness and fluency of the students' production in spontaneous speech, it was important to assess the normality distribution of the data gathered from pre- and post-tests for each evaluated variable. Two common tests of normality were used in this study: the Kolomogorov-Smirnov and the Shapiro-Wild. The significance value used in these two tests was 0.05. If the data had a significance value greater than 0.05, then it had a normal distribution. Instead, if the data had a significance value lower than 0.05, then the data would not have a normal distribution.

Table 4.1 **Tests of normality of data in pre- and post-test spontaneous speech tests**

Tests of normality							
		Kolmogorov-Smirnov[1]			Shapiro-Wilk		
	Test	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	Comprehensibility	.106	32	.200*	.973	32	.571
	Accentedness	.064	32	.200*	.990	32	.991
	Fluency	.084	32	.200*	.972	32	.553
Post-test	Comprehensibility	.103	32	.200*	.962	32	.317
	Accentedness	.126	32	.200*	.975	32	.634
	Fluency	.087	32	.200*	.984	32	.902

The two tests of normality indicate that the data is normally distributed. They also indicate that the null hypothesis of normality cannot be rejected for both pre and post-test data, for the spontaneous speech tests. As Table 4.1 shows, both Kolomogorov-Smirnov and the Shapiro-Wild have a significance value greater than 0.05, therefore the assumption of data normality is confirmed. Since the data was confirmed to be normally distributed, parametric tests (a paired sample *t*-test, independent sample *t*-test, and one-way ANOVA) were used to determine any significant improvement from pre- and post-tests of each group and to compare the performance of the experimental and control groups.

In addition, in order to confirm the inter-rater reliability in the evaluation of the students' production in the spontaneous speech tests, the intraclass correlation coefficient (ICC) was computed to assess inter-rater agreement. ICC was computed for all three variables

[1] Lilliefors Significance Correction

together and for each variable separately, to ensure that the 11 raters had high agreement in their evaluation and that their rating was reliable.

Table 4.2 **Intraclass correlation among raters' evaluation of the students' spontaneous speech production**

	Overall raters' agreement in pre- and post-tests
Comprehensibility	0.864
Accentedness	0.816
Fluency	0.916
The three variables combined	0.879

Overall, as presented in Table 4.2, the results show that raters had a high degree of agreement in their evaluation. The degree of raters' agreement in all spontaneous speech variables exceeds 0.8, implying high agreement with little variation between the scores given to each speaker by the raters. The overall ICC coefficient for the three evaluated variables (comprehensibility, accentedness and fluency) combined was calculated as 0.879 (95% CI: [0.852, 0.903]), indicating high inter-rater agreement. Additionally, the stability of inter-rater agreement was confirmed by calculating the ICC for each individual test. For comprehensibility, the degree of agreement among raters in both pre- and post-tests was found as 0.864 (95% CI: [0.808,0.908]). Similar testing was done for the accentedness evaluation data. The coefficient calculated for pre- and post-tests data was found as 0.816 (95% CI: [0.741,0.876]). In assessing the correlation coefficient in the evaluation of the students' fluency, a higher degree of inter-rater agreement was found. The coefficient calculated for fluency pre- and post-test data was found as 0.916 (95% CI: [0.881,0.943]). Since the intraclass correlation coefficient was found to be higher than 0.8 in all evaluated tests, the reliability scores compared well with those reported in the literature (Larson-Hall, 2010; Loewen & Plonsky, 2015) and can be considered to indicate excellent agreement.

4.2.2. Results of the listeners' evaluation of the comprehensibility of the students' spontaneous speech

The first variable used in the evaluation of the students' spontaneous speech production was comprehensibility. As mentioned in section 3.5.1, comprehensibility was assessed using a 1 to 9 Likert scale, ranging from 1= 'very hard to understand' to 9= 'very easy to understand' (See Appendix 10). The results of the native listeners' evaluation of their comprehensibility to the students' spontaneous speech production in the two groups are presented below.

4.2.2.1 Performance improvement in comprehensibility of the experimental and control groups, from the pre-test to the post-test

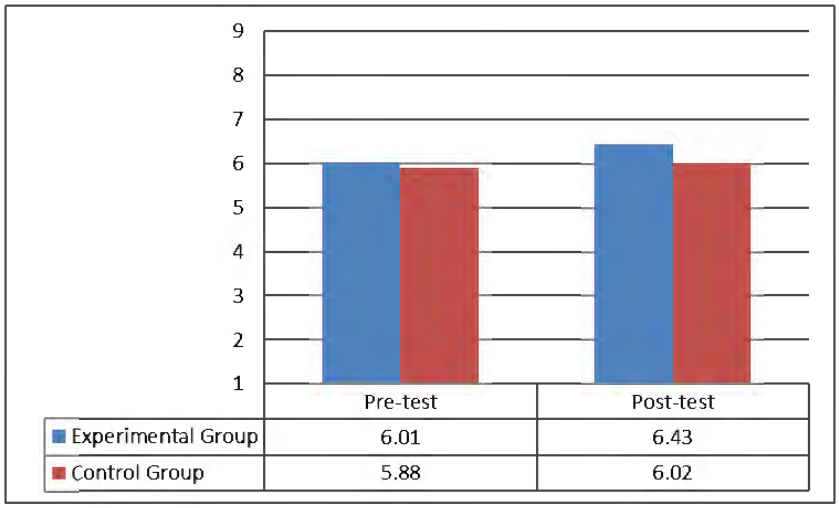

Figure 4.1 **Mean score of the experimental and control groups in comprehensibility in pre-test and post-test**

Table 4.3 **Mean score and standard deviation of the experimental and control groups in comprehensibility in pre-test and post-test**

Group	Test	Mean	SD	Mean difference	Effect size value (within group)	Sig.value (within group)
Experimental Group	Pre-test Post-test	6.01 6.43	0.89 0.71	0.42	0.517	**0.042**
Control Group	Pre-test Post-test	5.88 6.02	0.91 0.70	0.14	0.173	0.421

As shown in Table 4.3, the mean of the comprehensibility scores of the students in the experimental group was 6.01 in the pre-test and the standard deviation was 0.89. After receiving suprasegmental-based instruction, the students' production was more comprehensible to listeners, as the mean scores in the post-test increased to 6.43 and the standard deviation was 0.71. The increase in mean score for the experimental group from the pre-test to the post-test was calculated as 0.42.

In comparison, the mean performance of the control group in terms of the comprehensibility of their spontaneous speech in pre-test was 5.88 and the standard deviation was 0.91. In the post-test, the students increased their mean performance to 6.02 and the standard deviation was 0.70. The mean increase in the performance of the students in the control group was 0.14.

Table 4.4 **Performance improvement from pre-test to post-test of the experimental and control groups in speech comprehensibility**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Experimental Group	0.42	0.75	0.18	0.01	0.82	2.22	15	**.042**
Control Group	0.14	0.68	0.17	-0.22	0.50	0.82	15	.421

As shown in Table 4.4, the results of the paired sample *t*-test of the experimental group from pre- and post-tests scores are significant (t (16) = 2.22, $p < 0.05$). The mean increase was calculated as 0.42, and the significance (2-Tailed) value was calculated as 0.042, indicating that there is a significant increase in the level of comprehensibility of the students' production, as the value was found to be lower than 0.05. In addition, the results of effect size (Cohen's d) showed the value of the improvement of the students in the experimental group in terms of comprehensibility of their speech was 0.517. As this value is greater than 0.5, it shows that degree of improvement of the experimental group as a result of suprasegmental-based instruction is of medium magnitude.

In contrast, the paired sample *t*-test confirms that the improvement in comprehensibility of the control group was not statistically significant. The results (t (16) = 0.82 and $p > 0.05$) indicate that the improvement in comprehensibility of the students' production (M= 0.14) from the pre-test (M=5.88) to the post-test (M=6.02) is not significant. As shown in Table 4.3, the significance (2-Tailed) value is found to be 0.421. This value is higher than 0.05, thus it can be confirmed that there is no statistically significant difference in the production of the students in the control group in terms of comprehensibility.

4.2.2.2 Comparison of performance improvement in comprehensibility between the experimental and control groups

Table 4.5 **Comparison of performance improvement in comprehensibility between the experimental and control groups using one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.62	1	0.62	1.19	.284
Within Groups	15.63	30	0.52		
Total	16.25	31			

The findings in the one-way ANOVA test (see Table 4.5) show that there is no significant difference between the performance improvement between the experimental group and the control group in terms of comprehensibility [F, (1.30) = 1.19, p 0.284]. The mean difference between the improvement of the two groups was 0.27, and the significance value was 0.284. As this latter value is greater than 0.05, it can be concluded that the improvement in comprehensibility of the experimental group was not significantly higher than the improvement of the control group.

Table 4.6 **Comparison of performance improvement in comprehensibility between the experimental and control groups using independent sample *t*-test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.42	0.51	1.09	30	.284	0.27	0.25	-0.24	0.79
Equal variances not assumed			1.09	29.73	.284	0.27	0.25	-0.24	0.79

These results of the one-way ANOVA were further confirmed by an independent sample *t*-test. As shown in Table 4.6, the findings of the independent sample *t*-test showed that there was no significant difference between the experimental and control groups in terms of comprehensibility improvement (t (16) = 1.09, p > 0.05). The significance (2-Tailed) value in the independent sample *t*-test was 0.284, which means it can be concluded that the mean difference between the improvement of the experimental group and the improvement of the control groups in speech comprehensibility is not statistically significant either in the one-way ANOVA or the independent sample *t*-test.

4.2.3 Results of the listeners' evaluation of the students' accentedness in spontaneous speech

The second variable in the evaluation of the students' production in spontaneous speech test was accentedness. Accentedness was also evaluated on a 1-9 Likert scale: a score of 1 represented a 'very strong foreign accent'; a score of 9 represented 'no foreign accent at all' present in the students' production (See Appendix 10). The results of the students in the experimental and control groups are presented below.

4.2.3.1 Performance improvement in the reduction of accentedness of the experimental and control groups from the pre-test to the post-test

Accentedness was the variable that recorded the lowest performance in the students in both the experimental and control groups.

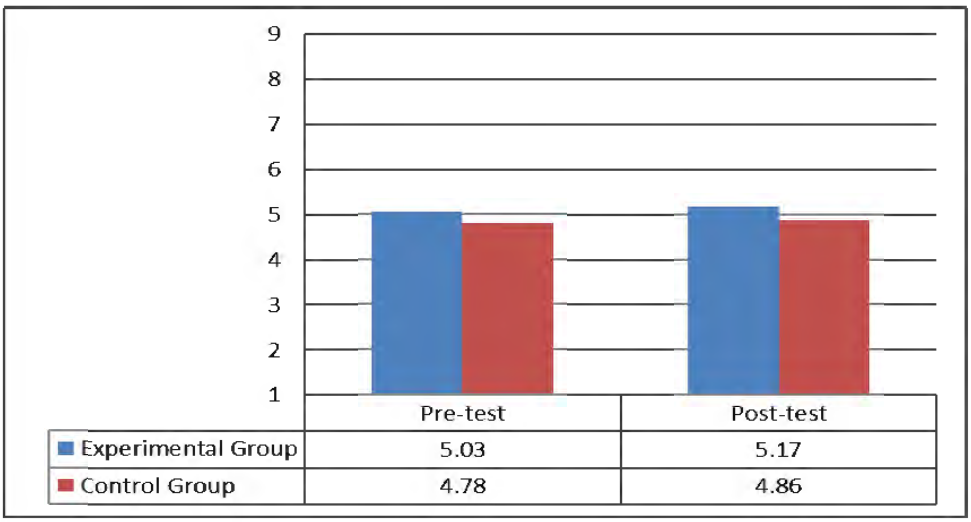

Figure 4.2 **Mean score of the experimental and control groups in accentedness in pre-test and post-test**

Table 4.7 **Mean score and standard deviation of the experimental and control groups in accentedness in pre-Test and post-test**

Group	Test	Mean	SD	Mean difference	Effect size value (within group)	Sig. value (within group)
Experimental Group	Pre-test Post-test	5.03 5.17	0.74 0.79	0.14	0.185	0.387
Control Group	Pre-test Post-test	4.78 4.86	0.69 0.55	0.08	0.135	0.460

As shown in Figure 4.2 and Table 4.7, the mean score of the experimental group students' performance in the listeners' rating of accentedness was 5.03 in the pre-test, and the standard deviation was 0.74. In the post-test, the mean score of the students in the experimental increased to 5.17 and the standard deviation was 0.79. The mean increase in the students' performance in terms of reducing accentedness in their spontaneous speech was 0.14.

On the other hand, the control group recorded a mean of 4.78 in the pre-test and the standard deviation was 0.69. After the experiment, the mean performance of the control group increased to 4.86 and the standard deviation was 0.55. The mean increase in the students' performance in terms of reducing accentedness in their spontaneous speech was 0.08.

Table 4.8 **Performance improvement from pre-test to post-test of the experimental and control groups in the reduction of accentedness**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Experimental Group	0.14	0.63	0.15	-0.19	0.48	0.89	15	.387
Control Group	0.08	0.44	0.11	-0.15	0.32	0.75	15	.460

The results of the paired sample *t*-test (Table 4.8) show that the performance improvement of the experimental group in terms of reducing accentedness from pre- and post-test are non-significant (t (16) = 0.89 and $p > 0.05$). The mean increase in the students' performance was 0.14 from the pre-test (M=5.03) to the post-test (M=5.17), and the

significance (2-Tailed) value was 0.387, therefore it can be concluded that there is no statistically significant difference in the accentedness of the students before and after the course using suprasegmental-based instruction.

Similarly, the paired sample *t*-test analysis shows that the reduction of foreign accent among the students in the control group was non-significant (t (16) = 0.75 and p > 0.5). The mean increase in the students' performance was only 0.08 from the pre-test (M=4.78) to the post-test (M=4.86), and the significance (2-Tailed) value was 0.460. This value is higher than 0.05, which confirms that there is no statistically significant difference.

This shows that neither the experimental nor the control group students were able to reduce their level of accentedness to a significant level.

4.2.3.2 Comparison of performance improvement in the reduction of accentedness in spontaneous speech between the experimental and control groups

Table 4.9 **Comparison of performance improvement in accentedness between the experimental and control groups using one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.02	1	0.02	0.08	.773
Within Groups	9.13	30	0.30		
Total	9.15	31			

As shown in Table 4.9, the findings in the one-way ANOVA showed that there was no significant difference between the improvements in the reduction of accentedness of the experimental and the control groups [F, (1.30) = 0.08, p 0.773]. The mean difference between the improvement of pre- and post-tests of both groups was 0.05, and the significance (2-Tailed) value was 0.773. As this value was greater than 0.05, it can be concluded that the improvement in the reduction of accentedness of the experimental group was not significantly greater, statistically, than the improvement of the control group.

Table 4.10 **Comparison of performance improvement in the reduction of accentedness between the experimental and control groups using independent sample *t*-test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.91	0.17	0.29	30	.773	0.05	0.19	-0.34	0.45
Equal variances not assumed			0.29	26.96	.773	0.05	0.19	-0.34	0.45

Similarly, as shown in Table 4.10, the findings in the independent sample *t*-test revealed that there was no significant difference in the improvement in the reduction of accentedness between the experimental group and the control group ($t(16) = 0.29$, $p > 0.05$). The significance (2-Tailed) value in the independent sample *t*-test is 0.773, therefore it can be concluded that the mean difference between the improvement in performance among the students in the two groups is not statistically significant in both the one-way ANOVA and independent sample *t*-test.

4.2.4 Results of the listeners' evaluation of the students' fluency in spontaneous speech

The third variable used in the evaluation of the students' spontaneous speech was fluency. Fluency was also evaluated on a 1-9 Likert scale: a score of 1 represented a very dysfluent; a score of 9 represented a very fluent speaker (See Appendix 10). The results of the native listeners' evaluation of the students' fluency in spontaneous speech production are presented below.

4.2.4.1 Performance improvement in fluency of the experimental and control groups from the pre-test to the post-test

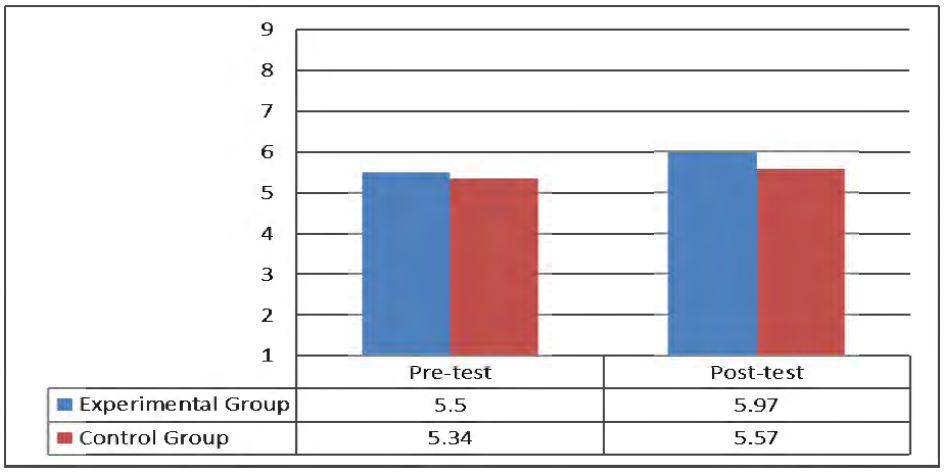

Figure 4.3 **Mean score of the experimental and control groups in fluency in pre-test and post-test**

Table 4.11 **Mean score and standard deviation of the experimental and control groups in fluency in pre-test and post-test**

Group	Test	Mean	SD	Mean difference	Effect size value (within group)	Sig. value (within group)
Experimental Group	Pre-test Post-test	5.50 5.97	1.14 0.91	0.46	0.450	**0.019**
Control Group	Pre-test Post-test	5.34 5.57	1.06 0.85	0.23	0.240	0.277

As Figure 4.3 and Table 4.11. show, the experimental group's mean performance in fluency in the pre-test was 5.50 and the standard deviation was 1.14. The data show that the students in this group made a good improvement, as the mean performance increased to 5.97 in the post-test and the standard deviation was 0.91. The mean improvement in the students' performance from the pre-test to the post-test was calculated as 0.46.

On the other hand, the fluency of the students in the control group also improved as a result of the instruction with no explicit pronunciation teaching. The mean of their performance in the pre-test was 5.34 and the standard deviation was 1.06, while the mean of their performance in the post-test was 5.57 and the standard deviation was 0.85. The control group's mean increase in fluency was calculated as 0.23.

Table 4.12 **Performance improvement from pre-test to post-test of the experimental and control groups in fluency**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Experimental Group	0.46	0.71	0.17	0.08	0.84	2.61	15	**.019**
Control Group	0.23	0.82	0.20	-0.20	0.67	1.12	15	.277

As shown in Table 4.12, the results of the paired sample *t*-test of the experimental group show that the students' improvement in fluency is significant (t (16) = 2.61, $p < 0.05$) as a result of the mean increase in the students' fluency which is calculated as 0.46, and the significance (2-Tailed) value found as 0.019. Therefore, it can be concluded that there is a statistically significant difference between the fluency of the students recorded before and after the course that used suprasegmental-based instruction. In addition, the effect size (Cohen's d) value was found as 0.450, indicating a medium effect of suprasegmental-based instruction on the improvement of the experimental group in their fluency in spontaneous speech.

On the other hand, the results of the paired sample *t*-test of the control group showed that the mean increase in the performance of the control group in terms of fluency was not significant (t (16) = 1.12, $p > 0.05$). The mean increase in the level of fluency of the control group students is 0.23 from the pre- and post-tests, and the significance (2-Tailed) value is 0.277. Therefore, it can be concluded that the teaching without the explicit pronunciation instruction did not help the students in the control group improve their speech fluency to a significant degree.

4.2.4.2 Comparison of performance improvement in fluency between the experimental and control groups

Table 4.13 **Comparison of performance improvement in fluency between the experimental and control groups using one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.43	1	0.43	0.73	.400
Within Groups	17.83	30	0.59		
Total	18.26	31			

The findings of the one-way ANOVA test (Table 4.13) showed that there was no significant difference in the improvement in fluency of speech between the experimental and the control groups [F, (1.30) = 0.73, p .400]. The mean difference between the improvement of pre- and post-tests of both groups was 0.23, and the significance value was 0.400. Therefore, it can be concluded that the improvement among the experimental group was not statistically significantly higher than the improvement among the control group in the level of speech fluency.

Table 4.14 **Comparison of performance improvement in fluency between the experimental and control groups using independent sample *t*-test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.09	0.76	0.85	30	.400	0.23	0.27	-0.32	0.78
Equal variances not assumed			0.85	29.36	.400	0.23295	0.27	-0.32	0.79

As shown in Table 4.14, the findings from the independent sample *t*-test also revealed that there was no significant difference in fluency improvement between the experimental and control groups (t (16) = 0.85, $p > 0.05$). The significance (2-Tailed) value in the independent sample *t*-test was 0.400. Therefore, it can be concluded that the mean difference in the fluency improvement between the experimental group and the control group is not statistically significant in both the one-way ANOVA test and also the independent sample *t*-test.

4.2.5 Summary of listeners' evaluation of the students' spontaneous speech production

Section 4.2 has presented the results of the evaluation conducted by 11 native English listeners of the production of the students in the experimental and control groups in terms of the students' level of comprehensibility, accentedness and fluency in a spontaneous speech task.

The results showed that the experimental group had improved significantly in comprehensibility and fluency ($p= 0.042$ and $p= 0.019$ respectively), although no significant reduction in accentedness ($p= 0.387$) was observed. In addition, the results showed that suprasegmental-based instruction had a medium effect on improving comprehensibility and fluency in spontaneous speech ($d= 0.517$ and $d= 0.450$ respectively). In contrast, the control group did not show any statistically significant difference in their performance as a result of no explicit pronunciation instruction in comprehensibility and fluency and reducing accentedness in spontaneous speech production. in any of the speech dimensions examined. Overall, the findings confirmed that teaching suprasegmental features to L2 learners is effective in improving L2 learners' spontaneous speech production, and was more beneficial compared to the standard teaching method that had no explicit pronunciation instruction.

The comparison of the performance improvement as a result of suprasegmental-based instruction and no explicit pronunciation instruction revealed that the former type of instruction had a better impact on the students' spontaneous speech production. This is shown in the one-way ANOVA and independent *t*-test results, which showed that the students in the experimental group recorded a higher degree of improvement compared to those in the control group. Discussions of these differences in improvement will be further elaborated in Chapter 5.

4.3 The listeners' evaluation of the students' reading aloud production

The native English listeners also evaluated the students' production in terms of comprehensibility and accentedness in a reading aloud task, using a 9-point Likert scale.

This was done to answer the second research question which aimed to investigate whether teaching suprasegmental features is effective in improving learners' reading aloud production to be easily comprehensible to listeners and less accented. This was done by comparing the results of the experimental group before and after receiving suprasegmental-based instruction, using a paired sample *t*-test and the calculation of effect size (Cohen's d). In addition, the results of the experimental group were compared to those of the control group, in order to evaluate whether suprasegmental-based instruction was more effective than the instruction with no explicit pronunciation teaching in improving these aspects of speech, using one-way ANOVA and independent sample *t*-test, as well as the calculation of effect size (Cohen's d).

4.3.1 Assessment of normality of data and inter-rater reliability

The normality distribution of the data gathered from pre- and post-tests was also assessed for the evaluated variables in the reading aloud task. Similarly, the Kolomogorov-Smirnov and the Shapiro-Wild were used for testing data normality, and the significance value used in these two tests was also 0.05.

Table 4.15 **Tests of normality of data in pre- and post-test reading aloud tests**

Tests of normality							
		Kolmogorov-Smirnov[2]			Shapiro-Wilk		
	Test	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	Comprehensibility	.116	32	.200*	.974	32	.625
	Accentedness	.189	32	.005	.923	32	.024
Post-test	Comprehensibility	.095	32	.200*	.963	32	.321
	Accentedness	.121	32	.200*	.954	32	.192

The two tests of normality indicate that the students' scores in both groups are normally distributed in the comprehensibility pre- and post-tests and in the accentedness post-test. However, they show that the data is not normally distributed in the accentedness pre-test data.

[2] Lilliefors Significance Correction

As Table 4.15 shows, both Kolomogorov-Smirnov and the Shapiro-Wild have a significant value greater than 0.05 in comprehensibility pre- and post-tests and accentedness post-test. Therefore, the assumption of data normality is confirmed in this study. Since the data was confirmed to be normally distributed, parametric tests (a paired sample *t*-test, independent sample *t*-test, and one-way ANOVA) were used to determine the significant improvement from pre- and post-tests of each group and to compare the performance of the experimental and control groups. However, the significant value was lower than 0.05 in the data distribution of accentedness pre-test scores. Therefore, non-parametric tests (Wilcoxon and Mann Whitney) were also calculated to confirm the results found in the parametric tests.

In addition, the intraclass correlation coefficient (ICC) was computed to confirm the inter-rater reliability in the evaluation of students' reading aloud production. ICC was computed for the two variables together and for each variable separately, to ensure that the raters had high agreement in their evaluation as well as to confirm that their rating is reliable.

Table 4.16 **Intraclass correlation among raters' evaluation of students' reading aloud production.**

	Overall raters' agreement in pre- and post-tests
Comprehensibility	0.934
Accentedness	0.882
The two variables combined	0.913

Overall, as presented in Table 4.16, the results show that raters had a high degree of agreement in their evaluation of the reading aloud production. The degree of raters' agreement in both variables together and separately exceeds 0.8, implying high agreement with little variation between the scores given to each speaker by the raters. The overall ICC coefficient for the two evaluated variables (comprehensibility and accentedness) combined was calculated as 0.913 (95% CI: [0.889, 0.934]), indicating high inter-rater agreement. Additionally, the stability of inter-rater agreement was confirmed by calculating the ICC for each individual test. For comprehensibility, the degree of agreement among raters in both pre- and post-tests was found to be 0.934 (95% CI: [0.907,0.956]). Similar testing was done for the evaluation of accentedness. The coefficient calculated for pre- and post-tests data was found to be 0.882 (95% CI: [0.834,0.921]). Since the intraclass correlation coefficient was found to be higher

than 0.8 in both evaluated tests, the reliability scores can be considered to indicate excellent agreement.

4.3.2. Results of the listeners' evaluation of comprehensibility of the students' reading aloud production.

The first variable used in the evaluation of the students' reading aloud production was comprehensibility. Comprehensibility was assessed using a 1 to 9 Likert scale, ranging from 1= 'very hard to understand' to 9= 'very easy to understand' (See Appendix 10). The results of the native listeners' evaluation of their comprehensibility to the students' reading aloud production in the two groups are presented below.

4.3.2.1 Performance improvement in reading aloud comprehensibility of the experimental and control groups, from the pre-test to the post-test

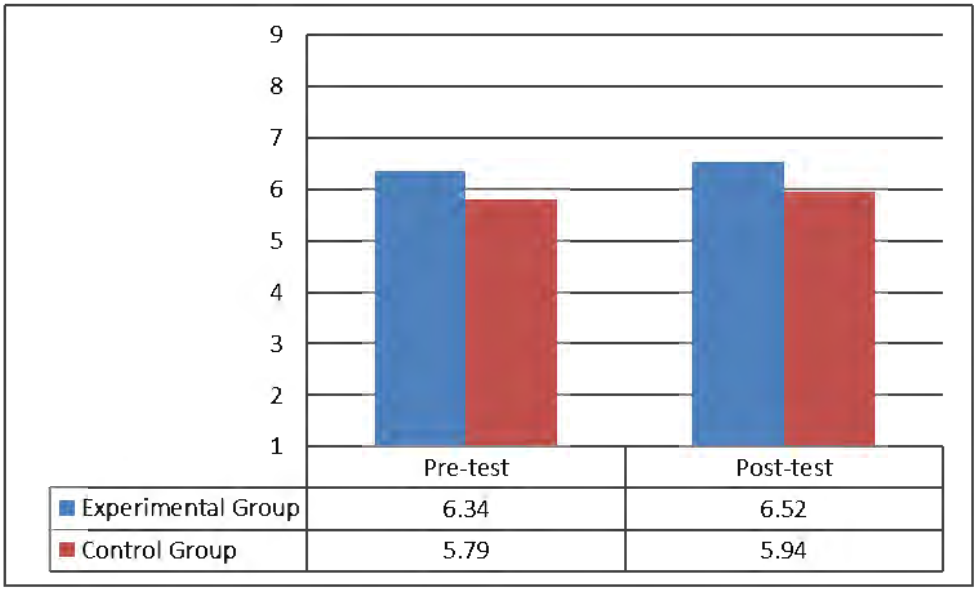

Figure 4.4 **Mean score of the experimental and control groups in comprehensibility in pre-test and post-test**

Table 4.17**Mean score and standard deviation of the experimental and control groups in comprehensibility in pre-test and post-test**

Group	Test	Mean	SD	Mean difference	Effect size value (within group)	Sig. value (within group)
Experimental Group	Pre-test Post-test	6.34 6.52	0.93 1.01	0.18	0.192	0.261
Control Group	Pre-test Post-test	5.79 5.94	1.00 0.98	0.15	0.153	0.123

As shown in Table 4.17, the mean of the comprehensibility scores of the students in the experimental group was 6.34 in the pre-test and the standard deviation was 0.93. After receiving suprasegmental-based instruction, the mean scores of the students in the experimental group increased to 6.52 and the standard deviation was 1.01. The mean increase among the students in the experimental group from the pre-test to the post-test was calculated as 0.18

On the other hand, the mean performance of the control group in terms of the comprehensibility of their reading aloud production in pre-test was 5.79 and the standard deviation was 1.00. In the post-test, the students increased their mean performance to 5.94 and the standard deviation was 0.98. The mean increase in the performance of the students in the control group was 0.15.

Table 4.18 **Performance improvement from pre-test to post-test of the experimental and control groups in comprehensibility**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Experimental Group	0.18	0.64	0.16	-0.15	0.52	1.16	15	.261
Control Group	0.15	0.37	0.09	-0.04	0.35	1.63	15	.123

As shown in Table 4.18, the results of the paired sample *t*-test of the experimental group from pre- and post-tests scores are non-significant (t (16) = 1.16, $p > 0.05$). The mean increase in the level of comprehensibility to the students' production was calculated as 0.18, and the significance (2-Tailed) value was calculated as 0.261. Being greater than 0.05, this suggests that there was no statistically significant difference in comprehensibility levels in the reading aloud task reported by the listeners before and after the course as a result of suprasegmental-based instruction.

On the other hand, the paired sample *t*-test showed that the improvement in the control group's production in terms of comprehensibility in reading aloud was also not statistically significant. The results (t (16) = 1.63 and $p > 0.05$) showed that the mean increase in the raters' comprehensibility of the control group students' reading aloud production is 0.15, and the significance (2-Tailed) value is 0.123. Thus, it can be confirmed that there is no statistically

significant difference in the production of the students in the control group in terms of comprehensibility as a result of the students having no explicit pronunciation instruction.

4.3.2.2 Comparison of performance improvement in comprehensibility in reading aloud between the experimental and control groups

Table 4.19 **Comparison of performance improvement in comprehensibility between the experimental and control groups using one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.009	1	0.009	0.03	.856
Within Groups	8.28	30	0.27		
Total	8.29	31			

The findings in the one-way ANOVA test (Table 4.19) showed that there was no significant difference between the improvements in comprehensibility of speech between the experimental and the control groups [F, (1.30) = 0.03, p 0.856]. The mean difference between the improvement of both groups in pre- and post-tests was 0.03, and the significance value was 0.856. As this latter value is greater than 0.05, it can be concluded that the improvement in comprehensibility of the experimental group was not significantly higher, statistically, than the improvement of the control group.

Table 4.20 **Comparison of performance improvement in comprehensibility in reading aloud between the experimental and control groups using independent sample *t*-test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.43	0.12	0.18	30	0.856	0.03	0.18	-0.34	0.41
Equal variances not assumed			0.18	24.18	0.856	0.03	0.18	-0.34	0.41

As shown in Table 4.20, the findings of the independent sample *t*-test similarly revealed that there was no significant difference between the experimental and control groups in terms of comprehensibility improvement (t (16) = 0.18, p > 0.05) in the reading aloud test. The significance (2-Tailed) value in the independent sample *t*-test was 0.856. Therefore, it can be concluded that the mean difference between the improvement of the experimental group and the improvement of the control groups in speech comprehensibility is not statistically significant in both one-way ANOVA and independent sample *t*-test.

4.3.3 Results of the listeners' evaluation of the students' accentedness in reading aloud production

The second variable in the evaluation of the students' production in reading aloud test was accentedness. Accentedness was also evaluated on a 1-9 Likert scale: a score of 1 represented a 'very strong foreign accent'; a score of 9 represented 'no foreign accent at all' present in the students' production (See Appendix 10). The results of the students in the experimental and control groups are presented below.

4.3.3.1 Performance improvement in the reduction of reading aloud accentedness of the experimental and control groups from the pre-test to the post-test

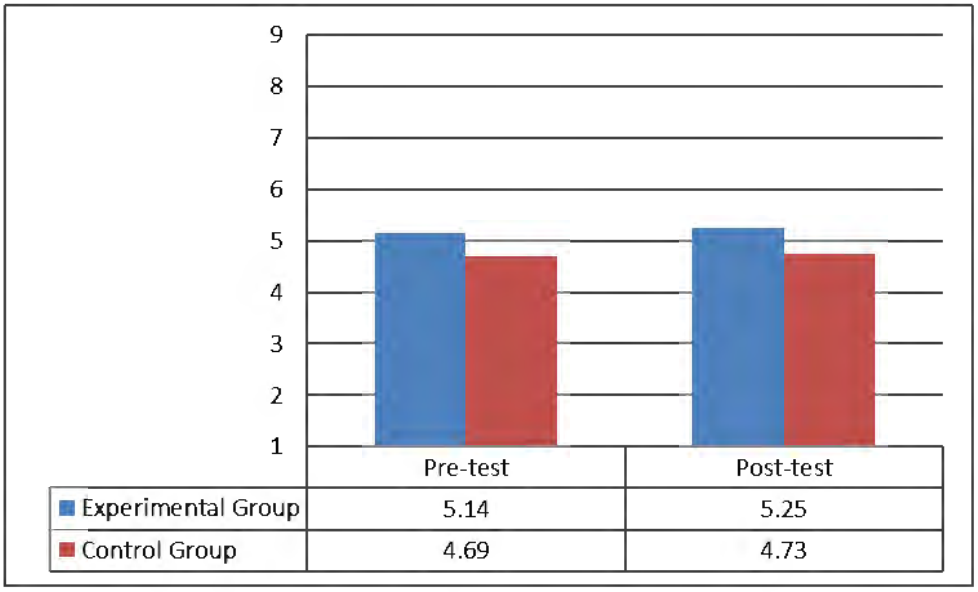

Figure 4.5 **Mean score of the experimental and control groups in accentedness in pre-test and post-test**

Table 4.21 **Mean score and standard deviation of the experimental and control groups in accentedness in pre-test and post-test**

Group	Test	Mean	SD	Mean difference	Effect size value (within group)	Sig. value (within group)
Experimental Group	Pre-test Post-test	5.14 5.25	0.90 0.85	0.10	0.122	0.329 *0.223
Control Group	Pre-test Post-test	4.69 4.73	0.45 0.68	0.03	0.068	0.693 *1.000

* refers to the P-value of Wilcoxon test

As shown in Figure 4.5 and Table 4.21, the mean score of the experimental group students' performance in reducing accentedness in reading aloud was 5.14 in the pre-test, and the standard deviation was 0.90. In the post-test, the students in the experimental group performed better than the pre-test as their mean score increased to 5.25 and the standard deviation was 0.85. The mean increase in the students' performance in terms of reducing accentedness in their reading aloud was 0.10.

On the other hand, the control group recorded a mean of 4.69 in the pre-test and the standard deviation was 0.45. After the experiment, the mean of the control group's performance increased to 4.73 and the standard deviation was 0.68. The mean increase in the students' performance in terms of reducing accentedness in their reading aloud was 0.03.

Table 4.22 **Performance improvement from pre-test to post-test of the experimental and control groups in the reduction of accentedness**

	Paired Differences					t	df	Sig. (2-tailed)	P-value of Wilcoxon test
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Experimental Group	0.10	0.42	0.10	-0.12	0.33	1.00	15	.329	.223
Control Group	0.03	0.39	0.09	-0.17	0.25	0.40	15	.693	1.000

The results of the paired sample *t*-test (Table 4.22) show that the performance improvement of the experimental group in terms of reducing accentedness in reading aloud

from pre- and post-test are non-significant (t (16) = 1.00 and $p > 0.05$). The mean increase in the students' performance in reducing accentedness was 0.10, and the significance (2-tailed) value was 0.329. Thus, it is concluded that there is no statistically significant difference in the foreign accent of the students before and after the course using suprasegmental-based instruction. The significance (2-tailed) value found in the paired sample *t*-test was also confirmed by Wilcoxon, as a non-parametric test. The results from the Wilcoxon test showed that the significance (2-tailed) value was 0.223, indicating a non-significant improvement in the students' ability to reduce accentedness in their reading aloud production.

Similarly, the paired sample *t*-test analysis shows that the reduction of accentedness among the students in the control group was also non-significant (t (16) = 0.40 and $p > 0.5$). The mean increase in the students' performance was only 0.03, and the significance (2-Tailed) value was 0.693, which confirms that there is no statistically significant difference in reducing the influence of Arabic on the reading aloud production of the students in the control group. The Wilcoxon test also showed that the significance (2-Tailed) value was 1.00, indicating non-significant improvement in the students' reduction of accentedness in their reading aloud production.

This suggests that neither suprasegmental-based instruction nor having no explicit pronunciation instruction helped the students in the experimental and control groups to reduce the level of accentedness in their reading aloud production to a significant level.

4.3.3.2 Comparison of performance improvement in the reduction of accentedness in reading aloud production between the experimental and control groups

Table 4.23 **Comparison of performance improvement in the reduction of accentedness between the experimental and control groups using one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.03	1	0.03	0.21	.643
Within Groups	5.094	30	0.17		
Total	5.131	31			

As shown in Table 4.23, the findings in the one-way ANOVA showed that there was no significant difference between the performance improvement in the reduction of

accentedness of the experimental and the control groups [F, (1.30) = 0.21, p 0.643]. The mean difference between the improvement of pre- and post-tests of the two groups was 0.06, and the significance (2-Tailed) value was 0.643. As this value was greater than 0.05, it can be concluded that the improvement in the reduction of accentedness of the experimental group was not significantly greater, statistically, than the improvement of the control group.

Table 4.24 **Comparison of performance improvement in the reduction of accentedness between the experimental and control groups using independent sample *t*-test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.06	0.80	0.46	30	0.643	0.06	0.14	-0.22	0.36
Equal variances not assumed			0.46	29.81	0.643	0.06	0.14	-0.22	0.36

As shown in Table 4.24, the findings in the independent sample *t*-test also revealed that there was no significant difference in the reduction of accentedness between the experimental and control group (t (16) = 0.46, p > 0.05). The significance (2-Tailed) value in the independent sample *t*-test is 0.643. Therefore, it can be concluded that the mean difference between the improvement in the reduction of accentedness among the students in the two groups is not statistically significant in both one-way ANOVA and independent sample *t*-test. In addition, the Mann Whitney test, a non-parametric test, was also calculated to confirm the results of the parametric tests. The results of Mann Whitney confirmed the results of the one-way ANOVA and independent sample *t*-test and the significance (2-Tailed) value found in Mann Whitney was 0.354, indicating no significant difference between the improvement of the two groups.

4.3.4 Summary of the listeners' evaluation in the students' reading aloud production

Section 4.3 has presented the analysis of the native English listeners' evaluation of the production of the students in the experimental and control groups in terms of the students' level of comprehensibility and accentedness in the reading aloud task.

The results of the listeners' evaluation showed that suprasegmental-based instruction did not significantly improve comprehensibility and reduce accentedness in the reading aloud task (p= 0.261 and p= 0.223 respectively). In addition, the control group similarly did not have any statistically significant improvement of comprehensibility and reduction of accentedness in the reading aloud task (p= 0.123 and p=1.000 respectively). The findings confirmed that teaching suprasegmental features to L2 learners was less effective in improving L2 learners' reading aloud production than it was on spontaneous speech production. Nevertheless, although the results are not significant, they indicate that the experimental group had indeed made more improvement than the control group in terms of reading aloud. Discussions of these differences in improvement will be further elaborated in the discussion chapter.

4.4 Acoustic analysis of the performance of the control and experimental groups

This section presents the results of acoustic analysis of the production of the students in the experimental and control groups, before and after the study which was conducted using Praat software. This tool was used to assess the students' flow of speech, in particular the length of silent pauses and the speech rate in the students' spontaneous speech production. The findings from the acoustic analysis of the students in the experimental and control groups are presented below.

4.4.1 Assessment of normality of data distribution

The distribution of the data gathered from pre- and post-tests for the duration of pauses and speech rate measurement was also assessed for normality using the Kolomogorov-Smirnov and the Shapiro-Wild tests. As done with the data gathered from the raters' evaluations, the significance value used in these two tests was 0.05.

Table 4.25 **Tests of normality of data in pre- and post-test spontaneous speech tests**

Tests of normality							
		Kolmogorov-Smirnov[3]			Shapiro-Wilk		
	Test	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	Duration of pauses	.122	32	.200*	.951	32	.153
	Speech rate	.084	32	.200*	.955	32	.194
Post-test	Duration of pauses	.194	32	.003	.888	32	.003
	Speech rate	.094	32	.200*	.960	32	.278

The two tests of normality indicated that the students' scores in both groups were normally distributed in speech rate measurement in pre- and post-tests and in duration of pauses in the pre-test. However, they showed that the data was not normally distributed in duration of pauses in the post-test data. As Table 4.25 shows, both Kolmogorov-Smirnov and the Shapiro-Wilk had a significant value greater than 0.05 in speech rate measurement in pre- and post-tests and in the duration of pauses in the pre-test. Therefore, the assumption of data normality is confirmed in this study. Since the data was confirmed to be normally distributed, parametric tests (a paired sample *t*-test, independent sample *t*-test, and one-way ANOVA) were used to determine the significant improvement from pre- and post-tests of each group and to compare the performance of the experimental and control groups. However, the significant value was lower than 0.05 in the data distribution of duration of pauses in the post-test calculation. Therefore, non-parametric tests (Wilcoxon and Mann Whitney) were also calculated to confirm the results found in the parametric tests.

4.4.2 Duration of silent pauses in spontaneous speech

The duration of silent pauses in spontaneous speech was measured in the pre- and post-tests of both the experimental and control groups. As explained in the methodology chapter (See Section 3.5.2.1), the duration of pauses in the students' speech samples was assessed by dividing the total length of the silent pauses by the total number of silent pauses of each speaker. This is intended to measure the duration of each silent pause made by the students in both groups. The results of the experimental and control groups in the duration of silent pauses in spontaneous speech tests are presented below.

[3] Lilliefors Significance Correction

In general, the analysis of the speech samples showed that the students in both groups had long pauses ranging between 413ms to 1290ms for each pause. Most of the pauses made by the students were longer than 500ms in duration which may be enough to affect the speaker's fluency and the comprehensibility of their speech. The results also showed that the duration of some pauses jumped above 1200ms. The example below shows that the students tended to make long pauses of more than 250 ms (Figure 4.6).

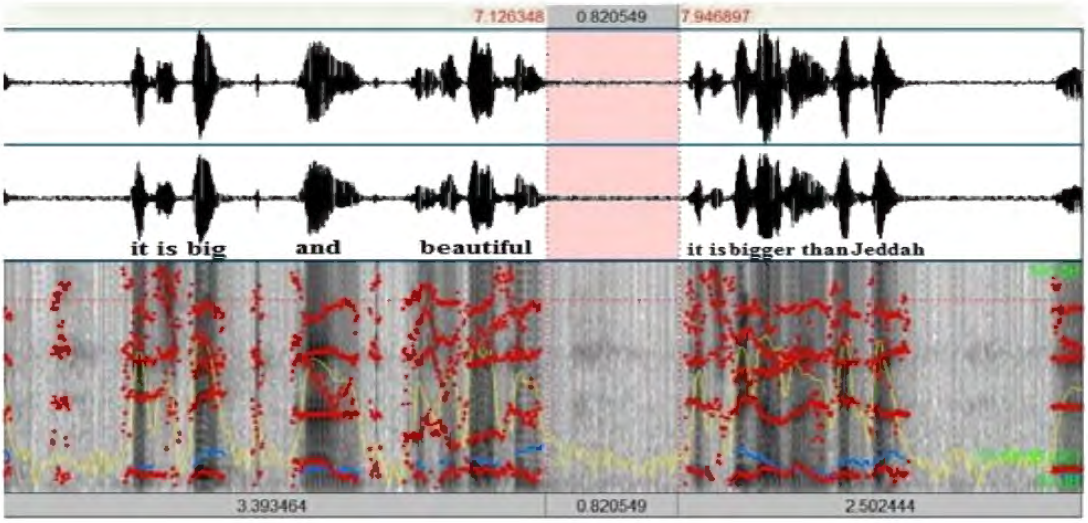

Figure 4.6 **Example of duration of long pauses produced by Saudi students**

4.4.2.1 Performance improvement in duration of pauses in spontaneous speech of the experimental and control groups from the pre-test to the post-test

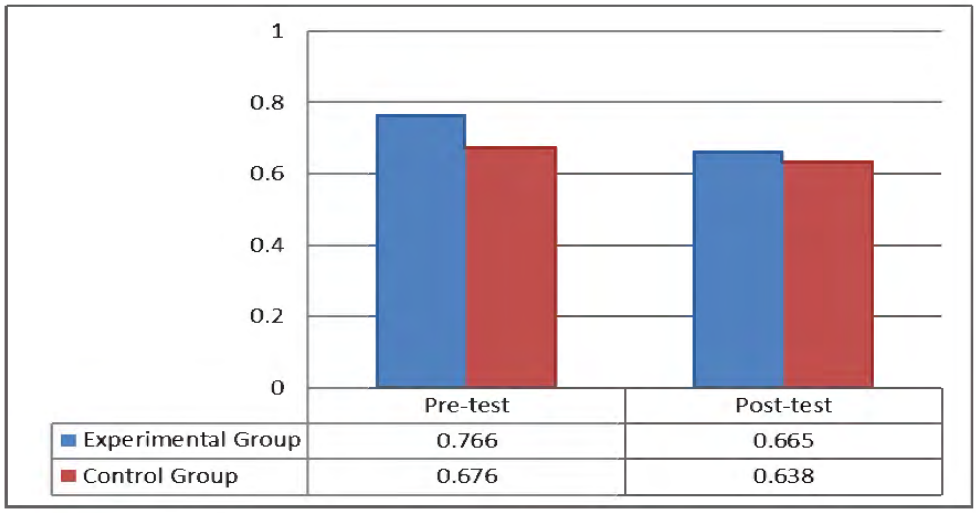

Figure 4.7 **Mean score of the experimental and control groups in duration of pauses in spontaneous speech in pre-test and post-test**

Table 4.26 **Mean score and standard deviation of the experimental and control groups in duration of pauses in spontaneous speech in pre-test and post-test**

Group	Test	Mean	SD	Mean difference	Effect size value (within group)	Sig. value (within group)
Experimental Group	Pre-test Post-test	0.766 0.665	0.25 0.25	- 0.10	0.401	0.088 *0.039
Control Group	Pre-test Post-test	0.676 0.638	0.22 0.16	- 0.03	0.193	0.271 *0.301

* refers to the P-value of Wilcoxon test

As shown in Table 4.26, the mean duration of each silent pause made by the students in the experimental group in the pre-test was 0.766 ms, and the standard deviation was 0.25. In the post-test, the mean duration of each silent pause produced by the students in the experimental group decreased to 0.665 ms, and the standard deviation was 0.25.

On the other hand, as shown above (Table 4.26), the mean duration of each silent pause produced by the students in the control group in the pre-test was 0.676 ms, and the standard deviation was 0.22. In the post-test, the mean duration of each silent pause produced by the students in the econtrol group decreased to0.638 ms, and the standard deviation was 0.16.

Table 4.27 **Performance improvement from pre-test to post-test of the experimental and control groups in reducing duration of pauses**

	Paired Differences					t	df	Sig. (2-tailed)	P-value of Wilcoxon test
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Experimental Group	-0.10	0.22	0.05	-0.22	0.01	-1.82	15	.088	.039
Control Group	-0.03	0.13	0.03	-0.10	0.03	-1.14	15	.271	.301

As Table 4.27 shows, the results of the paired sample *t*-test of the experimental group were non-significant, with (t (16) = 1.82 and p >.05). The mean decrease in the duration of the students' silent pauses in spontaneous speech was 0.10 from the pre-test (M=0.766) to the post-test (M=0.665), and the significance level was 0.088. This indicates that there was a non-significant reduction in the duration of silent pauses among the students in the experimental

group. However, the non-parametric test, Wilcoxon test showed that the improvement among the experimental group in terms of reducing silent pauses was significant as the value was 0.039. In addition, the results of effect size (Cohen's d) showed the value of the improvement of the students in the experimental group performance was 0.401, indicating a medium effect of suprasegmental-based instruction on the improvement of the students' ability to reduce the length of silent pauses in their spontaneous speech production.

On the other hand, as Table 4.27 illustrates, the mean decrease of silent pauses made by the students in the control group was only 0.03. This improvement in their performance was not statistically significant, as the results were (t (16) = 1.14, p > 0.05) and the significance level was 0.271, indicating a non-significant improvement. In addition, the results of the Wilcoxon test showed that the control group did not have a significant improvement in their performance in reducing silent pauses in their speech as the significance value found in the Wilcoxon test for the control group was 0.301.

4.4.2.2 Comparison of performance improvement in duration of pauses in spontaneous speech between the experimental and control groups

Table 4.28 **Comparison of performance improvement in reducing duration of pauses between the experimental and control groups using one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.03	1	0.03	0.95	.337
Within Groups	1.01	30	0.03		
Total	1.04	31			

The findings of the one-way ANOVA test (see Table 4.28) showed that there was no significant difference between the improvement in performance of the experimental group and the control group, in terms of decrease in pause duration in the spontaneous speech task [F, (1.30) = 0.95, p .337]. The mean difference between the improvement of both groups in pre- and post-tests was 0.06 and the significance value was 0.337. As this value is greater than 0.05, it can be concluded that there was no statistically significant difference between the improvement of the experimental group and the control group.

Table 4.29 **Comparison of performance improvement in reducing duration of pauses between the experimental and control groups using independent sample *t*-test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.16	0.289	-0.97	30	.337	-0.06	0.06	-0.19	0.06
Equal variances not assumed			-0.97	24.58	.338	-0.06	0.06	-0.19	0.07

Similarly, as shown in the table (4.29), the findings in the independent sample *t*-test were similar to the results found in one-way ANOVA, and revealed that there was no significant difference between the improvement of the experimental group and that of the control group ($t(16) = 0.97$, $p > 0.05$). The significance (2-Tailed) value in the independent sample *t*-test was 0.337. This value is greater than 0.05, therefore it can be concluded that the mean difference between the improvement of the two groups is not statistically significant in both the one-way ANOVA test and the independent sample *t*-test.

4.4.3 Rate of speech analysis

The second element of the acoustic analysis measured was the rate of speech. As explained in section 3.5.2, this analysis was done by calculating the total number of syllables produced by each speaker divided by the total speaking time (syllable/second), including pauses. The results of the experimental and control groups in the rate of speech in the spontaneous speech test are presented below.

4.4.3.1 Performance improvement in spontaneous speech rate of the experimental and control groups from pre- and post-tests

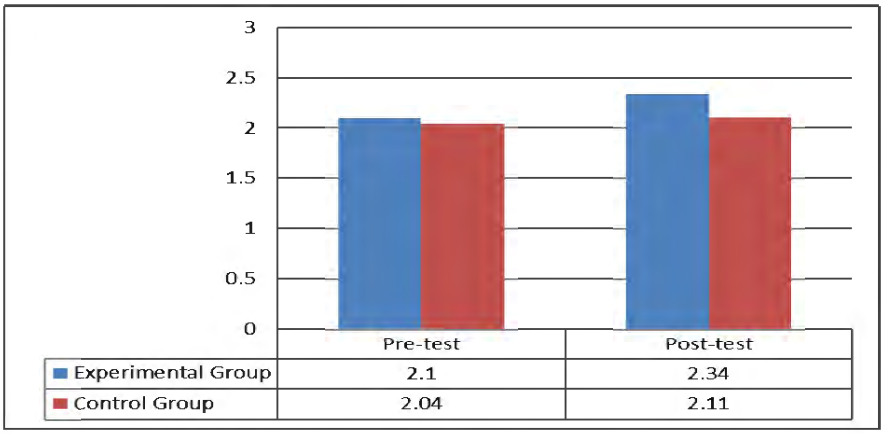

Figure 4.8 **Mean score of the experimental and control groups in speech rate in pre-test and post-tes**t

Table 4.30 **Mean score and standard deviation of the experimental and control groups in speech rate in pre-test and post-test**

Group	Test	Mean	SD	Mean difference	Effect size value (within group)	Sig. value (within group)
Experimental Group	Pre-test Post-test	2.10 2.34	0.60 0.52	0.24	0.429	**0.025**
Control Group	Pre-test Post-test	2.04 2.11	0.64 0.70	0.06	0.096	0.493

As Table 4.30 above shows, the mean number of the syllables per second produced by the students in the experimental group was 2.10 in the pre-test and the standard deviation was 0.60. In the post-test, the mean number of syllables per second for the experimental group increased to 2.34 and the standard deviation was 0.52.

On the other hand, as shown in Table 4.30, the mean number of syllables per second produced by the students in the control group in the pre-test was 2.04, and the standard deviation was 0.64. In the post-test, the mean number of syllables per second produced in the post-test was 2.11 and the standard deviation was 0.70.

Table 4.31 **Performance improvement from pre-test to post-test of the experimental and control groups in speech rate**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Experimental Group	0.24	0.38	0.09	0.03	0.45	2.49	15	**.025**
Control Group	0.06	0.37	0.09	-0.13	0.26	0.70	15	.493

As seen in Table 4.31 above, the mean increase in the number of syllables per second in the performance of the students in the experimental group is 0.24, and the significance (2-Tailed) value is 0.025. This value indicates that suprasegmental-based instruction significantly increased the experimental group students' speech rate. In addition, the results of effect size (Cohen's d) showed the value of the improvement of the students in the experimental group in terms of increasing speech rate in their spontaneous speech production was 0.429, indicating a medium effect of suprasegmental-based instruction on the improvement in their production.

In contrast, the mean increase in the number of syllables per second in the performance of the students in the control group is 0.06. As Table 4.31 shows, this improvement was not statistically significant, as the significance value (p= 0.493) was greater than 0.05. This indicates that no explicit pronunciation instruction had no significant impact on increasing the students' speech rate in the spontaneous speech task.

4.4.3.2 Comparison of performance improvement in speech rate between the experimental and control groups

Table 4.32 **Comparison of performance improvement in speech rate between the experimental and control groups using one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.25	1	0.25	1.76	.195
Within Groups	4.34	30	0.14		
Total	4.59	31			

The comparison of improvement in performance between the two groups using a one-way ANOVA (see Table 4.32) showed that the experimental group had no statistically significant improvement in speech rate production in comparison with the improvement among the control group [F, (1.30) = 1.76, p 0.195]. This is indicated by the significance value measuring the speech rate as 0.195, which is greater than 0.05.

Table 4.33 **Comparison of performance improvement in speech rate between the experimental and control groups using independent sample *t*-test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.09	0.755	1.32	30	.195	0.17	0.13	-0.09	0.45
Equal variances not assumed			1.32	29.92	.195	0.17	0.13	-0.09	0.45

As shown in Table 4.33, the findings in the independent sample *t*-test also revealed that there was no significant difference in the improvement in speech rate between the experimental and control groups (t (16) = 1.32, p > 0.05). The significance (2-Tailed) value in the independent sample *t*-test is 0.195. Therefore, it can be concluded that the mean difference between the improvement of the experimental group and the control groups in speech rate is not statistically significant in both the one-way ANOVA and independent sample *t*-test.

4.4.4 Summary of the acoustic analysis results

Section 4.4 has presented the results of the impact of suprasegmental-based instruction on improving the speech rate and reducing the length of silent pauses of the experimental group in spontaneous speech as an indication of improved fluency in the students' production.

The results of the analysis of the experimental group students' speech rate and duration of pauses in spontaneous speech indicate that suprasegmental-based instruction helped to

improve students' fluency by producing more syllables per second in their spontaneous speech production to a significant level (p= 0.025), and with a medium effect (*d*= 0.429). In addition, the results show that this type of instruction reduced the duration of silent pauses in the students' spontaneous speech production to a significant level in the Wilcoxon test (p= 0.039) and had a medium effect (*d*= 0.401) on the students' performance improvement.

In contrast, the teaching method with no explicit pronunciation instruction focus did not have a significant impact on enhancing the students' production in these two aspects of fluency. As evidenced in the results shown above, this type of instruction also did not produce a significant improvement in reducing the length of pauses or in increasing the number of syllables produced when speaking spontaneously in English (p= 0.493 and p= 0.301 respectively). In addition, the findings from the acoustic analysis show that suprasegmental-based instruction was more helpful in reducing long pauses and increasing speech rate than the instruction with no explicit pronunciation focus.

4.5 Results of the perception tests

This section presents the results of the perception tests done by the experimental and control groups before and after the study This part of the research was carried out to obtain answers to the third research question, which aimed to assess whether suprasegmental-based instruction had an impact on improving the listening abilities of Saudi EFL learners, to correctly perceive and identify the words and intonation of a speaker in English fluent speech. The results of the experimental and control group performance from pre- and post- tests are presented below.

4.5.1 Results of the word identification task

The first of the perception tests, the word identification task, was used to investigate whether suprasegmental-based instruction can improve learners' ability to correctly perceive and identify words in a stream of speech. In this task, the students in both groups listened to a list of sentences, each containing two words that are similar in pronunciation; the students were asked to choose which word was pronounced by the speaker. The findings from the word identification task are presented below.

4.5.1.1 Performance improvement of the experimental and control groups from pre- and post-tests in the word identification task

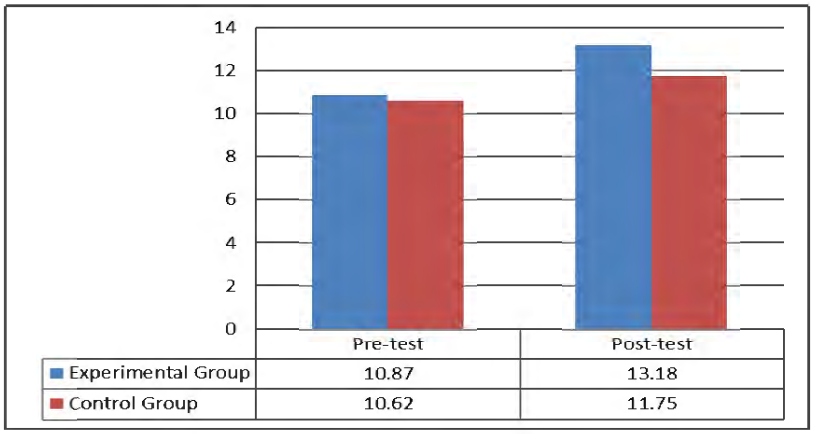

Figure 4. 9 **Mean score of the experimental and control groups in the word identification task in pre-test and post-test**

Table 4.34 **Mean score and standard deviations of the experimental and control groups in the word identification task in pre-test and post-test**

Group	Test	Mean	SD	Mean difference	Effect size value (within group)	Sig. value (within group)
Experimental Group	Pre-test Post-test	10.87 13.18	1.36 0.91	2.31	1.998	**0.000**
Control Group	Pre-test Post-test	10.62 11.75	1.31 1.43	1.12	0.817	**0.001**

As shown in Table 4.34, the mean performance of the experimental group in the pre-test was 10.87 and the standard deviation was 1.36. In the post-test, the mean of the performance of the students in in the experimental group increased to 13.18 and the standard deviation was 0.91. Thus, the mean improvement among the students in the experimental group was 2.31 from the pre-test (*M*=10.87) to the post-test (*M*=13.18).

In contrast, the mean increase in the performance of the control group was 1.12. The mean of the performance of the students in the control group in the pre-test was 10.62 and the standard deviation was 1.31, while in the post-test, the mean of their performance was 11.75 and the standard deviation was 1.43.

Table 4.35 **Performance improvement from pre-test to post-test of the experimental and control groups in the word identification task**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Experimental Group	2.31	1.07	0.26	1.73	2.88	8.579	15	**.000**
Control Group	1.12	1.08	0.27	0.54	1.70	4.137	15	**.001**

As shown in Table 4.35, the results of the paired sample *t*-test of the experimental group are significant (t (16) = 8.57, $p < 0.05$). The mean increase in the students' ability to identify correctly the word pronounced by the native English speaker was 2.31, and the significance (2-Tailed) value was 0.000. This indicates a statistically significant improvement in the listening perception abilities in identifying words in English sentences as a result of suprasegmental-based instruction. In addition, the results of the Cohen's effect size value (d= 1.998) showed that this type of instruction has a very large practical effect on improving learners' listening abilities in identifying words in a stream of speech.

Similarly, the results of the paired sample *t*-test showed there was a significant improvement in the performance of the students in the control group (t (16) = 4.13, $p < 0.05$) in the word identification task. The mean increase in performance was 1.12, and the significance (2-Tailed) value was 0.001. Thus, it can be concluded that the speaking and listening teaching method with no explicit pronunciation instruction has helped the students in the control group to significantly improve their ability in the word identification task. The results of the Cohen's effect size value (d= 0.817) also showed a large practical effect of the speaking and listening teaching method with no explicit pronunciation instruction on the improvement of the control group in the word identification task.

4.5.1.2 Comparison of performance improvement in word identification task between the experimental and control groups

Table 4.36 **Comparison of performance improvement in word identification task between the experimental and control groups using one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.28	1	11.28	9.61	.004
Within Groups	35.18	30	1.17		
Total	46.46	31			

As shown in Table 4.36, the findings in the one-way ANOVA showed that there was a statistically significant difference between the performance improvement of the experimental group in comparison with the improvement of the control group. It identified the difference of improvement between the ability of the experimental and control groups to correctly identify words in English sentences in a word identification task as [F, (1.30) = 9.61, p .004]. The mean difference in improvement of both groups between the pre- and post-tests was 1.18, and the significance value was 0.004, thus lower than 0.05. Therefore, it can be concluded that, in the word identification task, the improvement among the students in the experimental group was higher, and more statistically significant compared to the students in the control group.

Table 4.37 **Comparison of performance improvement in word identification task between the experimental and control groups using independent sample *t*-test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.05	0.819	3.10	30	.004	1.18	0.38	0.40	1.96
Equal variances not assumed			3.10	29.99	.004	1.18	0.38	0.40	1.96

Similarly, as shown in Table 4.37, the independent sample *t*-test also revealed that there was a statistically significant difference between the means of improvement of the two groups. The difference in the ability of the students in the experimental and the control groups in a word identification task was calculated as (t (16) = 3.10, $p < 0.05$). The significance (2-Tailed) value in the independent sample *t*-test is 0.004. Therefore, it can be concluded that the difference between the mean improvement of the experimental group and the mean improvement of the control group is statistically significant in both the one-way ANOVA test and independent sample *t*-test. In addition, the Cohen's effect size value was found to be 1.096. As this value is larger than 0.8, it can be reported that the difference between the two groups is large. This indicates that suprasegmental-based instruction has a much larger effect than the instruction with no explicit pronunciation teaching on improving learners' listening perception to identify words in speech.

4.5.2 Results of the intonation identification task

The second task of the perception test, the intonation identification task, aimed to investigate whether suprasegmental-based instruction can improve learners' ability to correctly perceive and identify the intonation of the speaker in English sentences. The findings from the intonation identification task are presented below.

4.5.2.1 Performance improvement in intonation identification task of the experimental and control groups from pre- and post-tests

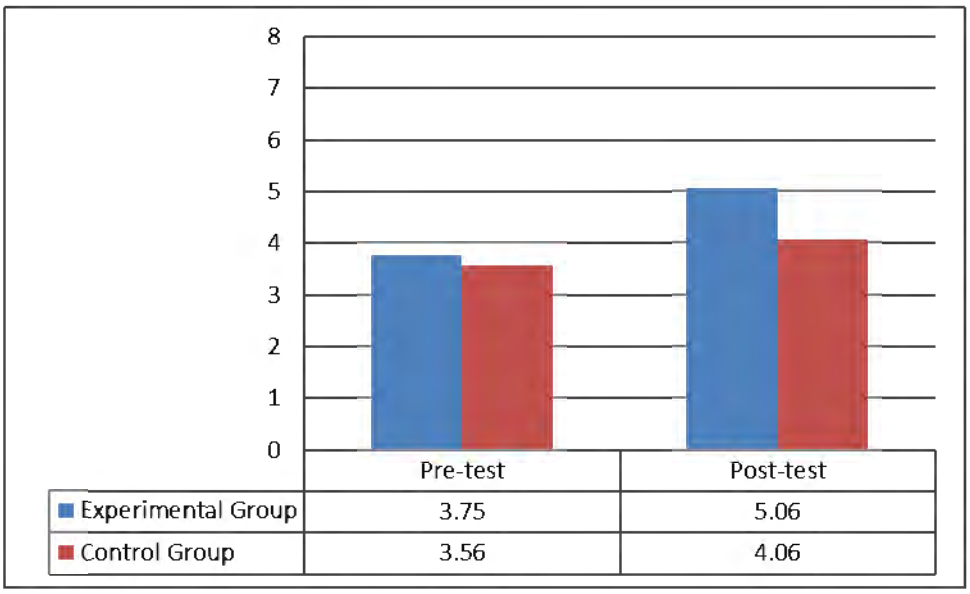

Figure 4.10 **Mean score of the experimental and control groups in the intonation identification task in pre-test and post-test**

Table 4.38 **Mean score and standard deviations of the experimental and control groups in the intonation identification task in pre-test and post-test**

Group	Test	Mean	SD	Mean difference	Effect size value (within group)	Sig. value (within group)
Experimental Group	Pre-test Post-test	3.75 5.06	1.23 1.12	1.31	1.110	**0.000**
Control Group	Pre-test Post-test	3.56 4.06	1.09 1.06	0.50	0.463	**0.041**

As shown in Table 4.38, the mean performance of the experimental group in the pre-test was 3.75 and the standard deviation was 1.23. In the post-test, the mean score of the performance of this group increased to 5.06 and the standard deviation was 1.12. The mean improvement among the students' performance was 1.31 from the pre-test (*M*=3.75) to the post-test (*M*=5.06).

Table 4.38 also shows that the control group recorded a mean of 3.56 in the pre-test and the standard deviation was 1.09. As a result of the instruction with no explicit pronunciation teaching, the mean increased to 4.06 and the standard deviation was 1.06, with a performance increase of 0.50.

Table 4.39 **Performance improvement from pre-test to post-test of the experimental and control groups in the intonation identification task**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Experimental Group	1.31	0.79	0.19	0.88	1.73	6.61	15	**.000**
Control Group	0.50	0.89	0.22	0.02	0.97	2.23	15	**.041**

The paired sample *t*-test, shown in Table 4.39, showed a statistically significant difference between pre-test and post-test scores in the ability of the students in the experimental group to identify the correct intonation in English sentences. The results (t (16) = 6.61, $p < 0.05$), indicate that there was a significant increase in competency of the students in correctly identifying the intonation patterns with a mean increase of 1.31, and the

significance (2-Tailed) value was 0.000. This confirms that there is a statistically significant difference between the students' performance before and after suprasegmental-based instruction intervention. In addition, the results of the Cohen's effect size value (*d*= 1.110) showed that this type of instruction has a large effect size on improving learners' listening abilities to correctly perceive and identify the speaker's intonation in English fluent speech.

On the other hand, the paired sample *t*-test analysis also showed that the improvement of the students in the control group in the intonation identification task was significant (t (16) = 2.23 and $p < 0.05$). The mean increase in the students' scores was calculated as 0.50 from the pre-test (*M*=3.56) to the post-test (*M*= 4.06), and the significance (2-Tailed) value was 0.041. This indicates that there was a statistically significant difference in the performance of the control group. In addition, the result of effect size (Cohen's d) showed that this type of instruction had a medium effect on the learners' improvement in the second task of the perception test, with an effect size value calculated as 0.463.

4.5.2.2 Comparison of performance improvement in intonation identification task between the experimental and control groups

Table 4.40 **Comparison of performance improvement in intonation identification task between the experimental and control groups using one-way ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.28	1	5.28	7.39	.011
Within Groups	21.43	30	0.71		
Total	26.71	31			

As shown in Table 4.40, the findings in the one-way ANOVA show that there was a statistically significant difference between the experimental and the control group in terms of improvement in the students' ability to identify the intonation patterns in English sentences in the intonation identification task [F, (1.30) = 7.39, p 0.011]. The mean difference between the improvements of both groups in the pre- and post-tests was 0.81, and the significant value was 0.011. Therefore, it can be concluded that the improvement of the experimental group was, statistically, significantly greater than the improvement among the control group in the second task of the listening perception test.

Table 4.41 **Comparison of performance improvement in intonation identification task between the experimental and control groups using independent sample *t*-test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.48	0.490	2.71	30	.011	0.81	0.29	0.20	1.42
Equal variances not assumed			2.71	29.57	.011	0.81	0.29	0.20	1.42

As shown in Table 4.41, the findings in the independent sample t-test also revealed that there was a statistically significant difference between the improved ability of the students of the experimental and the control groups to correctly perceive and identify the intonation of the speaker in English sentences in the intonation identification task (t (16) = 2.71, $p < 0.05$). The significance (2-Tailed) value in the independent sample *t*-test was 0.011. Thus, it can be concluded that the mean difference between the improvement of the experimental group and the control group in the intonation identification task was statistically significant in both one-way ANOVA and independent sample *t*-test. In addition, the results of effect size (Cohen's d) showed that the practical difference between the improvement among the experimental group, and the improvement among the control group is large. The Cohen's effect size value was calculated at 0.961. As this value is greater than 0.8, it can be accepted that the effect size of the difference between the two groups is large.

4.5.3 Summary of perception tests results

The tests of the students' listening perception presented in this section were carried out to assess whether suprasegmental-based instruction could improve the ability of the students in the experimental group to correctly perceive and identify words and the speaker's intonation in fluent speech. The results showed that suprasegmental-based instruction was effective in

improving their listening perception skills to a statistically significant degree and with a very large size effect.

The results of this study indicate that suprasegmental-based instruction was effective in improving the students' ability to correctly perceive and identify the correct word in English production and to correctly identify the English native speaker intonation during fluent speech to a statistically significant degree (p= 0.000 and p= 0.000 respectively) and with a large effect size (*d*= 1.998 and *d*= 1.110 respectively). On the other hand, the instruction with no explicit pronunciation teaching also helped the control group to improve their ability to identify words and intonation patterns in running speech to a significant level (p= 0.001 in the word identification task and p= 0.041 in the intonation identification tasks). However, the effect size (Cohen's d) showed that the effect of this type of instruction was large on the word identification task (*d*= 0.817) but had a medium effect on the intonation identification task (*d*= 0.463). In addition, the results showed that suprasegmental-based instruction was more effective than the instruction with no explicit pronunciation teaching in enhancing students' listening ability in both tasks, as shown in significant values reported by the one-way ANOVA test and the independent sample *t*-test (p= 0.004 in the word identification task and p= 0.011 in the intonation identification tasks). Effect size calculation using Cohen's test further confirmed the significant impact of this type of instruction in the large difference between the effect of the two types of instruction in both word identification and intonation identification tasks (*d*= 1.096 and *d*= 0.961 respectively).

4.6 Results from end-of-course questionnaire

This section addresses the fourth research question about the responses of the students in the experimental group to suprasegmental-based instruction. It focuses in particular on the qualitative and quantitative data gathered from the questionnaires provided by the experimental group students. The results help to identify some teaching techniques and activities that teachers mighty apply in teaching English suprasegmental features in Saudi Arabia. There may also be helpful in determining which suprasegmental features are appropriate for Saudi EFL learners at the intermediate level.

As mentioned in the methodology chapter (see section 3.5.3), the questionnaires were only given to the students in the experimental group, and it was administered as a means to elicit their opinions about the suprasegmental-based instruction. The first part of the

questionnaire involved closed questions that were used to gather feedback from the students about their perceptions of the utility of the suprasegmental based course in improving their perception and production, and of how satisfied they were with suprasegmental-based instruction. The second part involved open-ended questions designed to gather, in more detail, the students' opinions about what they liked and did not like in this type of instruction, to aid the interpretation of the results gathered in the survey.

In general, the questions in the end-of-course survey were designed to gather information about: students' self-evaluation of their level of pronunciation and listening skills; their level of satisfaction with the course; their perceived understanding of the suprasegmental features taught in the course; and their opinions on the activities used in the suprasegmental based course.

The data obtained from the closed questions were then analysed quantitatively, tabulated and interpreted using percentages, means and standard deviation, while the data obtained from the open-ended questions were analysed qualitatively using thematic analysis. The results of both quantitative and qualitative data are discussed separately below.

4.6.1 Quantitative data analysis

The quantitative part of the questionnaire contained seven questions which focused on four categories: the students' self-evaluation of their pronunciation ability; the students' self-evaluation of their listening perception; levels of satisfaction with the type of instruction used in the course; and the students' perception of the suprasegmental-based instruction lessons taught in the course.

4.6.1.1 Analysis of reliability

In order to confirm the reliability and consistency of the questionnaire items, Cronbach's alpha coefficients were calculated. Bolarinwa (2015) states that Cronbach's alpha is the most common measure for assessing the internal consistency of scales in questionnaires.

In this study, Cronbach's alpha was computed to ensure the reliability of the overall questionnaire items (except question 1, which recorded the difference between the students' perceived pronunciation ability after the intervention, compared to their perceived pronunciation ability before intervention). The results of the reliability assessment showed that the items in the questionnaire intended to measure the impact of suprasegmental-based

instruction on the experimental group students' learning improvement have a very high reliability (α=0.94), a result which also indicates high internal consistency.

Cronbach's alpha was also used to assess the reliability of the four categories included in the questionnaire (item groups of: students' self-evaluation of their pronunciation ability, students' self-evaluation of their listening perception, levels of satisfaction with the course, and the students' perception of the suprasegmental-based instruction lessons taught in the course). Each item group also recorded an acceptable level of reliability: students' self-evaluation of their pronunciation ability (α =0.64), students' self-evaluation of their listening perception (α =0.64), students' satisfaction with the course (α =0.91), and students' perception of the lessons taught in the course (α = 0.86).

The reliability scores of the whole questionnaire and each of the four categories included in the questionnaire compared well with those reported in the literature (e.g. Alrabai, 2014; Alonazi, 2017). According to Taber (2016) Alpha coefficient values are considered reliable and acceptable when they are 0.60 or higher. However, it is important to note that the reliability scores of these four categories is lower than the overall reliability of the whole questionnaire, because scales consisting of just two or three items tend to be lower compared to scales consisting of multiple items. The analyses of the students' responses to the questionnaire items are shown in tables and graphs below.

4.6.1.2 Students' self-evaluation of their pronunciation ability

(1) *Describe your level of English pronunciation before and after your participation in the suprasegmental-based instruction course.*

This questionnaire started by asking the students to evaluate the level of their own pronunciation before and after the four-week suprasegmental based course. This was intended to record the students' satisfaction with their pronunciation ability and whether they felt an improvement in their production as a result of suprasegmental-based instruction as per their views. Therefore, the participating students were asked to assess their level on a five- point Likert Scale ('very poor'; 'poor'; 'satisfactory'; 'good'; and 'very good'). The students' responses to the first question are presented in the graph below in percentages.

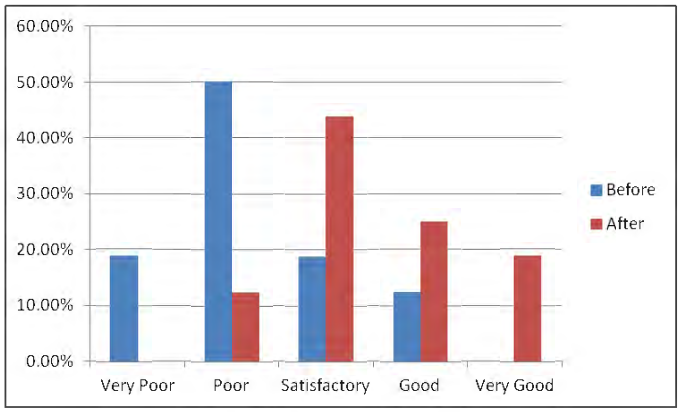

Figure 4.11 **Students' perceived pronunciation before and after the course**

The graph (Figure 4.11) shows that 18.8% (n=3) of the students in the experimental group assessed themselves as having very poor pronunciation before taking the suprasegmental based course, while 50% (n=8) reported poor pronunciation. Another 18.8% (n=3) of the students were satisfied with their pronunciation and 12.5% (n=2) assessed their pronunciation level as 'good'. The mean for the students' responses, before the course, was calculated as 2.25, and the standard deviation as 0.93.

The results obtained from this questionnaire item show that a significant portion of the students reported low pronunciation skills before taking the course. However, the data gathered from the students' self-assessment after the course indicated that they thought they had improved their pronunciation skills. As shown in the graph above (Figure 4.11), 43.8% (N=7) of the students felt satisfied with their pronunciation after the course, 25% (N=4) of them assessed their pronunciation as 'good', and 18.8% (N=3) as 'very good'. Only 12.5% (N=2) of the students felt that their pronunciation was still poor. The mean for the students' responses to their pronunciation level after the course increased to 3.50, and the standard deviation to 0.96. The increase in the mean indicates a general feeling of improvement among students in their pronunciation skills.

(2) *To what extent, do you agree that suprasegmental-based instruction helped you improve your English pronunciation?*

The second item of the questionnaire aimed to investigate whether the students attributed their improvement in pronunciation to the suprasegmental-based instruction. Therefore, the students in the experimental group were asked to report to what degree they attributed the improvement in their pronunciation skills to the suprasegmental-based

instruction course. They were asked to record their responses on a five-point Likert scale (1 = ‘strongly disagree’; 2 = ‘disagree’; 3 = ‘neutral’; 4 = ‘agree’; and 5 = ‘strongly agree’). The graph below (Figure 4.12) shows the students’ responses.

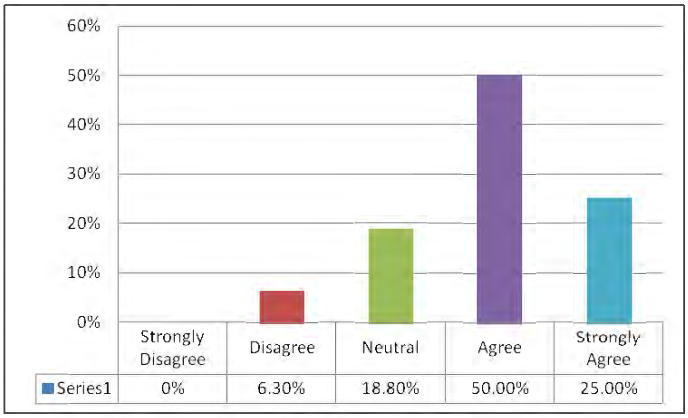

Figure 4.12 **Students’ perceived pronunciation improvement as a result of the course**

As shown in the graph above, half of the students who took the course (N=8) agreed that the suprasegmental-based instruction course had a positive impact on their improvement in pronunciation, and 25% (N=4) strongly agreed. However, those who were not sure if their pronunciation improvement was caused by the suprasegmental-based instruction or disagreed that the course helped them improve their pronunciation their responses ranged between neutral or disagree. 18.8% (N=3) of the students were neutral and 6.3% (N=1) disagreed that the course had affected their pronunciation. The mean was calculated as 3.93 and standard deviation as 0.85. The majority of the students' responses indicate that they felt their pronunciation improvement resulted from the suprasegmental-based instruction.

(3) *On a scale of 0 to 10, how would you rate the improvement in your pronunciation?*

The students’ perceived improvement was further confirmed by asking the students to rate their improvement in pronunciation on a 0-10 Likert scale, with 0 indicating ‘no improvement’; 1-3 ‘low improvement’; 4-7 ‘moderate improvement’; and 8-10 ‘high improvement’. A 10-point scale was used because it would give the students a wider range of scores to accurately evaluate their perceived pronunciation improvement. The results are shown below (Figure 4.13).

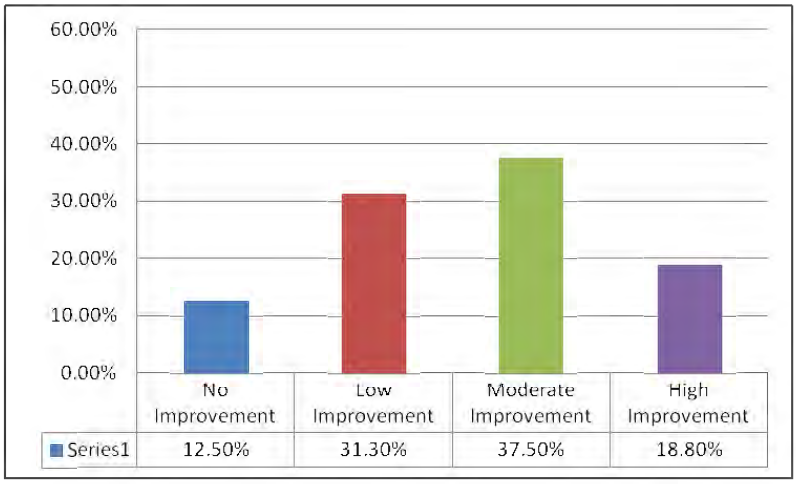

Figure 4.13 **Students' rating of perceived pronunciation improvement**

As shown in the graph above, 12.5% (N=2) of the students rated their improvement as 0 or 'no improvement' which indicates that they did not feel an improvement in their pronunciation as a result of suprasegmental-based instruction, while 31.3% (N=5) rated is as between 1–3 'low improvement', 37.5% (N=6) as between 4–7 'moderate improvement' and 18.8% (N=3) rated their improvement as 'high' or 8 and above. The mean was calculated as 4.62, and the standard deviation as 2.84. The results indicate that the majority of the students perceived a moderate to high improvement in their pronunciation as a result of learning English pronunciation through suprasegmental-based instruction.

4.6.1.3 Students' self-evaluation of their listening ability

(1) *To what extent do you agree that suprasegmental-based instruction helped you improve your listening ability?*

Similar to the students' evaluations of their perceived improvement in their pronunciation skills, the participants in the experimental group were asked to record the degree to which they felt that suprasegmental-based instruction was helpful in improving their listening ability. The questionnaire contained two questions about listening perception. The first question asked the students to describe whether they felt that the course helped them improve their listening perception. The students were asked to record their answers on a five-point Likert scale (1 = 'strongly disagree'; 2 = 'disagree'; 3 = 'neutral'; 4 = 'agree' and 5 = 'strongly agree'). Figure 4.14 shows the distribution of their responses in percentages.

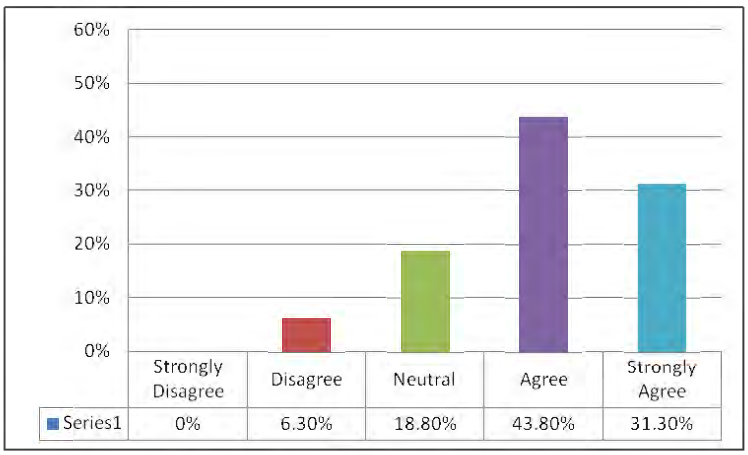

Figure 4.14 **Students' perceived listening improvement as a result of the course**

A total of 43.8% (N=7) of the students agreed, and 31.3% (N=5) strongly agreed that the course had helped them improve their listening perception. However, 18.8% (N=3) of the students were neutral about the impact of the course in their listening improvement, and 6.3% (N=1) did not attribute any improvement in their listening perception skills to the suprasegmental-based course. The mean for the students' responses is 4.00 and the standard deviation is 0.89. The students' responses indicate that the majority of the students believed that suprasegmental-based instruction helped them improve their perception abilities.

(2) *How would you rate the improvement in your listening ability?*

The second item in the listening section asked the students how much improvement they believed they had made in listening perception ability after taking the suprasegmental based course. Similarly, to the approach adopted in the students' self-evaluation of their pronunciation improvement, scoring was presented on a 0–10 Likert scale, indicating 0 as 'no improvement', 1–3 as 'low improvement', 4–7 'moderate improvement' and 8–10 as 'high improvement'. The results are shown below (Figure 4.15).

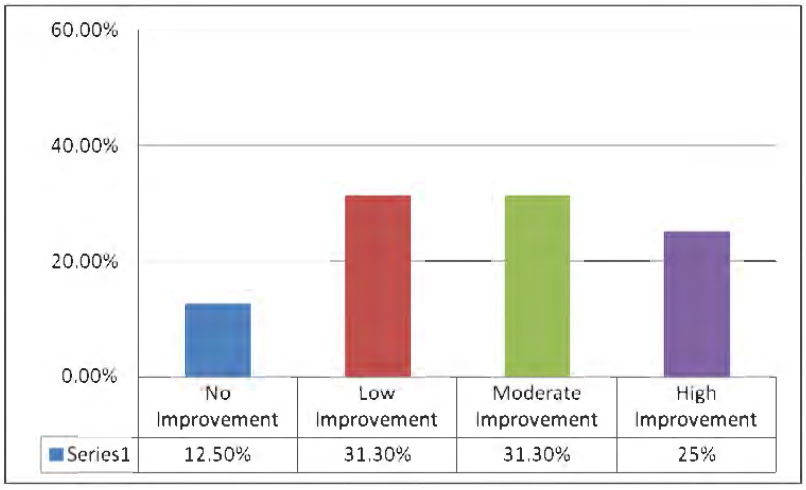

Figure 4.15 **Students' rating of perceived listening improvement**

The responses to this item in the questionnaire showed that 12.5% (N=2) of the students recorded 'no improvement', indicating that the course did not help improve their listening abilities, while 31.3% (N=5) recorded 'low improvement'; 31.3% (N=5) 'moderate improvement'; and 25% (N=4) 'high improvement'. The mean was calculated as 4.81 and the standard deviation as 3.03. As seen in the above graph, all the students except two believed that the course helped them improve their listening perception. However, the majority of the students' responses ranged between slight to medium improvement in their listening perception. This indicates that most of the students perceived the course as useful in improving their perception skills.

4.6.1.4 Students' satisfaction with the suprasegmental-based instruction

The second section of the closed questions asked the students to report on their satisfaction with the suprasegmental-based instruction. The questionnaire aimed to record the students' perception of whether they found the course useful or useless, fun or boring, clear or not clear. Investigating the students' views on these factors would help better understand which area need more improvement in future application of this type of instruction to help Saudi EFL learners become satisfied in their pronunciation learning as these three factors contribute to the effectiveness of any teaching course. The students' responses regarding the usefulness, enjoyment and clarity of the course through a 1-5 Likert scale are presented below.

(1) Usefulness of the course

The first item in this section aimed to assess the students' perception of the usefulness of the course on a 1-5 scale, with: (1) indicating that it was 'not useful at all'; (2) that the course was 'mostly not useful'; (3) recording a neutral response; (4) indicating that the course was 'useful'; and (5) that it was 'very useful'. The results obtained from the students' responses are shown in Figure 4.16.

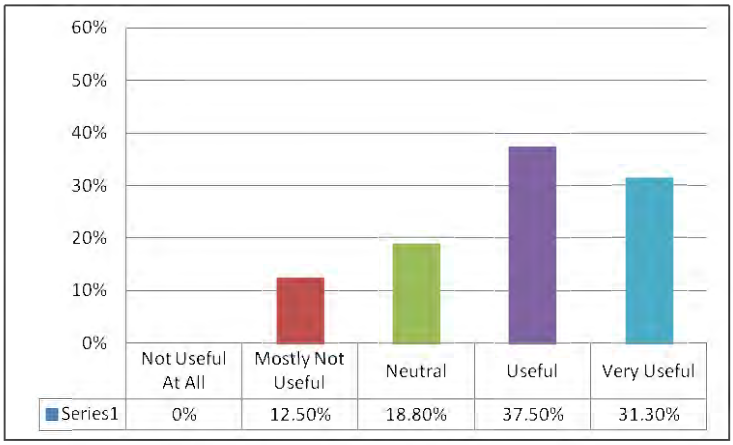

Figure 4.16 **Students' responses to the usefulness of the course**

As shown in the graph above, one third (N=5) of the students stated that the course was very useful, 37.5% (N=6) stated that it was useful, and 18.8% (N=3) were neutral. There were only two students (12.5%) who believed that the pronunciation course was not useful. The total mean of the students' answers was calculated as 3.87, and the standard deviation as 1.02. This means that a majority of the students appreciated learning pronunciation and felt that the course had been useful for improving their pronunciation and listening perception skills.

(2) Enjoyment of the course

The second aspect aimed to assess in this section was the level of enjoyment experienced by the students during the course. The students were therefore asked to assess the degree to which they considered the course boring or enjoyable on a 1-5 Likert scale (1= not fun at all, 2= not much fun, 3= neutral, 4= fun and 5= most fun). The results are presented in the graph below (Figure 4.17).

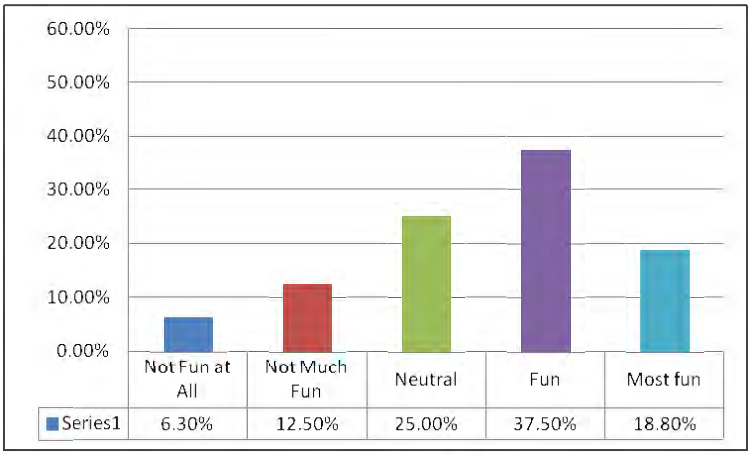

Figure 4. 17 **Students' responses to the enjoyment of the course**

As the graph indicates, 18.8% (N=3) of the participants saw the suprasegmental based course as 'most fun'; 37.5% (N=6) as 'fun'; 25% (N=4) were neutral; 12.5 % (N=2) rated it as 'not much fun'; and 6.3% (N=1) as 'not fun at all'. The mean of the responses was calculated as 3.50, and standard deviation as 1.15. The students' responses might infer that the activities used to teach the suprasegmental features had made the course fun and enjoyable.

(3) Clarity of the course

Finally, the clarity of the materials used in the course is one of the factors that contribute to making the course teaching effective. This item aimed to assess whether the students found the course materials clear to them or not clear. Therefore, the students were asked to rate the clarity of the course on a Likert scale of 1-5 (1= 'not clear at all'; 2= 'mostly unclear'; 3= 'neutral'; 4= 'clear'; 5= 'very clear'). The results are presented in the graph below (Figure 4.18).

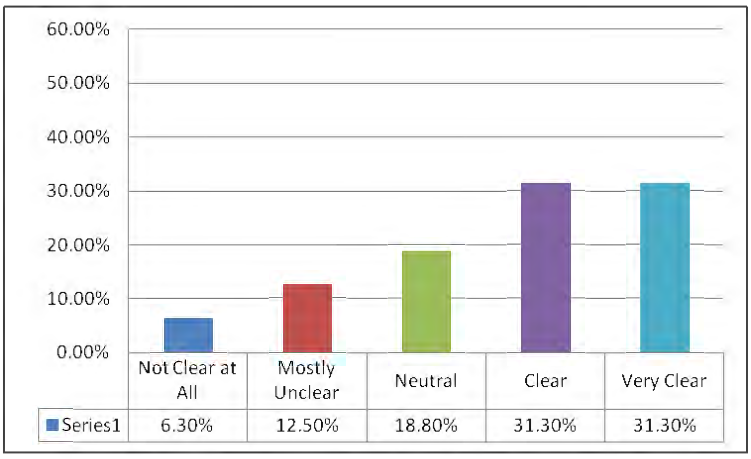

Figure 4. 18 **Students' responses to the clarity of the course**

Two thirds of the students rated the course as 'very clear' (N=5) or 'clear' (N=5); 18.8% (N=3) were neutral; 12.5% (N=2) rated the course as 'mostly unclear'; and 6.3% (N=1) as 'not clear at all'. The mean of the students' responses was calculated as 3.68 and the standard deviation as 1.25. This shows that the students found the course clear in a way that students could understand.

4.6.1.5 Understanding of the lessons taught in the course

The last set of the closed questions measured the students' perception of their understanding of the five main suprasegmental features taught in the course: word stress, sentence stress, linking, falling and rising intonation and silent pauses. This part of the questionnaire aimed to evaluate whether the students thought that these features included in the course were easy to understand. This set of questions was included to ensure that the lessons were appropriate to the students' level of English. This section was not used to examine whether they are able to use these features or not because assessing understanding needs reliable measurements that investigate their ability to use these suprasegmental features. However, the students were asked about how they thought that they had understood these features to determine the suitability of teaching these suprasegmental features for the students' level of English proficiency. The students' responses were assessed on a Likert scale of 1–5 (1= 'very poor'; 2= 'poor'; 3= 'satisfactory'; 4= 'good'; 5= 'very good'), as shown below.

(1) Perceived understanding of word stress

The suprasegmental based course started with word stress. Therefore, the students were asked to rate their perceived understanding of the lesson about word stress. The students' responses to this item are shown in the graph below (Figure 4.19).

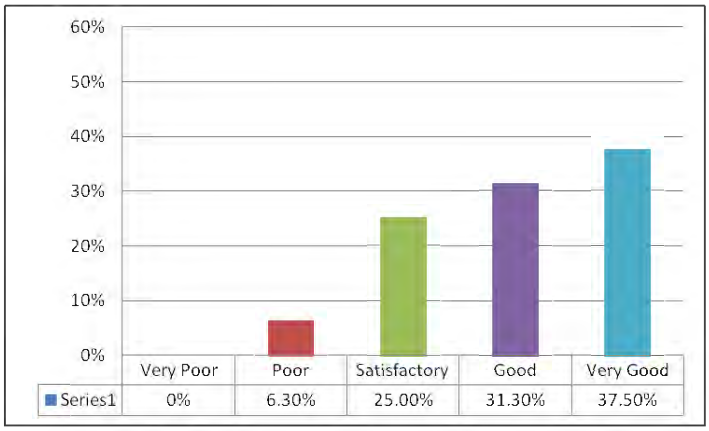

Figure 4. 19 **Students' responses to their perceived understanding of word stress**

Figure 4.19 suggests that most students felt that they understood the lesson about word stress: 37.5% (N=6) of them indicated a 'very good' understanding of word stress, 31.3% (N=5) a 'good' understanding, 25% (N=4) a 'satisfactory' understanding, and only 6.3% (N=1) a 'poor' understanding. The mean of the responses was calculated as 4.00, and standard deviation as 0.96. This indicates that word stress was not a difficult aspect to learn in the suprasegmental based course.

(2) Perceived understanding of sentence stress

The second feature being taught in the suprasegmental based course was sentence stress. The students were asked to rate their perceived understanding of the lesson about sentence stress. The students' responses to this item are presented in the graph below (Figure 4.20).

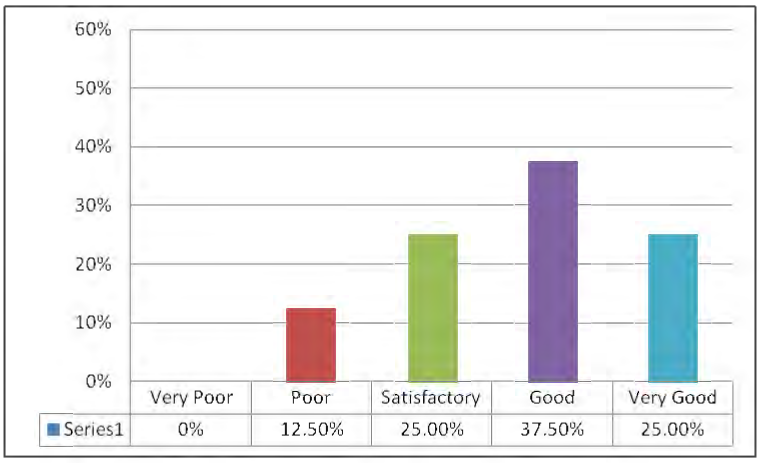

Figure 4. 20 **Students' responses to their perceived understanding of sentence stress**

Overall, 25% (N=4) of the students in the group evaluated themselves as having a 'very good' understanding of sentence stress; 37.5% (N=6) rated their understanding as 'good' and 25% (N=4) as neutral. Another 12.5% (N=2) of the students rated their level of understanding of sentence stress in English pronunciation as 'poor'. No students rated their understanding as 'very poor'. The mean was calculated as 3.75 and standard deviation as 1.00. This indicates that the lesson about sentence stress also was not difficult to understand in the course.

(3) Perceived understanding of linking in connected speech

In addition to word and sentence stress, the students in the experimental group were asked about their perceived understanding of the lesson about the linking of consonants and

vowels in English connected speech. The results of the students' responses are shown in the graph below (Figure 4.21).

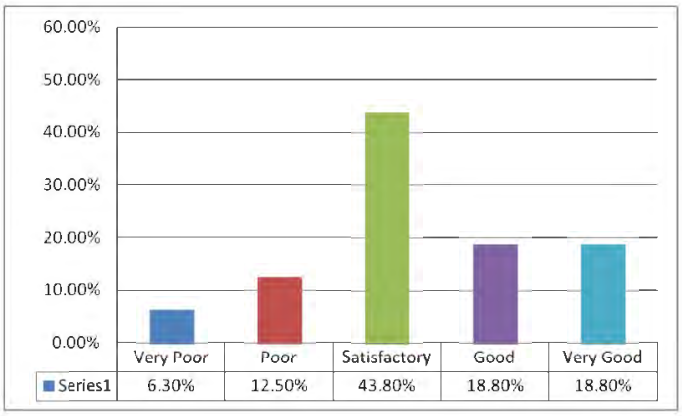

Figure 4.21 **Students' responses to their perceived understanding of linking**

The majority of participants in the final questionnaire (N=7) were satisfied with their perceived understanding of the lesson about linking. A total of 18.8% (N=3) of the students rated themselves as having a 'very good understanding'; 18.8% (N=3) as having a 'good understanding'; while 18.8% (N=3) of the students were not happy with their perceived understanding of linking, rating it as either 'poor' (12.5%) or 'very poor' (6.3%). The mean of participants' responses was calculated as 3.31, with a standard deviation of 1.13. It can be inferred from their answers that the lesson about linking was more difficult to understand than lessons on word and sentence stress.

(4) Perceived understanding of rising and falling intonation

Intonation is also one of the features targeted in the suprasegmental-based course. The participants were asked to evaluate their perceived understanding of the lesson about falling and rising intonation. The students' responses to this item are shown in the graph below (Figure 4.22).

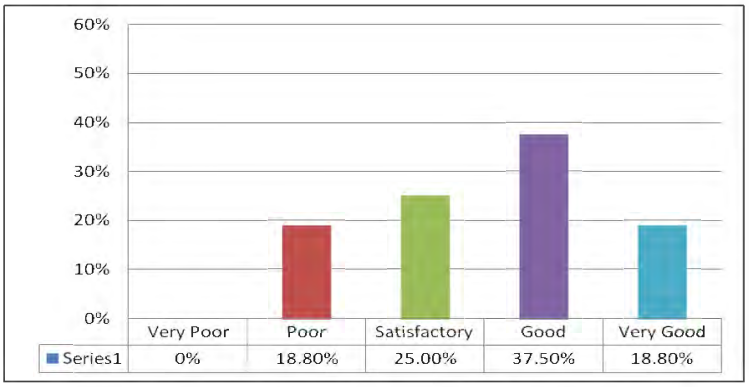

Figure 4.22 **Students' responses to their perceived understanding of rising and falling intonation**

Overall, 37.5% (N=6) of participants rated their perceived understanding of the lesson about English falling and rising intonation as 'good'; 25% (N=4) as 'satisfactory'; 18.8% (N=3) as 'very good'; and only 18.8% (N=3) as 'poor'. No participants indicated they had 'very poor' understanding of this lesson. The total mean of their scores was calculated as 3.56 and the standard deviation as 1.03. The results confirm that the students in the experimental group believed that they had a good understanding of the lesson about falling and rising intonation in English.

(5) Perceived understanding of pauses

One of the suprasegmental features taught in the course was dividing speech into phrases (breath groups) and identifying appropriate places for pausing. Similarly, to other features reported on above, the students were asked to evaluate their perceived understanding of a lesson on silent pauses taught in the course. The students' responses are presented in the graph below (Figure 4.23).

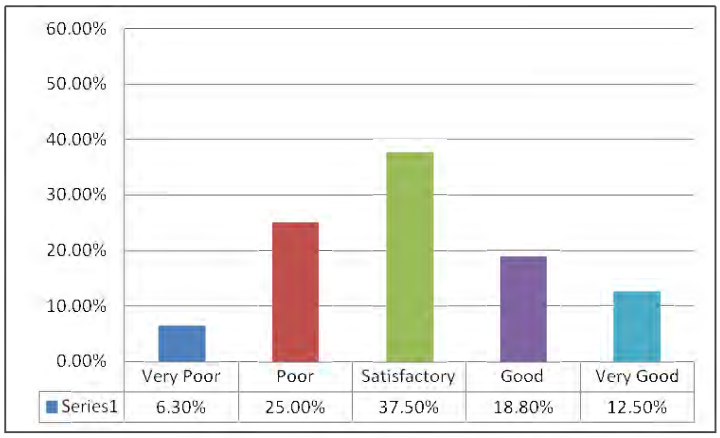

Figure 4. 23 **Students' responses to their perceived understanding of pauses**

The distribution of percentages after calculating the participants' responses to this item indicates that 12.5% (N=2) of them thought they had a 'very good' understanding of the lesson on silent pauses; 18.8% (N=3) a 'good' understanding; 37.5% (N=6) a 'satisfactory' understanding; 25% (N=4) a 'poor' understanding and 6.3% (N=1) a 'very poor' understanding. The total mean of answers was calculated as 3.06 and the standard deviation as 1.12. This item is the only item where about one third of participants ranged between 'poor' to 'very poor' in their reported understanding of the lesson. This indicates that this lesson was more difficult for them to understand than the other lessons taught in the course.

4.6.2 Qualitative data analysis

In addition to the quantitative data gathered from the questionnaires, a set of four open-ended questions was used to gather information about the suprasegmental-based course as per the students' views. Responses to these questions also provided insights into the reasons behind the students' preferences for some activities and lessons over others used in the course. Although the participants in the experimental group were a small number, all 16 students in the experimental group responded to the questions, and provided valuable feedback about the course. The findings gathered from the qualitative investigation of the responses are presented below.

(1) Do you want to improve your pronunciation? If so, why? If not, why not?

The first question asked the students was whether they wanted to improve their pronunciation in English and they were required to justify their answers. The data collected from the 16 students revealed that the majority were keen to improve their pronunciation. 14 out of the 16 students in the group confirmed that they had a desire to improve their pronunciation skills. Only two students said they were not interested in improving their pronunciation, as they preferred to focus on other linguistic components, such as grammar and vocabulary.

Overall, the students' answers to this question showed keen interest in improving their English pronunciation skills. The comments provided in response to this question by the students indicated that students wanted to advance their pronunciation because they desired to speak like native speakers, to be better understood by others, to travel abroad, and to improve their overall communication skills. One of the students noted that pronunciation "*... is important for language communication*", while another student noted that it would improve his production to be easily understood: "*I want people to understand me…".* In particular, one of the students noted that poor pronunciation skills may hinder their ability to communicate even when correct grammar and syntax are used. In his answer, he wrote that *"الناس أحيانا لا يفهموني حتى لو استخدمت جمل صحيحة"* [*Sometimes people don't understand me even if I use correct sentences*]. Another student remarked that *"تحسين النطق سيجعلني متحدثا أفضل باللغة الإنجليزية"* [Improving my pronunciation will make me a better English speaker]. Other students wrote that they desired to improve their pronunciation in order to travel abroad: *" بالتأكيد، فأنا احتاجه عند سفري خارج السعودية"* [Sure, because I need it when I travel out of Saudi Arabia], as well as to reach a native speaker's pronunciation level and increasing their confidence: " *نعم، أريد التحدث*

مثل متحدثين اللغة" [I want to speak like the native speakers]; "*I want to improve pronunciation to improve my confidence when I speak English"*. Some students listed pronunciation practice as an ongoing exercise: "دائما ما احاول تطوير نطقي بالتحدث أكثر مع الأجانب وسماع طريقة نطقهم" [I always try to improve my pronunciation by speaking more with foreigners and listening to their pronunciation]. Another student similarly stated "*I have always wanted to improve my pronunciation and speak English with a better pronunciation*".

The questionnaire also showed that, for some students, pronunciation represented either a difficult task or represented a less important aspect of language learning. Some students recorded that it was not possible for them to improve their pronunciation skills and prefer to focus on other skills like grammar and vocabulary: *"من المستحيل تطوير مهارة النطق"* [… it's impossible to improve pronunciation]; *"أفضل التركيز على مهارات أخرى مثل القرامر وحفظ الكلمات"* [I want to focus on other skills like grammar and vocabulary learning], *"لا أعتقد أن المهارة مهمة حاليا"* [I don't think pronunciation is important now]. Besides personal preferences, other students connected the difficulties in improving their linguistic competence to the lack of opportunities to speak English in Saudi Arabia or to the limited duration of the course: "*لا توجد لدينا فرص كثيرة لاستخدام اللغة الإنجليزية خارج الفصل*" [We don't have a lot of opportunities to speak English outside the class]; "*البرنامج قصير جدا. أربعة أسابيع غير كافية*" [The course was very short. Four weeks are not enough].

The answers presented above show that overall, the students had the desire to improve their pronunciation, and wanted to improve their perception and production of English in order to communicate easily in English and to overcome difficulties they faced when speaking in English. Although some students believed they did not need to learn pronunciation, or found it rather difficult due to the limited exposure to the language in Saudi Arabia or the limited duration of the course, most learners who participated in this course stated that they were keen to improve their pronunciation skills.

(2) Have you enjoyed the suprasegmental-based instruction course? If so, why? If not, why not?

The second open-ended question was more specific to the implementation of suprasegmental-based instruction, and students were asked to report their general perception about the course. The goal of this question was to capture responses about the content of the course and how the course was perceived, whether it was enjoyable, clear, interesting, easy, or

boring, ambiguous, not interesting and difficult. It was thought that this question would help in gather in depth information about which areas distinguish this course from their other courses and what areas that need more improvement.

The data shows that 12 of the participants felt the suprasegmental-based instruction was enjoyable, and that the content of the course was interesting, motivating, challenging, different and fun: "*It was enjoyable and challenging*"; "*The course is fun*". Some students justified their answers on why they enjoyed the course: *"لأن البرنامج مختلف والدروس والأنشطة ممتعة"* [... *because the course is different, and the materials and the activities are interesting*]. Responses also indicated that the general environment of the class encouraged the students to improve their pronunciation skills and made the students feel the difference between the progress of their class in the suprasegmental course compared to the other classes: *" الجو العام في الفصل كان مختلفا. وكان الطلبة متحمسون لتحسين مهارة النطق"* [*The class atmosphere was different, and all students were eager to improve their pronunciation*]. The course materials also elicited curiosity among the students, as one student reported: "*I loved the lessons and I want to use this book in the future*". Another student also reported: *"the lessons are interesting and important for my production"*. On the other hand, for four of the students, the course was a little bit difficult, required more time to practice, and was not appropriate to their level of English: "*بعض الدروس كانت صعبة*" [... *some lessons were difficult*]; *"تحتاج مهارة النطق وقتا أطول لتعلمها"* […. learning pronunciation needs more time]; "*لم يكن البرنامج مناسبا لمستوانا اللغوي*" [It was not appropriate to our level of English]. More detailed feedback was provided by one student, who wrote that *" ما جعل البرنامج صعبا أن محتواه جديد بالنسبة لنا"* [What made the course difficult is that it is the first time to learn these lessons in my English learning].

The findings reveal that the majority of students responded positively to the suprasegmental-based course as they found it stimulating, fun, useful and overall different from their previous language learning experience. Furthermore, some of the students in the experimental group appreciated the unconventional format of the suprasegmental based course. They revealed that the suprasegmental based lessons helped them improve their pronunciation, and want to continue practicing these features.

(3) What activities in class did you find helpful for improving your pronunciation and listening skills? Why?

The third question in the questionnaire was used to document the students' opinions toward the interactive activities used in the suprasegmental-based instruction class. The goal of this question was to record which activities the students preferred in class and so other teachers can adopt these in their classes when teaching English pronunciation in Saudi Arabia. As mentioned earlier, the suprasegmental based course involved several interactive activities to enhance the learners' pronunciation and listening skills. These activities were delivered using multi-sensory communication, which included visual and auditory cues as well as physical gestures to ensure that the information was delivered in an effective way.

The third question in the qualitative questionnaire asked the students to state which listening and pronunciation activities used in the class they found helpful to improve their learning skills. The students' answers show that they found the class activities different from their other classes: *"بعض الأنشطة في البرنامج مختلفة عن البرامج الأخرى"* [*Some activities in this course were different from our other classes*]. Other students found that using different activities in the class was useful and helped them not to feel bored *" أعجبني استخدام المدرس لأنشطة متعددة في الفصل"* [*I liked how the teacher used variety of activities in class*], *".... I did not feel boring because every day the teacher used different activity".* The students enjoyed the active role they were given in the class because they were not treated as passive learners as in some other classes: one student noted that *"The best thing is the students had more chance to speak in the class*".

Correction of errors, listening to their own and to native speakers' pronunciation via audio recordings, working in groups, role play, and using hand gestures were among the activities that the students found novel and useful in the pronunciation course. The use of audio recording for recording their own pronunciation was unique in their learning experience and students also enjoyed listening to the correct English pronunciation from the audio files. As one of the students noted: *"I enjoyed listening to the English sentences in the audio files".* Also, the recorders were used to help the students check their own errors with the assistance of the teacher, *"النشاط الأفضل في برنامج كان تسجيل نطقنا ومعرفة ما لدينا من أخطاء"* [recording our pronunciation and identifying our errors is the best activity]. The assistance of the teacher was also appreciated by another student, who stated that he liked how the teacher checked whether or not the students understood each lesson "*أعجبني أن المدرس يتأكد من فهمنا الصحيح لكل درس*". In

addition, some students found role-play and speaking in class effective activities, as they could produce "*بناء المفردات والمحادثات القصيرة في الفصل*" [*short conversations and develop vocabulary in the classroom*]. Hand gesture activity was another effective activity used in the course, as one of the students reported that hand gestures helped him to identify the stress in the sentence, "*ساعدني استخدام اليدين للشرح على معرفة مكان الشدة في الجملة*" [hand gestures helped me to identify the stress in the sentence].

The findings reveal that the students enjoyed a variety of communicative activities used in this course. The students' responses also showed that students had different preferences for activities and that teachers should acknowledge the need for varying the activities used in the class to ensure that the course meets all the students' needs.

(4) What other comments or suggestions do you have to improve the course?

Collecting the students' suggestions and comments was also valuable to improve suprasegmental-based instruction in future applications. The goal of this question was to gather more information about the course. The students, for instance, hoped that: "*أتمنى لو طبقت الأكاديمية برامج أكثر لتطوير مهارة النطق*" [The academy apply more pronunciation courses]; and teachers "*أتمنى لو طبق المدرسين أنشطة مماثلة في كل الفصول*" [include similar activities in all classes]. Other students reported that the course was effective in increasing their confidence to speak in class: *"I can speak English better now"*. The course also enriched their vocabulary and phrases, as one of them reported that they had *"learned new words and sentences"*. One student also suggested that the use of technology would lead to better outcomes "*استخدام الكمبيوتر بيساعد على تطويرنا أكثر*" [Learning with the aid of a computer would help us improve further]. However, some found the suprasegmental-based course somewhat challenging and too short and suggested extending the duration of the course, "*يفترض أن يكون البرنامج أسهل*" [It is supposed the course to be easier]; extend the duration of the classes, "*كانت الدروس قصيرة جدا*" [The lessons were very short]; and another student suggested increasing the amount of audio materials used in class, "*أريد الاستماع لمحادثات وقصص أكثر لفهم طريقة النطق باللغة الإنجليزية*" [I want to listen to more conversation and stories to understand English pronunciation].

The answers gathered revealed that the learners want to improve their pronunciation to become more understandable, to communicate better, and to increase their motivation and confidence when speaking English. The students are thus aware of the importance of improving their pronunciation skills, but due to the lack of opportunities in learning pronunciation and

using English outside the classroom, they find it difficult to improve. For this reason, the students were happy to participate in the suprasegmental based course and wanted it to be longer, to provide opportunities for better learning and practice of English pronunciation.

Nevertheless, a small number of students had less positive opinions about the course, finding it rather difficult, not suitable or relevant to their needs. This is to be expected as students come to class with different goals for their learning; however, it is recommended that future iterations of the suprasegmental based course take these issues into account, in order to increase the effectiveness and suitability of teaching English suprasegmental features for the highest number of students in Saudi Arabia.

4.6.3 Summary of the students' questionnaire findings

The findings obtained from the quantitative and qualitative questions revealed that suprasegmental-based instruction was perceived to be effective in enhancing the students' pronunciation and listening skills from their point of view. In addition, the students perceived the course to be motivating as it was presented with useful and clear materials, as well as with enjoyable activities. Enhancing the learners' motivation is important to ensure that the learning process is relaxing and not stressful to the students.

4.7 Classroom observation results

This section presents the results of the classroom observations which were used to further investigate the suprasegmental-based instruction materials, tasks, and activities and to reflect on their effectiveness in teaching English suprasegmental features to the students in the experimental group. This section consists of two parts, which are presented below: the results from the researcher's classroom observation and the teacher's feedback from the questionnaire given to him at the end of the course.

4.7.1 The researcher's classroom observation results

The researcher's classroom observation mainly focused on gathering information about the teacher's and the students' roles in class, the classroom materials, resources, activities and techniques. Below is a presentation of results from the classroom observation conducted in the experimental group's class.

4.7.1.1 The teacher's roles in class

In the suprasegmental-based course, the main role of the teacher was to teach the suprasegmental features by using a variety of strategies and activities in order to help the students learn better and improve their perception and production of speech. The teacher was able to prepare a positive environment to enhance the students' motivation and eagerness to learn English pronunciation. For example, he used activities and strategies that suited the lesson being taught. He tried not to repeat the same activities many times, in order to prevent the students getting bored. This helped the students maintain their motivation until the end of the course. It also helped in meeting the students' different needs as different students may prefer different activities.

In addition, the teacher provided a pronunciation model, which helped the students improve their own English-speaking skills. The teacher took care that his words and sentences were uttered clearly and that his voice could reach all students in the class. He also used 'break-the-ice' techniques to foster active engagement of the students in the class, for example by asking the students some simple questions at the beginning of each lesson – either closed ('yes and no' questions) or open ('why' questions), and encouraging the students to answer. This technique helped the students to engage in the class and to lower the level of anxiety and fear of participating in the activities, or of making mistakes.

It was also observed that the teacher used effective activities that aligned with the suprasegmental feature being taught. In addition, each lesson was divided into four phases (explained in chapter 3), and the teacher tried to give enough time to each phase. The teacher ensured that he explained each feature explicitly, provided some perception activities, practiced the feature with the students, and then encouraged them to practice the features on their own while providing feedback and assistance when required. This helped the students gain some confidence in class and to participate freely with the teacher and their classmates. While some students were not afraid to participate, others were rather shy or avoided participating in the class. To help those who were afraid to participate in the class, the teacher asked some questions and tried to engage with new students every lesson, in order to encourage all of them to participate.

As a result of their lack of confidence or shyness, some students tended to provide short answers to the questions asked by the teacher. This produced some difficulty for the teacher to check the students' errors or problems in their pronunciation. The teacher tried to encourage

them to speak with longer sentences, in order to identify their pronunciation errors, correct their mistakes and help them improve. It was clear that some students were afraid of participating because they did not want to make mistakes, and if they tried once and got corrected, some of them avoided participating again. It seemed that this was because some students were very sensitive to being corrected in front of their classmates. Additionally, most students preferred to keep silent in the class and only listen to the teacher. This might be a consequence of the standard teaching method that they were accustomed to in the other classes.

4.7.1.2 The students' roles in class

The students' roles and behaviours towards the materials, activities and tasks in the class were also observed. The observation was carried out by recording positive and negative reactions among the students towards the materials, activities and tasks used in the class; for example, whether the students answered the questions asked by the teacher, participated in the class actively, and engaged in the tasks effectively.

As per above, it was observed that most students were reluctant to participate in the class, especially in the first week. Only a few students tried to participate voluntarily without being asked to answer. The majority of the class only answered questions when asked to do so by the teacher or encouraged by him to participate. An improvement in the students' participation was noticed throughout the course, as they came to understand the aims of the course and lowered their level of anxiety. It seems that initially the students preferred to listen carefully and attentively to the teacher's explanations rather than engage in the activities in the class. This probably happened because the course content was new to them, so they were more focused on understanding the lessons themselves than participating in the activities. As mentioned previously, the students in this course had no previous knowledge of the suprasegmental features. Therefore, some students needed some time to engage effectively in the class.

In addition, most of the students seemed to understand how to use word and sentence stress, based on their answers in the class and their homework. The students encountered most difficulties with understanding intonation and linking words and pauses. In these lessons, the teacher had to take longer time explaining these features, compared to classes focusing on word and sentence stress. Furthermore, a higher homework output was noticed among the students in these latter classes. This suggests that the students had a clearer understanding of the content

of the class and a greater ability to successfully perform the activities required. These observations will be discussed in more detail in Chapter 5.

4.7.1.3 Types of teaching activities in the class

It was also considered important to observe the effectiveness of the activities used in the suprasegmental based course. The learning activities used in this course included individual, pair and group activities that were used to help the students to improve their skills in working independently and with others. Working with a pair or in a small group helped the students to lower their level of stress and shyness, and to become more confident when speaking with colleagues in their group. Some students felt shy when speaking to the whole class, but in the small group they spoke freely and were not afraid of making mistakes. It was observed that in the first three or four instances of group work being used in class, the students were not working cohesively together in their groups, probably because they were not used to working with peers in their other classes. However, with time, the students became better able to work effectively in their groups, for example by dividing roles quietly and efficiently. This means that, as the course progressed, the students learned how to cooperate effectively in the group. In addition, it was noted that the students preferred to talk between themselves in Arabic rather than using English, as they found it easier to do so in their native language. The teacher was always encouraging them to talk in their groups in English, but they continued to use Arabic most of the time.

Through homework, the teacher tested the students' independence in doing their work without receiving any assistance from the teacher or other classmates. It was noticed that some students were eager to show the teacher that they understood the lesson by doing their homework and asking him to correct their answers the next day. However, some students preferred not to bring their homework if they were not sure of their understanding of the lesson. This was probably because they were sensitive to having corrections made to their work in front of their classmates or it could be that they did not want to do homework of any type.

4.7.1.4 Classroom resources and techniques

The teacher also used some of the learning resources in the classroom, such as the textbook, visual aids, auditory and physical techniques. The use of varied resources and materials helped the students to enjoy the course and increase their motivation. The observation

showed that some students preferred visual aids, such as reading from a whiteboard, charts and drawings, while others, especially older students, preferred auditory aids such as listening to the teacher or an audio file. Another style of content delivery was kinesthetic. Physical strategies included using hand movements and playing games. In this course, all these three styles, visual, auditory and kinesthetic, were included to make the learning process successful.

The teacher used the whiteboard as a visual aid to explain some of the points covered in the lesson and to illustrate the sentences that the students were asked to read or repeat after the teacher. The use of the whiteboard was helpful in explaining some points of the suprasegmental features accurately, such as which syllable to emphasise in a word or sentence, and where to place falling and rising intonations. Using the whiteboard also helped the students to understand that in English not every letter written is pronounced, as is the case in Arabic as well how vowels and consonants linked in English sentences. In addition, this strategy helped the students enhance their visual memory and learn new expressions and vocabulary with the correct pronunciation and writing.

In addition, the teacher was interested in improving the learners' reading aloud skills by asking them to read aloud from the materials in the class. It also enabled him to check the students' pronunciation performance and errors. This technique was successful in helping the students to improve their pronunciation, and it also made the class active. In addition to the visual aids, the teacher used some audio resources to improve the students' pronunciation and listening skills. Among these resources were the audio files presented in a CD with the book; these were used to mimic the correct pronunciation of English native speakers. The CD contained some audio files of the lessons in the book, and the teacher used listen-and-repeat techniques. The students were asked to repeat sentences uttered in the audio file with the correct pronunciation, which they were prompted by the teacher to check and correct as needed. Also, the students were asked to record their own production so that they could then analyse their own errors. This technique was helpful in making the students more confident at speaking and improved their pronunciation and listening skills.

Finally, the teacher used physical techniques or body movements to improve the learning process. In some lessons, these techniques were effective, such as with emphasising the stress in English. The teacher used his hands and sometimes stamped his legs to help the students identify which syllable or word is stressed in the sentence. Other examples of using body movement were games used in the class. In one instance, the teacher brought a ball to

class and played a game in which a student asked a question and threw the ball to another colleague who had to answer the question. These exercises changed the atmosphere of the class and helped the students enjoy the lessons and learn better. The only difficulties encountered with some of these techniques emerged when students were not getting organized in class or became noisy and distracted.

4.7.2 The teacher's feedback questionnaire on suprasegmental-based instruction

At the end of the course, the native English teacher was given a survey questionnaire containing four open ended questions and was asked to reflect about his experience of teaching English suprasegmental features in the course. The information gathered from the teacher's questionnaire was analysed thematically and assessed to gain a better insight of the strengths, challenges and weaknesses of the implementation of the suprasegmental-based instruction. In his reflection, the teacher provided comprehensive feedback about this type of instruction, which can be taken into consideration in future implementation of the suprasegmental-based instruction in Saudi Arabia.

4.7.2.1 Strengths of the suprasegmental-based instruction

The teacher's feedback indicated that suprasegmental-based instruction course had many strengths. First, it had a motivating effect on the students, who were encouraged to improve their speech perception and production, as well as their knowledge and vocabulary. The teacher felt that teaching suprasegmental features had positively affected the learners' pronunciation and made them able to produce and perceive speech clearly. Secondly, the way suprasegmental-based instruction was applied in the course allowed the students to use common expressions taken from everyday language, which was important to help them use English outside of the classroom environment. The teacher noted that "using common, everyday expressions with correct pronunciation was important for improving the students' English and helping them to become able to use what they learn in class in daily life". Thirdly, the teacher also stressed the importance of how teaching suprasegmental features let the students actively use the language, which underpinned his efforts to help the students understand what they were repeating after the teacher and the audio file. The teacher's answers show that he was very happy with the course and believed in the importance of teaching pronunciation to improve the students' speech perception and production skills and enhance their oral communication skills.

4.7.2.2 Challenges and weaknesses of the suprasegmental-based instruction

The teacher was also asked about the most challenging aspects and weaknesses in his experience with the suprasegmental-based instruction course. Firstly, he reported that teaching new linguistic theories to students with no prior experience with learning pronunciation was rather challenging, especially due to their lack of knowledge about the suprasegmental features of the English language. Secondly, the teacher noted that time was another obstacle faced while teaching the course. He believed that the time given to each lesson was not enough to teach these suprasegmental lessons. Thirdly, he added that pronunciation, especially suprasegmental features, was not part of the students' regular course. As a result, his task of teaching the course was a bit difficult as "the content of the course is not correlated to their regular course as pronunciation, and especially suprasegmentals are not emphasised". Fourthly, there were difficulties in explaining suprasegmental features, practicing them with the students, using more than one activity and task in each lesson and assessing the students' understanding. Finally, the content of this course required competencies in the English language that were slightly above those of the students. The teacher believed that intermediate students also still need more work with consonants and vowels, and that it could be challenging teaching using them the suprasegmental features of English.

4.7.2.3 Suggestions for improvements to the suprasegmental-based instruction course

To address the weaknesses and challenges encountered during the suprasegmental based course, the teacher was asked to provide suggestions for improvement based on his teaching experience. The teacher suggested that more time be given for the lessons would allow him to deliver his lessons more accurately and effectively, stating that: "for making this course better would be to allow more time to teach each lesson". In addition, he remarked that this pronunciation course would be more appropriate with advanced learners of English, who possess a better overall understanding of these pronunciation features: "It would be better to focus on pronunciation improvement in the later part of a student's English learning". Students at an advanced level of English learning, he reasoned, might have fewer problems with consonants and vowels, and would therefore probably benefit more than intermediate students when learning the suprasegmental features of English.

The teacher also mentioned that the suprasegmental-based instruction applied in the course was useful to help students learn new vocabulary and expressions with correct pronunciation, which they could then use in their everyday conversations. He also stated that

some course activities were motivating and effective in helping the students have better production, for example repetitions after the teacher and the use of the audio file.

4.8 Conclusion

This chapter presented the findings from the study. The purpose of this chapter was to present the data collected from the production tests, listening perception tests, the students' and teacher's questionnaires and the researcher's classroom observation. The findings of the data analysis showed that suprasegmental-based instruction had a positive impact on the students' production and perception of speech. In particular, the results showed that suprasegmental-based instruction had a significant effect in improving the learners' comprehensibility and fluency in spontaneous speech production (p= 0.042 and p= 0.019 respectively). In addition, the calculation of effect size using Cohen's test showed that this type of pronunciation instruction had a medium effect on improving comprehensibility and fluency of speech (*d*= 0.517 and *d*= 0.450 respectively). However, the results showed that this type of instruction had no significant impact on reducing accentedness in spontsneous speech production. The results further showed that teaching suprasegmental features was effective in helping learners increase their speech rate in spontaneous speech to a significant level (p= 0.025), with a medium practical effect (*d*= 0.429), and reduced length of pauses in spontaneous speech (p= 0.039 in Wilcoxon test), with a medium practical effect (*d*= 0.401).

In reading aloud production, the findings showed that suprasegmental-based instruction is not effective in improving learners' comprehensibility and reducing foreign accent in their reading aloud production, to a significant degree (p= 0.261 and p= 0.329 respectively).

Furthermore, the findings of the data analysis showed that explicit pronunciation instruction with a sole focus on the suprasegmental features contributed to improvement of students' listening ability. The results of this study showed that suprasegmental-based instruction was useful in improving the students' ability to correctly perceive and identify words in English connected speech. It was also shown to be useful in improving the students' ability to correctly perceive and identify the speaker's intonation in fluent speech. This was due to the significant improvement recorded in the experimental group students' performance in both word identification and intonation identification tasks after taking the suprasegmental based course, as found in the paired sample *t*-tests (p= 0.000 and p= 0.000 respectively). In addition, the results of effect size (Cohen's d) showed that teaching suprasegmental features

had a large effect on improving learners' perception abilities to identify words and intonation of the speaker in English running speech (*d*= 1.998 and *d*= 1.110 respectively).

The analysis of the performance of both groups also showed that suprasegmental-based instruction helped the students in the experimental group improve their perception and production of speech to a higher degree than the instruction with no explicit pronunciation teaching used with the control group. The higher efficacy of the suprasegmental-based instruction over the instruction with no explicit pronunciation teaching was evidenced in the results of one-Way ANOVA and independent sample *t*-test, which showed that the suprasegmental-based instruction, in all variables, had a higher degree of improvement on the experimental group than the instruction with no explicit pronunciation teaching on the control group.

Furthermore, suprasegmental-based instruction also had a positive impact on the attitude and motivation of the students towards learning English suprasegmental features. The results gathered from the questionnaire showed that the students felt that their English pronunciation and listening skills were improved as a result of the suprasegmental-based instruction applied in the course. Most students stated their desire to improve their pronunciation and listening skills and expressed their satisfaction and enjoyment of the suprasegmental based course.

The positive impact of this type of instruction was also observed by the teacher in his reflection and classroom observation. The findings from the teacher's reflection and the researcher's observation revealed the effectiveness of suprasegmental-based instruction, and confirmed that the students were happy to learn new pronunciation aspects that are relevant to their communicative competence. The classroom observation and the teacher's reflection indicated that the implementation of the suprasegmental-based instruction was somewhat challenging, as the students did not have any knowledge of the suprasegmental features before participating in this course. However, the findings from the observation and the teacher's questionnaire also suggested that these challenges could be overcome if obstacles such as duration of the course and the content of the course could be appropriately addressed. A more detailed discussion of the findings and results will be presented in the next chapter.

Chapter 5: Discussion and Interpretation of Results

5.1 Introduction

In the last two decades, a number of studies on pronunciation have demonstrated that suprasegmental-based instruction is effective in improving L2 learners' perception and production of speech (e.g. Han, 1996; Derwing, et al., 1998; Derwing & Rossiter, 2003; Hahn, 2004; Vandergrift, 2004; Field, 2005; Tanner and Landon, 2009; Saito & Saito, 2016; Levis & Levis, 2018; Kissling, 2018). In line with these studies, the present research was concerned with investigating whether suprasegmental-based instruction is applicable in Saudi Arabia to improve the speech perception and production of Saudi male EFL learners. In particular, the study investigated the impact of suprasegmental-based instruction on improving the production of Saudi learners of English in both spontaneous speech and reading aloud, as well as their listening perception abilities to perceive and identify words and intonation of the speaker in fluent English speech. The study also investigated the students' responses to this type of instruction when learning English pronunciation in a Saudi Arabian context, and the native English teacher's feedback on the suprasegmental-based instruction course, in order to individuate its strengths and weaknesses when applied to Saudi learners of English.

In brief, the results of this research indicated that suprasegmental-based instruction had a positive impact on learners' perception and production of speech. In particular, suprasegmental-based instruction significantly improved their comprehensibility and fluency in spontaneous speech. The suprasegmental-based instruction also significantly improved learners' speech rate and reduced the duration of pauses in their spontaneous speech production. However, this type of instruction was not effective for improving comprehensibility in reading aloud production and reducing foreign accent in both spontaneous speech and reading aloud production. In terms of perception, suprasegmental-based instruction was found to have a significant effect on improving the identification of words and the speaker's intonation in fluent speech. The results of the questionnaire given to the students, and the reflections collected from the teacher, also indicated that the suprasegmental-based course was useful and, as well as interesting, and was perceived to have a positive impact on the students' production and listening ability.

This chapter summarises the findings presented in the previous chapter and discusses them in detail in regard to the research questions that guided this study.

5.2 Effect of suprasegmental-based instruction on spontaneous speech production

The first question investigated was whether suprasegmental-based instruction was effective in improving comprehensibility, fluency and reducing accentedness of Saudi male EFL learners in spontaneous speech production. To answer this question, as mentioned in section 3.5.2, the students in both the experimental group and the control group participated in a spontaneous speech task before and after the intervention. Their speech production was then evaluated by 11 native English listeners on comprehensibility, fluency and accentedness using a Likert scale from 1 to 9.

Table 5.1 **Summary of spontaneous speech test results**

	Test	**Group**	**Pre-test**	**Post-test**	**Mean difference**	**Within group (sig. value at 0.05)**	**Between groups (sig. value at 0.05)**
	Spontaneous speech						
Listeners' evaluation	**Comprehensibility** (on a scale of 1-9)	Experimental	6.01	6.43	0.42	**0.042**	0.284
		Control	5.88	6.02	0.14	0.421	
	Accentedness (on a scale of 1-9)	Experimental	5.03	5.17	0.14	0.387	0.773
		Control	4.78	4.86	0.08	0.460	
	Fluency (on a scale of 1-9)	Experimental	5.50	5.97	0.46	**0.019**	0.400
		Control	5.34	5.57	0.23	0.277	
Acoustic analysis	**Speech Rate** (syllables /sec)	Experimental	2.10	2.34	0.24	**0.025**	0.195
		Control	2.04	2.11	0.06	0.493	
	Pause duration (ms)	Experimental	0.766	0.665	0.10	0.088 **.039***	0.337
		Control	0.676	0.638	0.03	0.271 0.301*	0.228**

* refers to the P-value of Wilcoxon test

** refers to the P-value of Mann Whitney test.

The results of the experimental group's pre- and post-tests showed a statistically significant improvement in the group's performance with regards to comprehensibility and

fluency, reduction of duration of pauses and increasing speech rate in spontaneous speech production. However, the improvement of the group in reducing accentedness in spontaneous speech production was not found to be statistically significant. In addition, the results of effect size (Cohen's d) showed that suprasegmental-based instruction had a medium effect on improving comprehensibility, fluency, speech rate and reducing the duration of pauses in spontaneous speech production.

In contrast, the improvement of the control group was not found to be significant in any of the evaluated variables including speech rate and duration of pauses. However, although the difference in improvement between the two groups was not found to be statistically significant in terms of any of these aspects, using one-way ANOVA and independent sample *t*-test, these two tests showed the experimental group had a higher level of improvement in their performance in comparison with the control group..

Each of these aspects of the research question is examined in detail below, against the background of other relevant studies.

5.2.1 Effect of suprasegmental-based instruction on comprehensibility in spontaneous speech

The present study aimed to investigate the impact of suprasegmental-based instruction on improving Saudi male EFL learner's spontaneous speech production, and helping their spontaneous speech become more easily comprehensible to listeners. As mentioned earlier, comprehensibility refers to the ease or difficulty listeners have in understanding speech produced by speakers. Previous studies (e.g. Derwing et al., 1998; Derwing & Rossiter, 2003; Hahn, 2004; Warren, Elgort & Crabbe, 2009; Darcy, Ewert & Lidster, 2012; Saito, Webb, Trofimovic & Isaacs, 2015; Gordon & Darcy, 2016) have shown that suprasegmental-based instruction has a positive impact on the extent to which listeners can easily comprehend spontaneous speech production.

In line with previous research, the results of this study showed that suprasegmental-based instruction significantly improved the comprehensibility of the experimental group students. The experimental group scored a mean increase in performance measured as 0.42 following suprasegmental-based instruction, and the significance value is 0.042, therefore lower than 0.05 (see Table 5.1). In addition, Cohen's test also showed that suprasegmental-

based instruction had a medium practical effect on the improvement of the students' spontaneous speech production (*d*= 0.517).

Although the control group also showed some improvement in comprehensibility (M= 0.14), the paired sample *t*-test analysis showed that this improvement was not statistically significant, as the significance value was calculated to be 0.421 (see Table 5.1). The results of effect size also showed that no explicit pronunciation instruction only had a small effect on the improvement of the students' spontaneous speech production in terms of comprehensibility (*d*= 0.173). While the comparative analysis of the improvement of students in the experimental and the control groups using one-way ANOVA and the independent sample *t*-tests showed that there was no statistically significant difference in improvement, due to the significance value being 0.284 (see Table 5.1), these two tests showed that the experimental group experienced a higher degree of improvement in terms of being comprehensible to the native listeners.

Therefore, the results from the evaluation of the comprehensibility of the students' production carried out by the native listeners, suggest that explicit instruction in suprasegmental features can help Saudi male learners of English be more comprehensible to listeners when speaking spontaneous in English. This indicates that suprasegmental based training can contribute to improving learners' speech production and making their speech easier to understand.

Although comprehensibility is also affected by vocabulary, grammar and organization of the message, this study supports other research that shows that suprasegmental features affect the degree of attention the listener can maintain during the speech (Kang, 2010; Derwing et al., 2012; Trofimovich, Kennedy & Blanchet, 2017). Gordon, Darcy and Ewert (2013) for example, in a study investigating how explicit pronunciation instruction contributes to improving comprehensibility in L2 speech, found that training learners in suprasegmental features can lead to a fast improvement in speech comprehensibility. In their study, Gordon et al. (2013) found that the group that received explicit suprasegmental-based instruction produced more comprehensible speech than the groups that did not receive suprasegmental-based instruction. Similarly, Venkatagiri and Levis (2007) showed a positive correlation between phonological awareness, especially of suprasegmental features, and improvement in comprehensibility. They concluded that learners who are more aware of the segmental and suprasegmental features are likely to have greater speech comprehensibility ratings. Warren, Elgort and Crabbe (2009) further confirmed that suprasegmental features, such as word and

sentence stress, rhythm and pitch, contribute substantially to speech comprehensibility, and those who are aware of these suprasegmental features produce speech that is more comprehensible to listeners. Likewise, in a study on the effect of suprasegmental-based instruction on speech comprehensibility by Gordon and Darcy (2016) involving 30 EFL intermediate level students distributed in three groups: suprasegmental-based, segmental-based, and no explicit pronunciation instruction, it was found that the group that had been taught suprasegmental lessons improved the most and became more comprehensible to native listeners, compared to the groups that received other types of pronunciation instruction.

Similar to the findings of the present study, Gordon and Darcy (2016) also found that comprehensibility of production can be improved with a short period of training (3 weeks). However, it should be noted that, unlike the current study, Gordon and Darcy's (2016) study involved a different teacher for each of the three groups (treatments groups 1 and 2 and control group), so the teachers' individual proficiency and experience might have affected the results of their study. The claims for improvement in comprehensibility over a short period, through the use of a suprasegmental-based instruction, are also supported by Levis and Levis (2018) who found that suprasegmental-based instruction can make intermediate-level L2 learners' spontaneous speech production more easily comprehensible to native English listeners within a short period of instruction.

The positive impact of suprasegmental-based instruction on the comprehensibility of learners with Arabic as L1, as in this study, is also supported by the findings reported in similar previous studies. Bouchhioua (2016), for example, conducted a study to investigate the effects of a pronunciation course that used a suprasegmental-based instruction on the intelligibility and comprehensibility of Tunisian Arab learners of English. The results of Bouchhioua's study showed that the suprasegmental based course was effective in improving comprehensibility, as ratings showed a significant improvement among the students in the group taught using this type of instruction. It was also found to be significantly more effective than other types of instruction, as the improvement of the suprasegmental group in comprehensibility from the pre-test to the post-test was markedly higher than that of the other two groups involved in her study.

The more significance of the impact of the suprasegmental-based instruction, compared to the instruction with no explicit pronunciation teaching, was also evident in a study conducted by Zoghbor (2010). Using suprasegmental features materials, this study compared the impact

of an explicit pronunciation instructional method on Arab learners of English in Oman, against use of a teaching method with no explicit pronunciation teaching. Although the findings of her study showed no significant improvement in comprehensibility among the group receiving explicit pronunciation instruction using suprasegmental features, nevertheless, the level of improvement was still higher than that of the control group which did not receive any explicit pronunciation instruction. The limited improvement in comprehensibility in Zoghbor's (2010) study might be attributed to the involvement of both native and non-native English raters, so raters may have focused on different aspects in their evaluation, thus affecting its reliability.

In contrast, in the present study only native English speakers who had no or little previous exposure to Arab English production were recruited as listeners to evaluate the students' production, to make sure the listeners' perception of the students' production was similar and not affected by any previous exposure. This was done following previous findings that revealed involving native listeners with little exposure to the students' background production may lead to more reliable and better outcomes (Flege & Fletcher, 1992; Lima, 2011). Despite the limitations identified, the studies with Arabic speaking participants discussed above confirm and support the finding in the present study that suprasegmental-based instruction has a positive effect on improving spontaneous speech production and on making learners' production more easily comprehensible to listeners.

In summary, the results of the evaluations conducted by the native listeners in the present study confirmed that suprasegmental-based instruction is effective at improving the comprehensibility of the students' spontaneous speech production. These findings support the validity of using suprasegmental-based instruction as an effective type of instruction to improve Saudi learners' pronunciation production and make their speech easily comprehensible to listeners. In addition, the findings support the validity of using native English listeners with no or little exposure to the Saudi English accent, to evaluate the degree of difficulty in understanding the production of the speaker.

The present study also found that suprasegmental-based instruction has a more marked impact in making the learners' production more comprehensible to the listener, compared to the instruction with no explicit pronunciation teaching used at the academy. Furthermore, like other studies in the field, the current study revealed the effectiveness of suprasegmental-based instruction in improving comprehensibility within a short period of training (within four weeks). It must be noted, however, that the other studies mentioned above have shown even

more marked improvement on the students' production as a result of suprasegmental-based instruction than the current study. In addition, the difference in improvement between the experimental and the control group in the current study was not statistically significant and the difference was not found to be large after calculating the effect size. This limited improvement on the students' production as a result of suprasegmental-based instruction used in the present study could be attributed to the fact that the features involved in the course were not accurately tailored to the students' pronunciation needs. Tailoring the course to the students' pronunciation needs would help to make the outcomes more effective (Derwing & Munro, 2015). It could also be argued that the results in this study were due to the short duration of the course which was only 13.5 hours. If the course had been longer and a more precise needs analysis was done for the development of specific course materials before commencing the course, it is likely that the improvement in comprehensibility of the experimental group would have been higher in comparison with that of the control group, and the practical difference of improvement between the two types of instruction reported in Cohen's test would have been larger.

5.2.2 Effect of suprasegmental-based instruction on accentedness in spontaneous speech

In comparison to the impact of suprasegmental-based instruction on comprehensibility and fluency, the results of this study were less conclusive in terms of reducing accentedness in spontaneous speech. Although the experimental group improved their production and reduced their accentedness to a certain extent (M= 0.14), this improvement was not found to be at a significant level (p= 0.387) (see Table 5.1).

Meanwhile, the control group recorded a mean increase in their performance of 0.08 as a result of the instruction with no explicit pronunciation teaching (see Table 5.1). The results of the paired sample *t*-test showed that the improvement in performance of the control group also was not statistically significant (p= 0.460).

The comparison between the improvement of each group using one-way ANOVA and independent sample *t*-test showed that there was no statistically significant difference between the two groups, since the significance value found in these tests was 0.773.

As mentioned in the results chapter, accentedness was the variable which both the experimental and control groups in the present study recorded the lowest levels of improvement. The experimental group recorded a significant improvement in all evaluated

variables except in accentedness. Similar to the reasoning above on comprehensibility, this may have been due to the short duration of the course, as it was not easy in a short time to significantly reduce learners' accentedness to a statistically significant level. It could also be possible that the learners who were involved in the present study were adults and have already well-established pronunciation patterns that are influenced by their native language and which need a longer time to be reduced. Therefore, suprasegmental-based instruction might be more effective when used with younger learners. For example, Galante and Thomson (2017) found that pronunciation instruction involving suprasegmental features helps English young L2 learners aged 13-16 years old to reduce accentedness to a significant level.

Another possible reason could be that the explicit pronunciation instruction was focused only on suprasegmental features. Listeners may perceive accentedness to be more linked to segmental features than suprasegmental features. Some researchers have recently argued that accentedness is affected by segmental features more than suprasegmental features (Sereno, Lammers & Jongman, 2016). However, several other studies (e.g. Flege, 1992; Derwing & Munro, 1997; Kang, 2010; Trofimovich & Isaacs, 2012; Pinget, Bosker, Quené & de Jong, 2014; Crowther et al., 2015; Gordon & Darcy, 2016; Crowther et al., 2017) have shown that perceived accent is related to both segmental and suprasegmental features. For example, a study by Pinget, Quené and de Jong (2014) examined aspects affecting the speaker's accent in spontaneous English speech production and found that suprasegmental errors, such as word stress, pauses, linking and intonation do contribute to making L2 learners sound accented. Crowther, Trofimovich, Saito and Issacs (2015) also investigated the effect of the learners' L1 on their L2 production and found that both segmental and suprasegmental features of the learner's mother tongue contribute to accented pronunciation and affect the intelligibility of the speaker. Derwing and Munro (1997) also found that both segmental and suprasegmental features affect accentedness in production, but the latter were found to be more effective than the former in improving the level of perceived comprehensibility and intelligibility of production.

Despite some contradictions in the findings reported above on what affects accentedness, and on the degree to which accentedness impacts understanding of speech, there seems to be some consensus that accentedness might be affected by both segmental and suprasegmental features. Therefore, it is possible that paying attention to both suprasegmental and segmental features might be very useful in reducing accentedness in speech. Celce-Murcia et al. (2010) noted that both segmental and suprasegmental features are important for reducing

accentedness in production, however priority should be given to suprasegmental features in pronunciation teaching due to its greater impact on comprehensibility. In view of this, Celce-Murcia et al. (2010) suggest that integrating both suprasegmental and segmental features in pronunciation courses is more effective than focusing only on one aspect to improve learners' production. Nevertheless, the findings of the present study indicate that suprasegmental-based instruction on its own may still be useful to some extent in reducing accentedness among Saudi EFL learners. In this study, however, it is possible that teaching segmental features with suprasegmental features might have led to better outcomes in reducing accentedness among the learners.

The lack of significant reduction of the experimental group in accentedness could also be attributed to the raters' lack of familiarity with the Saudi accent. Kennedy and Trofimovich (2008) noted that listeners who had no exposure to the L2 production of speakers from another language background might find the speech less comprehensible and more accented than people who are familiar with their accent. According to Phan and Vo (2012) pronunciation raters tend to be harsher in their evaluation when rating accentedness, than in rating comprehensibility and fluency. This was certainly the case in this study in which, for example, the mean score of the experimental group for accentedness in the pre-test was 5.03, while the mean scores for comprehensibility and fluency were 6.01 and 5.50 respectively. However, Gordon and Darcy (2016) claim that suprasegmental-based instruction is more likely to improve comprehensibility than accentedness.

Finally, it must be noted that although accentedness is important for oral communication, it is considered as the least important variable of the three dimensions of oral communication (Derwing & Munro, 1995; Derwing & Munro, 2005; Levis & Zhou, 2018). Derwing & Munro (1995; 2005), for example, found that while the accentedness of speakers is easily noticed, speakers with heavily accented production might still be intelligible and comprehensible because accentedness does not necessarily lead to unintelligibility or incomprehensibility in oral communication. Galante and Thomson (2017) also found in their study that the participants' foreign accent was perceived as comprehensible and fluent despite the pronunciation patterns that were influenced by their native language. In a similar vein, Levis and Zhou (2018) add that "the message that is communicated by a heavily accented speaker may be easy to process and understand" (p.2).

The findings of the reported studies mentioned above corroborate those of the present study, which similarly found that a heavy foreign accent in the participants' production did not affect the speakers' fluency and comprehensibility. Therefore, the present study confirms the findings of Derwing et al. (1998) and Derwing and Rossiter (2003) studies which showed suprasegmental-based instruction can improve comprehensibility and fluency, even with the presence of a heavy foreign accent, similarly suggest that these three speech dimensions should be treated in isolation as they are partially related (Derwing & Munro, 1995). The present study also suggests that pronunciation instruction in Saudi Arabia should target pronunciation features that affect understanding, whether in understanding others or in being understood, as recommended by Derwing and Munro (2015), and should take comprehensibility and fluency as primary goals for instruction rather than achieving native-like pronunciation because foreign accents are a normal part of speaking a foreign language. As Jenkins (2000) argues, speakers' foreign accent is part of their L1 identity and L2 speakers have the right to keep their foreign accent as regional group identity when speaking the target language, as long as their accent does not affect their communication with other speakers of the language. Similarly, Thomson and Derwing (2014) recommended that reducing accentedness in L2 speech should not be the goal for pronunciation instruction, except for the aspects that make speech unclear or interfere with understanding.

5.2.3 Effect of suprasegmental-based instruction on fluency in spontaneous speech

As described in detail in the previous chapter, the present study found that suprasegmental-based instruction can positively impact the fluency of learners in spontaneous speech. The results of the listeners' evaluation of the experimental group students' production revealed a statistically significant improvement in this aspect. As shown in Table 5.1, the mean of the improvement of the experimental group was 0.46, and the value reported in the paired t-test was found to be significant (p= 0.019). Cohen's test results (d = 0.450) also showed that this type of instruction had a medium effect on improving fluency in spontaneous speech.

The results showed, in contrast, that the control group did not have a statistically significant improvement in their fluency, with a mean value measured as 0.23, and the significance value found to be 0.277, thus greater than 0.05.

A comparison of the mean scores of improvement between the two groups using a one-way ANOVA and independent sample *t*-test did not return a statistically significant difference, as the value of significance was 0.400, therefore above 0.05. Nevertheless, the results show

that the mean of improvement among the students in the experimental group is higher than the improvement shown by the control group.

The acoustic analysis of the spontaneous speech production using Praat software (see section 4.4) also showed that suprasegmental-based instruction improved the students' fluency and was found to be significantly effective in reducing the length of silent pauses and increased the rate of speech, which are the two main contributors to speech fluency (Tavakoli, et al., 2016). As Table 5.1 shows, the mean of decrease of spontaneous speech silent pauses among the experimental group was 0.10. The data from the paired *t*-test also showed that this improvement was not statistically significant, with a significance value of 0.088 being greater than 0.05. However, the Wilcoxon test showed that the improvement among the experimental group in the reduction of duration of pauses in spontaneous speech was statistically significant, as the value was found to be 0.039, therefore lower than 0.05. Cohen's test showed that the effect of this type of instruction on reducing duration of pauses in spontaneous speech is medium as the value was found to be 0.401

On the other hand, the control group also showed a slight improvement in reducing the length of silent pauses in their spontaneous speech. The mean decrease in length of silent pauses was calculated at 0.03. Both the paired sample *t*-test and Wilcoxon analysis, however, showed that this improvement was not statistically significant, as the significance value was calculated at 0.271 in the paired sample *t*-test and 0.301 in the Wilcoxon test, therefore above 0.05. The results of Cohen's test also showed that the improvement among the control group in terms of reducing the duration of pauses is small as the value was found to be 0.193 (see Table 5.1).

The one-way ANOVA and the independent sample *t*-tests as well as Mann Whitney as a non-parametric test, revealed that the difference in improvement between the two groups was also not statistically significant, with a significance value of 0.337 found in one-way ANOVA and the independent sample *t*-tests and a value of 0.228 found in Mann Whitney (see Table 5.1). Despite these outcomes, these two tests showed that the experimental group experienced a higher degree of improvement than the control group.

These results were similar to those obtained from the analysis of speech rate. In speech rate performance, the experimental group scored a mean improvement of 0.24 syllables per second, and a significance value of 0.025 (see Table 5.1). In addition, the results of effect size showed that suprasegmental-based instruction had a medium practical effect on the improvement of the students' speech rate as the value was found to be 0.429.

On the other hand, the control group recorded a mean increase of 0.06 syllables as a result of the instruction with no explicit pronunciation teaching. However, the results of the paired sample *t*-test showed this improvement was not statistically significant, due to the significance value being 0.493, therefore greater than 0.05 (see Table 5.1). From these results, it can be inferred that the instruction with no explicit pronunciation teaching received by the control group had little impact on the learners' speech rate.

Furthermore, one-way ANOVA and independent sample *t*-test showed a non-statistically significant difference between the improvements of the two groups, since the significance value found in these tests was 0.195. Nevertheless, the experimental group was shown to have increased their speech rate in spontaneous speech more than the control group. This confirmed that suprasegmental-based instruction had a greater impact on fluency in spontaneous speech. That is, it increased the students' speech rate and decreased the length of silent pauses, to a higher degree than the instruction with no explicit pronunciation instruction.

Both the listeners' evaluation and the acoustic analysis show that the suprasegmental-based instruction applied in the course helped the experimental group improve overall speech fluency. The results of these tests may also suggest that the focus on suprasegmental features improved the experimental group's fluency and helped them increase their speech rate, with fewer and shorter pauses, and helped them become less hesitant in their speech production.

These findings corroborate the findings of other studies in other contexts which have found a direct relationship between teaching English suprasegmental features and improving the fluency of L2 learners in spontaneous speech. Derwing, Munro and Wiebe (1998), for example, showed that suprasegmental-based instruction can improve speech fluency among ESL learners in Canada. Their study examined the effects of suprasegmental-based instruction in comparison with segmental-based and no explicit pronunciation instruction on three different groups of students. Similar to the findings of the present study, Derwing et al. (1998) showed that suprasegmental-based instruction is effective in improving the fluency of the learners' spontaneous speech production, and those who received suprasegmental-based instruction were more able to transfer what they had learned to their spontaneous speech production than the other two groups.

In another study, Derwing and Rossiter (2003) investigated the effect of suprasegmental-based, segmental based, and no pronunciation instruction on the production of L2 English learners in Canada, using a picture description task. The study measured the impact

of suprasegmental-based instruction on the fluency of the production of the L2 English learners, who were divided into three groups, each group receiving one type of instruction. Derwing and Rossiter's study found that the group who received suprasegmental-based instruction improved their fluency significantly. Gilakjani (2012) also showed that adult learners can improve their fluency and pronunciation of English in a short time when focusing on suprasegmental features. Adams-Goertel (2013) further confirmed that pronunciation-centred English courses which focus on suprasegmental features are effective in improving fluency among L2 learners. Darcy (2018) reasoned that this may be due to the fact that suprasegmental-based instruction allows students to speak at a natural pace, put pauses in appropriate places, and segment words and phrases correctly. This, as a result, impacts their overall speech fluency and communicative competence. Tavakoli et al. (2016) further found that raising learners' awareness of the aspects of fluency such as speech rate, pauses, hesitations and linking helps learners master these aspects when speaking spontaneously in English and helps them become more fluent and comprehensible to listeners.

Explicit pronunciation instruction which focuses on suprasegmental features has also been shown to be effective in improving the speech fluency of Arab learners of English. A recent quasi-experimental study conducted by Al-Tamimi and Attamimi (2018) on Arab intermediate-level learners of English at Hadhramout University in Yemen, for example, provides evidence of the effectiveness of this type of instruction. The study investigated the impact of a 14-week explicit pronunciation instruction involving suprasegmental features, in addition to the regular course taken by 30 students in the experimental group. The results of the experimental group were then compared with the control group (n=30), which had been taught with no explicit suprasegmental instruction. Similar to the present study, Al-Tamimi and Attamimi's (2018) study used picture description and reading aloud tasks to assess the students' production. The data were collected and evaluated by the researchers using a scale from 0-100 in which 0 meant 'fail' and 100 meant 'excellent'. Their results showed that explicit pronunciation instruction, involving suprasegmental features, significantly improved the experimental group students' production and enabled them to speak more fluently in English. However, the evaluation of the students' production did not involve external raters. This means the results are likely less reliable, as the researchers being involved in the evaluation may have introduced bias into the evaluation. The researchers also did not use Praat acoustic analysis to improve the accuracy of their evaluation.

In the present study, despite the improvement in fluency among the experimental group, the findings showed that the students' speech rate was still slow as most students, in both experimental and control groups, only spoke about 1.5 to 2 syllables per second which is considered to be a slow speech rate as reported in other studies. A very slow speech rate may make production less comprehensible to listeners because listeners may find it more difficult to understand what is being said (Munro & Derwing, 1998). For example, Derwing and Munro (1998) found that speech rate contributes to comprehensibility rating, and those whose speech is very slow, are judged as less comprehensible to listeners. Baese-Berk and Morrill (2015) also found that, although English non-native speakers tend to have a slower speech rate than native English speakers, a very slow speech rate may make speakers sound less fluent and make it difficult for listeners to comprehend the speech easily. English native speakers, according to their study, produce around 5 syllables per second while the non-native speakers in their study produced 4 syllables per second, the double of syllables produced per second by most of students in the present study. In another study, Guz (2015) also found that English L2 speakers tend to be hesitant when speaking spontaneously in English. The participants of her study produced many inappropriate long pauses, as well as a slow speech rate, on average of 2.7 syllables per second. Guz (2015) reasoned this to the lack of proficiency among L2 speakers which required them to have more time for planning and organizing their speech. Similarly, the findings of the present study also suggest that Saudi male EFL learners' slow speech rate might be attributed to their lack of proficiency in English and poor automatisation of L2 speech production. Therefore, from the present study, it can be suggested that Saudi male EFL learners need more instruction on suprasegmental features to help them produce more fluent speech, as these features have a direct connection to discourse meaning and connected speech (Grant & Levis, 2003).

In addition, the findings of the present study revealed that, although the intervention helped the experimental group reduce the length of pauses in their spontaneous speech, most of the pauses produced by both the experimental and control groups were longer than 450 milliseconds. As these pauses exceeded 250 ms, they might make their speech more difficult to comprehend, as noted by many researchers. According to Bosker et al. (2012), any pause of 250 milliseconds or longer in speech makes the speaker sound dysfluent and may make speech more difficult to comprehend. Therefore, the results of the present study lend support to the view of Hamouda (2013) and Al-Ghazali and Alrefaee (2019) that Arab EFL learners tend to have long pauses and overuse silent pauses in their spontaneous speech and this often makes

them sound less fluent. Al-Ghazali and Alrefaee (2019) found that Arab EFL learners tend to pause for an average of 0.660 milliseconds within and between sentences.

Moreover, the findings of the present study showed that having no explicit pronunciation instruction did not help the students in the control group improve their fluency significantly, as per the listeners' evaluation, and also the acoustic analysis showed no significant improvement in the speech rate of the students in the control group or a decrease in the length of pauses in spontaneous speech. This lack of improvement in fluency of the students the control group might be attributed to the teaching method used at the academy which focuses on improving general oral proficiency, which includes richness of vocabulary, delivery of meaning, and the length of sentences produced. However, this type of instruction did not help learners improve their speech fluency in its narrow sense which is restricted to the smoothness of speech and focuses on temporal measures, such as the length and number of pauses, hesitations and speech rate (de Jong & Perfetti, 2011). The findings of the present study showed that the performance of the students in the control group was not improved when students' production was analysed acoustically because the students' attention in the course had not been directed specifically to these aspects which listeners are likely to judge speakers' fluency on. Therefore, the present study suggests that these fluency aspects might not be improved substantially in the absence of explicit instruction. According to Kang, Rubin and Pickering (2010) teaching fluency aspects explicitly to English L2 learners would enhance their oral proficiency and improve the comprehensibility of their speech.

In summary, the present study supports the validity of suprasegmental-based instruction as an effective type of instruction for improving the fluency of EFL learners. The study showed that intensive training in suprasegmental features raised the students' awareness of aspects affecting their speech fluency and increased their ability to produce more fluent production, with faster speech rate and shorter pauses. The results also showed that the evaluation of students by the native listeners and the Praat acoustic analysis are reliable tools for assessing the impact of suprasegmental-based instruction on the fluency of English L2 learners. As shown above, the data gathered through these methods indicate that suprasegmental-based instruction was more effective in improving the fluency of Saudi male intermediate level learners, compared to the instruction with no explicit pronunciation teaching used at the academy.

5.3 Effect of suprasegmental-based instruction on reading aloud production

The second question investigated in this study was whether suprasegmental-based instruction is effective for improving comprehensibility and reducing accentedness of Saudi male EFL learners in reading aloud production. To answer this question, as mentioned in section 3.5.2, the students in both the experimental group and the control group read aloud a short text before and after the intervention. Their production was then evaluated by 11 native English listeners on two dimensions: comprehensibility and accentedness on a Likert scale from 1 to 9.

Table 5.2 **Summary of reading aloud test results**

	Test	**Group**	**Pre-test**	**Post-test**	**Mean difference**	**Within group (sig. value at 0.05)**	**Between groups (sig. value at 0.05)**
	Reading aloud						
Listeners' evaluation	**Comprehensibility** (on a scale of 1-9)	Experimental	6.34	6.52	0.18	0.261	0.856
		Control	5.79	5.94	0.15	0.123	
	Accentedness (on a scale of 1-9)	Experimental	5.14	5.25	0.10	0.329 0.223*	0.643 0.354**
		Control	4.69	4.73	0.03	0.693 1.000*	

* refers to the P-value of Wilcoxon test

** refers to the P-value of Mann Whitney test

The results of the pre- and post-tests of the experimental group showed that the improvement among this group in both comprehensibility and accentedness reduction was not statistically significant (p= 0.261 and p= 0.223 respectively). The improvement of the control group was also not found to be significant in any of the evaluated variables (p= 0.123 and p= 1.000 respectively). In addition, although the difference in improvement between the two groups was not found to be statistically significant in terms of any of these aspects, using one-way ANOVA and independent sample *t*-test (p= 0.856 in comprehensibility and p= 0.643 in accentedness), these two tests showed that the experimental group had a higher level of improvement than the control group.

Each of these aspects of the research question is examined in detail below, against the background of other relevant studies.

5.3.1 Effect of suprasegmental-based instruction on comprehensibility in reading aloud production

The present study aimed to investigate the impact of suprasegmental-based instruction on improving comprehensibility of Saudi male EFL learner's reading aloud production. As mentioned earlier, comprehensibility refers to the ease or difficulty listeners have in understanding speech produced by speakers. Previous studies (e.g. Derwing et al., 1998; Derwing & Rossiter, 2003; Warren et al., 2009; Tanner & Landon, 2009; Adriàn, 2014; Gordon et al., 2013) have shown that suprasegmental-based instruction has a positive impact on comprehensibility in reading aloud production.

In this study, however, the results showed that suprasegmental-based instruction did not improve the comprehensibility of students' reading aloud production in the experimental group to a significant level. The experimental group scored an increase in performance measured as 0.18 following suprasegmental-based instruction (see Table 5.2). The results of paired sample *t*-test showed that this improvement is not statistically significant (p= 0.261).

Meanwhile, the control group recorded a mean increase of 0.15 in comprehensibility. However, the paired sample *t*-test analysis showed that this improvement was not statistically significant, as the significance value was calculated to be 0.123, therefore above 0.05 (see Table 5.2).

Furthermore, the comparative analysis of the improvement of students in the experimental and the control groups using one-way ANOVA and the independent sample *t*-tests showed that there was no statistically significant improvement, due to the significance value being 0.856 (see Table 5.2). However, these two tests showed that the experimental group experienced a higher degree of improvement in terms of being comprehensible to the native listeners compared to the control group.

Since the results from the evaluation of the comprehensibility of the students' production carried out by the native listeners showed no significant improvement in comprehensibility among the students' production in the experimental group, the results suggest that explicit instruction in suprasegmental features is less effective in improving

comprehensibility in reading aloud than it is in improving spontaneous speech production. One possibility for this limited improvement in comprehensibility in the reading aloud task among the experimental group is that the suprasegmental-based course did not involve reading aloud class activities which may help them improve their production in the reading aloud task. The course paid more attention on improving learners' spontaneous speech production than their reading aloud, thus the students might have been able to directly apply what they had learned in the course when they undertook the spontaneous speech task, but not so much so in the reading aloud task. It is possible that, if the course had included more reading aloud activities, the students in the experimental group would have improved more in comprehensibility. This is indicated in studies by Taguchi, Gorsuch & Sasamoto, (2006), Tanner and Landon (2009), and Adriàn (2014), among others, who showed that reading practice can improve learners' reading production and the comprehensibility of their speech.

For example, Tanner and Landon (2009) investigated the effect of suprasegmental-based instruction on improving learners' reading intelligibility and comprehensibility, using materials called Cued Pronunciation Readings (CPRs). Their study involved 75 intermediate level students learning English as a second language in the United States of America. The results of their study indicated that this type of pronunciation instruction improved the students' ability to produce word and sentence stress to a significant level; however, its effect on pausing and intonation was less significant. Although the students in the treatment group of Tanner and Landon's (2009) study did not improve in all suprasegmental aspects to a significant level, the results showed that as a result of suprasegmental-based instruction, the students in the experimental group improved their overall reading production more than the students in the control group. In another relevant study undertaken by Adriàn (2014) in Spain to assess the effect of reading aloud teaching techniques on the improvement of students' pronunciation production, it was found that explicit pronunciation instruction using reading aloud activities can lead to a significant improvement in pronunciation production at both segmental and suprasegmental levels, and makes speech more comprehensible to listeners. However, unlike the present study, Adriàn's (2014) study did not involve external raters to evaluate the students' reading aloud production. The absence of external raters of the students' production could make the evaluation less accurate and reliable.

Another possible reason for this limited improvement as a result of suprasegmental-based instruction among the experimental group in this study is that reading aloud is less influenced by suprasegmental features which are proven to have a direct correlation with

improving comprehensibility in spontaneous speech production (Kashiwagi & Snyder, 2008). For example, Kashiwagi and Snyder (2008) investigated which pronunciation errors affect listeners' understanding of L2 speech using reading aloud short passages tasks, and found that segmental errors influenced listeners' understanding more than suprasegmental errors. Saito and Saito (2016) also suggested that the lack of improvement in production among the participants of their study could be attributed to their segmental errors when reading aloud as these errors might have influenced the listeners' judgement of comprehensibility, and thus offset the improvement made in the suprasegmental features. It is also possible, as found in Derwing et al.'s (1998) study, that learners who receive suprasegmental-based instruction were more able to transfer what they had learned to their spontaneous speech production than to their reading aloud production. Therefore, the students who received suprasegmental-based instruction in the present study, might not have been able to transfer what they had learned to the reading aloud task as much as to the spontaneous speech task.

It could also be possible that the choice of a reading passage for this task instead of short sentences that reflect spontaneous speech production had affected the listeners' evaluation. The text chosen for this task did not reflect spontaneous speech production, and did not cover a wide range of suprasegmental aspects which may have varied between students. For example, Derwing and Munro (2015) suggest that the content of the reading aloud test when assessing pronunciation should involve high frequency vocabulary and grammar, and a range of suprasegmental and segmental features, as well as a content that reflect naturalness of oral production. Therefore, previous studies (e.g. Derwing et al., 1998; Derwing & Rossiter, 2003; Levis & Levis, 2018) mostly use a set of sentences when assessing pronunciation through reading aloud tasks because they sound more natural than reading passages.

In addition, improvement in learners' reading aloud production may also depend on the learners' reading proficiency. Learners need to decode words, phrases and sentences before pronouncing them, which may impact the way their speech is comprehended by listeners. This is particularly challenging for learners who are accustomed to different scripts, and even more so for Arabic speakers who are used to reading from right to left instead of from left to right as in English. For example, Al-Qahtani (2016) found that Saudi EFL learners, due to lack of training and the major differences between Arabic and English, tend to have difficulties when reading in English. Therefore, they struggle when reading new and long words in English and this may mean they are less well understood. Al-Seghayer (2019) further noted that Saudi learners of English have difficulty recognizing words when reading in English which make

their reading slow and less fluent. Therefore, the results of the present study in reading aloud may not be as conclusive as the results reported in the spontaneous speech test, because reading aloud requires both decoding and pronunciation. Thus, the lack of improvement among the students in the present study in reading aloud may be attributed to their reading skills rather than the speech intervention.

In summary, although the findings of the present study were unlike those of other studies (Tanner & Landon, 2009; Adriàn, 2014; Saito & Saito, 2016; Levis & Levis, 2018) conducted in other countries, which found that suprasegmental-based instruction improves learners' comprehensibility in reading aloud tasks, the present study suggests that improving Saudi EFL learners with more training on reading aloud, and involving intensive reading-based activities when teaching English suprasegmental features, such as repeated reading and Cued Pronunciation Readings techniques, should lead to more improvement in the comprehensibility of learners' reading aloud production.

5.3.2 Effect of suprasegmental-based instruction on accentedness in reading aloud production

The second variable evaluated in the reading aloud task was the impact of suprasegmental-based instruction on reducing accentedness in Saudi male EFL learners' reading aloud production. Similar to the evaluation of the spontaneous speech production, accentedness was used in the evaluation of the reading aloud production to refer to the listeners' judgments of how close the L2 speakers' pronunciation to that of English native speakers (Munro & Derwing, 1999).

The findings of the present study show that the experimental group did not reduce their accentedness in reading aloud to a significant level. The experimental group scored a mean increase in their performance of 0.10, and a significance value in the paired sample *t*-test being 0.329 and, in the Wilcoxon test, being 0.223, therefore greater than 0.05 in both tests (see Table 5.2).

The control group, however, recorded a mean increase in their performance of 0.03 in terms of reducing accentedness in reading aloud production, and a significance value in the paired sample *t*-test (0.693) and in the Wilcoxon test (1.000) which were not found to be significant (see Table 5.2).

The comparison between the improvement of each group using one-way ANOVA, independent sample *t*-test and Mann Whitney also showed that there was no statistically significant difference between the two groups, since the significance value found in these tests was 0.643 in one-way ANOVA and independent sample *t*-test, and 0.354 in Mann Whitney.

Similar to the reasoning above regarding the lack of reduction of accentedness among the experimental group in spontaneous speech production, this lack of improvement in their reading aloud production may have been due to the short duration of the course, as it was not easy to reduce learners' accentedness in a short time to a statistically significant level. It could also be possible that the learners who were involved in the present study were adults and already have well-established pronunciation patterns influenced by their native language. So, they may need a longer time to reduce accentedness in their production. Therefore, it may be that suprasegmental-based instruction would be more effective when used with younger learners. For example, Galante and Thomson (2017), who involved pre-intermediate Brazilian English students aged 13-16 years old, found that pronunciation instruction involving suprasegmental features helps younger English L2 learners reduce accentedness to a significant level.

Another possible reason could be, as mentioned in section 2.2.3, that listeners perceive accentedness to be more linked to segmental features than suprasegmental features, especially in reading aloud production (Riney, Takagi & Inutsuka, 2005). For example, Derwing et al. (1998) found that segmental-based instruction had a more significant impact on reducing accentedness in reading aloud production than did suprasegmental-based instruction. In a study done by Riney et al. (2005) to investigate which speech aspects affect native and nonnative listeners' judgement of accentedness in reading aloud pronunciation, it was found that native English listeners tend to rely on segmental features when evaluating accentedness in speech, while nonnative English listeners relied on broader speech aspects, such as suprasegmental and fluency aspects. Therefore, since the pronunciation instruction used in the present study only involved native English listeners, and only focused on suprasegmental features, this might have affected the listeners' evaluation of accentedness in the students' production, and thus did not lead to a significant reduction in accentedness as a result of suprasegmental-based instruction. Therefore, it is possible that including segmental features in the pronunciation instruction may help learners reduce accentedness in speech to a significant level. Although the findings of the present study indicate that suprasegmental-based instruction on its own was useful to some

extent in reducing accentedness among Saudi EFL learners, teaching segmental features, especially high functional load, as well as suprasegmental features might have led to better outcomes in reducing accentedness among the learners in reading aloud production.

In conclusion, the findings of the present study revealed that suprasegmental-based instruction was less effective for improving comprehensibility and reducing accentedness in reading aloud production with Saudi male EFL learners at intermediate level than expected. This might be attributed to the fact that this course involved limited reading aloud activities which may help learners apply what they have learned in their reading aloud production. It is also possible that listeners' judgement of L2 production in reading aloud tasks might be more influenced by segmental features than suprasegmental features, especially native English listeners as found by Riney et al. (2005). However, the present study suggests that if the course had involved more reading aloud activities, and if the course had also involved segmental features, it would have had a greater effect on the students' reading aloud production.

5.4 Effect of suprasegmental-based instruction on students' listening perception

The third research question of the present study asked whether suprasegmental-based instruction can improve learners' listening perception to process speech easily when listening to English running speech. In particular, it asked whether suprasegmental-based instruction can enhance: (1) their ability to perceive and correctly identify words in a stream of speech; and (2) their ability to perceive and correctly identify the speaker's intonation in fluent speech. The study also explored whether suprasegmental-based instruction has a more marked effect on Saudi learners' listening ability, compared to instruction that does not include explicit pronunciation teaching.

The quantitative analysis of the results (see Table 5.3) showed that suprasegmental-based instruction had a positive correlation with listening improvement and can significantly improve listening performance and the perception of words and the speaker's intonation in fluent speech ($p= 0.000$ in both tests). This was further supported by the results of the calculation of effect size which showed that suprasegmental-based instruction had a large effect on improving learners' listening ability to identify words and also the speaker's intonation in English running speech ($d= 1.998$ and $d= 1.110$ respectively). This indicates that suprasegmental-based instruction is effective at improving learners' listening ability to process speech easily and identify words and intonation patterns when listening to English production. This also indicates that teaching English suprasegmental features helped the students in the

experimental group pay attention to the suprasegmental features in speech, because words and intonation identification tests not only require the listeners to be able to differentiate between segmental sounds, but also to be able to identify stress, rhythm, pauses and linking in speech.

The results of the present study also showed that the students who were taught English pronunciation with a sole focus on suprasegmental features improved more significantly than the group that did not receive any explicit pronunciation instruction as measured by the independent sample *t*-test and one-way ANOVA (p= 0.004 in word identification task p= 0.011 in intonation identification task). This was also supported by the results of the calculation of effect size using Cohen's test which showed that the practical difference between the improvement of the two groups was large (greater than 0.8). This suggests that suprasegmental-based instruction contributed to enhancing learners' listening ability, as it allowed them to better identify words and intonation patterns in connected English speech more than when there was no explicit pronunciation instruction. Table 5.3 provides a summary of the results gathered from the experimental and the control groups results in the word and intonation identification tasks.

Table 5.3 **Summary of results from the speech perception tests**

	Test	**Group**	**Pre-test**	**Post-test**	**Mean difference**	**Within group (sig. Value at 0.05)**	**Between groups (sig. value)**
Perception tests	**Word identification task**	Experimental	10.87	13.18	2.31	**0.000**	**0.004**
		Control	10.62	11.75	1.12	**0.001**	
	Intonation identification task	Experimental	3.75	5.06	1.31	**0.000**	**0.011**
		Control	3.56	4.06	0.50	**0.041**	

5.4.1 Effect of suprasegmental-based instruction on identifying words in a stream of speech

The word identification task required the students to listen to sentences produced fluently by an English native speaker and then choose between two words, and identify what word was correctly produced by the native speaker. The results showed in this task that the experimental group scored a mean improvement of 2.31, and a significance value of 0.000 (see Table 5.3). Effect size (Cohen's test) results also showed that this type of instruction had a very

large effect on improving the ability of identifying words in speech among the students in the experimental group as the Cohen value was found as 1.998.

Notably however, the control group also improved their ability to identify the correct word produced in the word identification task with a mean increase in their performance of 1.12. As shown in Table 5.3, the paired sample *t*-test results showed that their improvement in the word identification task was also statistically significant (p= 0.001). Cohen's test results also showed that this type of instruction had a large effect on improving the ability of identifying words in speech among the students in the control group as the Cohen value was found as 0.817.

Furthermore, both the one-way ANOVA test and the independent sample *t*-test showed that the difference in improvement between the two groups in their ability to correctly perceive and identify words in English running speech was statistically significant, as the significance value found in both tests was 0.004 (Table 5.3). The measurement of the effect size also showed that the practical difference between the improvement among the experimental group and the control group is large (d= 1.098).

The results of the word identification task showed that the students in the experimental group benefitted from learning English suprasegmental features and became able to rely on their knowledge about these features to accurately identify words in speech. In addition, the results showed that the students in the experimental group benefitted from suprasegmental-based instruction significantly more than the students in the control group who had no explicit pronunciation instruction, in terms of improving their listening ability to do the test correctly. This improvement can be attributed to the effectiveness of teaching suprasegmental features, especially stress, rhythm, linking and pauses which could have helped the students locate stress and word boundaries, and so identify words easily when listening to fluent speech.

The institution's teaching method with no pronunciation instruction was shown to be effective to some extent at improving the students' listening perception in the word identification task. The control group recorded a significant improvement in the word identification task. One possible reason for this improvement in their ability to identify words in a stream of speech is the fact that the students were exposed to a substantial quantity of exposure to native English production through the recordings used in their regular course and their day-to-day contact with their native English teacher. The regular course in the institution pays explicit attention to teaching listening skills, and this would likely have helped them

improve their ability to recognise English words in fluent speech. However, the comparison of the results between the two groups showed that the experimental group improved significantly more than the control group did in the word identification task. This clearly suggests that suprasegmental-based instruction is more effective than the absence of explicit pronunciation instruction in improving the students' listening perception and their ability to identify words in fluent speech.

These findings confirm those of previous studies in other contexts (e.g. Han, 1996; Field, 2003; Vandergrift, 2004; Kissling, 2018; Lee et al., 2020) which have found that enhancing learners' suprasegmental awareness can also improve their perception of speech and ability to identify words in continuous speech. For example, Kissling (2018) found that teaching suprasegmental features can enhance learners' ability to identify words when listening to a stream of speech and locate word boundaries. Kissling (2018) also found that suprasegmental-based instruction impacted learners' ability to identify words in fluent speech more than segmental-based instruction did. Han (1996) similarly found that suprasegmental-based instruction was effective in improving learners' ability to differentiate between sounds, identify words in fluent speech In his study, Han (1996) further found that suprasegmental-based instruction had a better impact on learners' listening ability to identify words and comprehend speech easily than segmental-based instruction. This is because in the former type of instruction, the language is learned in connected speech, while the latter emphasises the importance of learning individual sounds in isolated words.

The findings of the present study also corroborated the findings of the Cutler, Dohan and Donselaar's (1997) study which showed that suprasegmental features play a significant role in recognising words in speech. According to Cutler, Dohan and Donselaar (1997) listeners often use prosodic information to recognise individual words in everyday speech, as well as the number and locations of words in fast speech. Field (2003) also notes that listeners tend to rely on suprasegmental features, such as pauses, linking and stress to perceive speech clearly and identify words in English continuous speech. Therefore, pronunciation instruction should pay attention to these features to enhance learners' abilities to comprehend speech easily. Vandergrift (2004) further argues that teaching suprasegmental features is an effective type of instruction that helps learners become able to comprehend fast speech with less effort and become able to identify words when produced in sentences spontaneously. Gilbert (2008) notes that words produced in sentences are different from their pronunciation in isolation, as the way they are pronounced in sentences is influenced by suprasegmental features. Gilbert (2008)

asserts that the listeners' knowledge about suprasegmental features would significantly impact their ability to segment speech and identify words in a stream of speech. Similarly, Hamouda (2013) argues that English L2 learners may lack ability to discriminate between words and comprehend speech easily because they have not been taught suprasegmental features. In his study, he revealed that Saudi EFL learners lack awareness about English suprasegmental features and this affects their ability to identify words in English speech.

In summary, the findings of the present study reinforce those of previous similar studies regarding the benefits of suprasegmental instruction in improving students' perception of words in a stream of speech, and confirm that suprasegmental-based instruction would be effective in the Saudi context as it is in other countries. The findings also corroborate the findings of previous studies in showing that teaching suprasegmental features helped learners improve their listening perception and become able to identify words in running speech. Therefore, the present study complements the literature discussed earlier, and similarly suggests the need to integrate suprasegmental-based instruction into Saudi EFL classes for improving listening comprehension. These features are effective in facilitating students' ability to differentiate between sounds, and to accurately recognise words in connected speech.

5.4.2 Effect of suprasegmental-based instruction on perceiving English intonation

In the intonation identification task, the experimental group recorded a mean increase calculated at 1.31, and significant value found as 0.000 (See Table 5.3). Effect size (Cohen's test) results also showed that this type of instruction had a very large effect on improving the ability of identifying the intonation of the speaker in running speech among the students in the experimental group (d= 1.11). Similarly, the control group also recorded a significant performance improvement in the intonation identification task. The students in this group recorded a mean increase of 0.50, the significance value was 0.041. However, the results of effect size showed that this type of instruction had a medium effect on improving the ability of identifying the speaker's intonation in fluent speech among the students in the control group as the Cohen value was found as 0.463, therefore closer to 0.5.

In addition, the one-way ANOVA test and the independent sample t-test showed that the difference in improvement between the two groups in terms of their ability to identify the speaker's intonation in English sentences was statistically significant, due to the significance value found in both tests being 0.011 (see Table 5.3). This was further supported by the

measurement of the effect size which showed that the practical difference between the improvement among the experimental group and the control group is large (*d*= 0.961).

The results of the experimental group's performance thus showed that suprasegmental-based instruction helped the students improve their ability to correctly perceive and identify intonation patterns in running speech. However, as noted above, the control group also recorded some improvement in the same task. The control group's improvement could be attributed to benefits from the listening materials provided in their regular class. This hypothesis would be in line with findings from a study by Derwing, Thomson, Foote and Munro (2012), conducted to examine which pronunciation features were likely to improve in the absence of explicit pronunciation instruction, among English L2 learners in Canada. Their study found that, although the participants did not receive any explicit pronunciation teaching, they improved their perception of intonation, sentence stress and '–teen/ -ty', while they made no improvement in perception for word stress and 'can/can't'. Therefore, it is suggested that the students in the control group of the present study might have improved as a result of the use, in their regular learning course, of textbooks that provide listening exercises reflecting daily life.

Nevertheless, the comparison between the impact of the two types of instruction on the students' ability to correctly perceive and identify intonation patterns in the intonation identification task showed that the experimental group scored significantly higher than the control group. This further emphasises that instruction that focuses on the suprasegmental features is more effective at improving students' phonological perception and their ability to whether the speaker is using a falling or rising tone in their speech, than instruction without explicit pronunciation focus.

The positive effect of learning intonation on the improvement of learners' perception ability has been reported in many studies (e.g. Goh, 1994; Vaissiere, 2004; Xiaoyu, 2009; Zhang et al., 2010; Darcy et al., 2012; Sereno et al., 2016; Kurt, Medlin and Tessarolo, 2014). These studies examined the effect of suprasegmental-based instruction on listening perception in other parts of the world and showed similar results to those found in the present study with regards to Saudi students of English. For example, Goh (1994) investigated the effect of teaching intonation on the perception and production of English L2 learners in Malaysia. Like the present study, Goh's (1994) found that learning intonation had helped the students improve their ability to correctly perceive and identify the intonation of the speakers. However, Goh

(1994) noted that, in spite of the improvement in the students' perception, the participants of her study experienced some difficulty in identifying the intonation of the speaker in both the pre- and post-tests. Therefore, she recommended teaching intonation patterns intensively to L2 learners of English to improve their perception and awareness of intonation in English. Kurt, Medlin and Tessarolo (2014) also investigated the effect of explicit pronunciation instruction on the improvement of learners' perception of intonation patterns. Their study involved a group of low intermediate English EFL learners from different L1 backgrounds learning English in the United States of America, who were divided into an experimental and a control group. Like the present study, their study found that the group that received four-weeks explicit instruction on intonation, were able to tell whether the speaker is using a rising or falling tone in his speech, and improved more than the group that received no explicit pronunciation instruction.

Previous studies have shown that intonation plays an important role in understanding speech and should be given a priority when teaching pronunciation. For example, Sereno et al. (2016) investigated the impact of intonation on the production of two English native speakers and two Korean speakers who were asked to produce a list of English sentences. Their study found that intonation of the speaker significantly impacted listeners' understanding of speech, and affected how easily speech was processed by listeners. Similarly, Xiaoyu (2009) conducted a study to examine the relationship between the awareness of English suprasegmental features, including intonation and the listening perception of L2 learners in China. The study found that intonation correlates to listeners' understanding of speech and that the learners who were more familiar with the intonation patterns of English were more successful in understanding the meaning the speaker was trying to convey. Vaissiere (2004) and Zhang et al. (2010) also noted that the perception of intonation is very important for language learners as it helps them process speech easily and become aware of the speaker's intended meaning. Likewise, Madzlan and Mahmud (2018) also found that the correct perception of intonation facilitates understanding the intended meaning of the speaker. Ar-Riyahi (2015) similarly notes that, despite its importance in oral communication, L2 learners, and Arab EFL learners in particular, generally lack knowledge about English intonation patterns and need explicit pronunciation instruction to be able to communicate effectively in English. In his study, Ar-Riyahi (2015) found that Arab EFL learners often fail to identify the intonation of the speaker and the functions of the tones.

The findings of the present study also add to those of previous studies which have found that explicit instruction in suprasegmental features, including intonation, improves learners'

ability to perceive and identify correctly the speaker's intonation in fluent speech production. This present study showed that the group that the received suprasegmental-based instruction improved their ability to tell the intonation of the speaker, and their performance improvement was found to be more significant than the group that received no explicit pronunciation instruction. This implies that enhancing learners' awareness of English intonation would enhance their listening skills and facilitate their understanding of speech. Therefore, the results of this study corroborate those of other studies and recommend teaching intonation to English L2 learners as it helps learners develop their overall understanding of speech and make them better able to process speech.

5.5 Responses of the students and the native teacher to suprasegmental-based instruction

The fourth research question guiding this study aimed to investigate in depth the views of the students and the teacher on suprasegmental-based instruction. The end-of-course questionnaires (shown in Appendices 7 and 8) were used to elicit their opinions about the suprasegmental-based course. The students and the teacher were asked to provide their feedback about the effectiveness of the course and to give their opinions about the materials, techniques and activities used, which could help making decisions about how to teach English suprasegmental features to Saudi EFL students. In addition, classroom observations were also used to shed light on to the effectiveness of the materials, tasks, and activities to teach English suprasegmental features.

The qualitative and quantitative analysis of the data gathered from the questionnaires and classroom observations provided evidence of the students' perceived importance of receiving pronunciation instruction, and of their views on the effectiveness of the teaching English suprasegmental features for improving their perception and production of speech. In addition, the findings gave the researcher useful insights into which materials, techniques and activities the students favoured when learning pronunciation in the classroom. Below is a summary and discussion of results from the questionnaires and classroom observations.

5.5.1 The students' and the teacher's responses to the importance of learning pronunciation

The findings from the end-of-course questionnaires and classroom observations showed that the students in the experimental group were keen to enhance their pronunciation skills and improve their speech perception and production in order to communicate easily in English. The majority of the students' responses to the questionnaires revealed that they

understood the importance of improving their perception and production skills to communicate better when they travel abroad, to be understood by listeners and to increase their confidence. Additionally, the students showed in their responses that they were keen to improve their pronunciation because their pronunciation errors affect their ability to communicate easily even when they produced grammatically and syntactically correct sentences. The students also rated their pronunciation as having been poor before receiving suprasegmental instruction. They pointed out that without such specific instruction, it was not possible for them to improve their pronunciation skills due to the lack of opportunities to speak English outside the class in Saudi Arabia.

In my classroom observation, it was also noticed from the students' active participation, that they were keen to improve their pronunciation and to become more fluent and accurate in their pronunciation. The majority of the students, it was observed, were active in class and understood the role of pronunciation in their communication. Learners' high motivation towards pronunciation learning and improving their communicative skills might help making pronunciation instruction more effective (Alfallaj, 2013). However, they lacked knowledge about how to improve their pronunciation because pronunciation is not given enough attention in their other classes. The teacher also added that pronunciation should be a priority in the students' learning process, because it plays a key role in their communication abilities, as it enhances their perception and production skills, and communicative competence.

However, only two students reported that pronunciation was not a priority for them in their language learning, as they wanted to focus on other linguistic components, such as grammar and vocabulary. This lack of interest in prioritising pronunciation might be due to pronunciation being valued differently by those students for which passing the exam was more important than learning English to communicate. Another reason may have been the influence of the traditional teaching methods used to teach Arabic in Saudi Arabia, which focus heavily on grammar and vocabulary and pay less attention to the aspects of pronunciation. Therefore, it can be assumed that these language learners are conditioned in their approach to language learning by the way they were taught their mother tongue and therefore want to use the same approach when learning English as a second language (Ashraf, 2018). The present study, in contrast, recommends that students of English in Saudi Arabia be taught pronunciation intensively and as a priority, in order for them to become aware of its importance for communicative competence.

The above findings were in line with those of other research on the attitudes of Saudi students toward learning English pronunciation (Alfallaj, 2013; Al-Ahdal, et al., 2015; Alghazo, 2015; Alrabai, 2016; Almaqrn & Alshabeb, 2017; Naser & Bin Hamzah, 2018). For example, Almaqrn and Alshabeb's (2017) study, which involved 23 intermediate university students in Saudi Arabia, found that Saudi students had positive attitudes towards improving their pronunciation skills. They also showed that students with a high degree of interest in improving their pronunciation were more successful than those who were less interested in learning English pronunciation. Their study also confirmed that Saudi students lacked pronunciation practice, due to the limited contact they have with English native speakers. Naser and Bin Hamzah (2018) also investigated the pronunciation and conversation challenges faced by Saudi learners of English. Their study found that pronunciation and conversation difficulties negatively impact the students' confidence and motivation in learning pronunciation. Similar to the present study, they also found that overall Saudi students have positive attitudes toward pronunciation learning. In addition, Al-Ahdal, et al. (2015), in a study which evaluated pronunciation proficiency among Saudi students learning English at Qassim University in Saudi Arabia, found that Saudi students overall are keen to improve their pronunciation skills, however, English courses in Saudi Arabia lack the teaching methods that help students increase their motivation, and improve their pronunciation skills, especially at suprasegmental level.

In sum, the findings of the present study confirmed findings of studies reported in the literature that there is a keen interest among Saudi EFL learners to improve their pronunciation and listening perception, in order to improve their communicative skills. The study also found that it is important to support students to overcome their pronunciation difficulties, and enhance their motivation through the use of new teaching methods that pay explicit attention to the suprasegmental features of the language.

5.5.2 The students' and the teacher's responses to the effectiveness of suprasegmental-based instruction

The results gathered from the end-of-course questionnaire that was provided to the experimental group showed that the majority of students in this group received suprasegmental-based instruction positively. They reported the suprasegmental pronunciation course to be effective in improving their pronunciation and listening ability. This perceived improvement can be attributed to the focus that the suprasegmental lessons had on developing the learners' familiarity with the target language production, through listening and speaking exercises.

Overall, the participants' responses indicated that they felt that receiving instruction on suprasegmental features improved their pronunciation and listening ability. However, their perceived improvement in pronunciation and listening ability was rated as low. This may suggest that the students were either modest in their self-evaluations or expected their improvement in pronunciation and listening to have been more significant and faster. Supporting this latter interpretation is the limited duration of the course, 13.5 hours in total (four weeks), which was not enough to make them feel they had a higher level of accomplishment in their linguistic skills. This also may suggest that, as mentioned earlier in the chapter, intermediate adult EFL learners may already have established pronunciation patterns that take time to be overcome or changed.

In contrast, the teacher reported that teaching the suprasegmental features of English had positively impacted the students' pronunciation and made them able to produce and perceive speech clearly, although the course was somewhat difficult for some of them as most of the students were largely inexperienced with these suprasegmental features. It was observed that the students, due to their lack of knowledge on suprasegmental features, tended to utter words in isolation when encouraged to speak, and were barely understood. Therefore, teaching English suprasegmental features was useful to enhance their phonological knowledge about how these features contribute to their ability to perceive and produce speech easily and consequently enable them to communicate effectively with others. The teacher also strongly recommended lengthening the duration of each lesson to more than 40 minutes as that would enable the teacher to explain each feature in detail and to practice it with the students to ensure that they perceived the features accurately and were able to use them in different communicative situations. However, it could be difficult to maintain the students' interest and concentration on learning pronunciation for longer than the 40-minute sessions. Therefore, introducing the suprasegmental features to the students in the early stages of their English learning might be more effective in helping them become familiar with these features.

Previous pronunciation studies on Saudi learners of English have shown the need for new pronunciation teaching methods, ones that target English suprasegmental features. These features, it is argued, help learners overcome their pronunciation problems and improve their communicative competence, in order to make language learning more effective (e.g. Alharbi, 2009; Jarrah, 2015; Alghazo, 2015; Bin Hady, 2016; Ababneh, 2018; Misfer & Busabaa, 2019). Bin Hady (2016), for example, found that the pronunciation errors Arab learners tend to make when speaking English are mostly related to suprasegmental features. In his study, Bin Hady

noted that the learners' limited knowledge of these features affects their ability to produce intelligible pronunciation. Therefore, he argued for the need to teach suprasegmental features to help learners become more intelligible and comprehensible, and communicate effectively.

Bin Hady's study recommended language teachers should apply Gilbert's Prosody Pyramids as a solution for the intelligibility and communication problems of Arab learners of English. Prosody Pyramids is a pronunciation teaching model used by Judy Gilbert in 2008 to improve learners' pronunciation and listening comprehension. In this model, suprasegmental features are taught visually, starting from focus words and stress and ending with peak syllables (Bin Hady, 2016). Alharbi (2009) also stated that Saudi learners of English have major problems in pronunciation, especially with employing suprasegmental features. He recommended suprasegmental-based instruction be introduced with Saudi learners of English from an early stage and suggested that applying suprasegmental focused methods early to the students might be more effective in overcoming learners' pronunciation problems. In addition, as Jarrah (2015) notes, it is advisable that teachers of English in Saudi Arabia acquire better knowledge about teaching methods involving suprasegmental features, in order for them to be most effective in improving the pronunciation of learners. Alghazo (2015) also noted that pronunciation classes tend to focus on segmental features, however Saudi EFL learners need instruction on suprasegmnetal features to improve their fluency and intelligibility of speech. More recently, Misfer and Busabaa (2019) found that English suprasegmental features are not given enough attention in Saudi Arabian classes, and teachers pay little attention to checking their students' pronunciation errors. In addition, Misfer and Busabaa (2019) noted that although the students had high motivation to improve their pronunciation, classes often lack pronunciation instruction, especially on suprasegmental features.

In summary, the results of the present study confirmed that Saudi learners are keen to improve their speech perception and production in English and are ready to be challenged with new effective teaching methods that introduce new features of English pronunciation, such as suprasegmental features which are important for their perception and production, and oral communication skills. The students' responses revealed that they appreciated the role suprasegmental features played in their pronunciation and listening ability improvements. However, pronunciation teaching using suprasegmental-based instruction is not given much attention in Saudi Arabia, as noted by previous studies (e.g. Alharbi, 2009; Hamouda, 2013; Al-Ahdal, 2015; Jarrah, 2015; Alghazo, 2015; Misfer & Busabaa, 2019), despite its importance for Saudi EFL learners. This may result in students encountering communication difficulties

and losing motivation in language learning. Therefore, new pronunciation methods focusing on suprasegmental features are needed from the early stages of language learning, to help learners overcome such obstacles and improve their perception and production of speech.

5.5.3 The students' and the teacher's responses to the content of the course

The participants' responses to the questionnaire also covered their perceptions of the content and of teaching materials used in the class, which both the students in the experimental group and the native English teacher were asked about. Their responses indicated that they found the materials to be clear, useful and instrumental in increasing their knowledge, confidence, motivation and eagerness to learn English pronunciation. The information gathered from the questionnaires also showed that the students appreciated the use of authentic materials that specifically focused on the suprasegmental features, and believed that these would help them produce better connected speech and communicate better in real-life situations.

These thoughts were similarly expressed by the teacher, who stated that using common expressions taken from everyday language helped the students improve their communicative competence. The use of authentic materials might have enhanced the students' motivation towards this type of instruction because the main goal for the students joining the academy was to improve their communicative competence in English. In addition, although it was the first time that the students experienced suprasegmental-based course content, they indicated that the lessons were interesting and were presented in a very clear way that they could easily understand. Three students, however, felt that some materials and lessons were a little bit challenging, or not appropriate to their level of English. The teacher also noted that teaching some lessons to students who had no previous knowledge of these features made his job difficult, because it was the first time that suprasegmental-based instruction is used with these students.

In my observation, it was also noted that in some lessons explaining the suprasegmental features took longer than expected and reduced the time given to practice the features. This was because the teacher wanted to enhance learners' cognitive awareness about these features and make sure that the students understood the features before they applied them. However, it is also worth noting that the course materials used were taken from the book *English Pronunciation in Use* by Mark Hancock and were chosen according to the theory of Zone of Proximal Development (ZPD). This theory encourages teachers and course designers to use materials that are in advance of the learners' language level, to keep the learning process

interesting and challenging (Axford, Harders & Wise, 2009). The materials were also chosen in a gradual sequence, from simple to complex, to ensure learners would experience the progression. However, the difficulty the students faced with the course might have been due to their inexperience with suprasegmental features. Some difficulties may also have resulted from the materials not being able to be individually tailored, given the inevitable range of language ability in a class of 16 students.

In his feedback, the teacher recommended using the suprasegmental lessons with more advanced learners could be expected to have a better understanding of the pronunciation features. He reasoned they would have fewer pronunciation problems and would probably benefit more from learning the suprasegmental features of English. However, the results of the present study showed that suprasegmental-based instruction was useful in improving the learners' perception and production of speech even with intermediate level students. Therefore, it may be better to introduce less challenging pronunciation content and use suprasegmental-based materials tailored to the culture of Saudi students. It is recommended that the materials include content that the students are familiar with, for example, they could contain information about famous places, people, songs and expressions that reflect their culture. It may also be better to introduce such materials from the early learning levels; this may strongly advance their pronunciation production and perception, and make their learning process much easier.

The literature also confirms the teacher's and the students' views that the quality of suprasegmental-based materials plays an important role in facilitating the students' pronunciation learning. The appropriate selection of materials is important to reduce learners' anxiety and increase their motivation in learning pronunciation. Sifakis (2014) stated that pronunciation curriculum designers should propose materials that both teachers and learners find comfortable and familiar. When the teacher and the students feel comfortable with the content of the course, he argued, they may be less challenged and more successful in achieving the course's objectives.

According to Davies (2006), the selection of the course materials has to be prepared accurately to meet the students' needs and personal goals and to increase their motivation towards pronunciation learning. However, due to the lack of attention paid to suprasegmental features in traditional pronunciation courses in Saudi Arabia, as evidenced in previous studies (e.g. Abu Seileek, 2007; Alharbi, 2009; Al-Ahdal, et al., 2015; Misfer & Busabaa, 2019), obtaining appropriate suprasegmental-based instruction materials has proved difficult.

Alsofyani and Algethami (2017) stated that pronunciation materials currently available in language courses in Saudi Arabia are not adequate. They also recommended developing effective pronunciation materials that include both segmental and suprasegmental features, and which are suitable to all linguistic levels. Alonazi (2017) explains that it is important to use materials that are suitable to the students' levels of English, and to present them in a way which is comprehensible to the students. Al-Domi (2017) also pointed out that pronunciation instruction in Saudi Arabia lacks language teaching materials that authentically reflect the everyday language of learners. Current materials, he argued further, do not adequately emphasise suprasegmental features, which are important for developing communicative competence.

In another study, Alduais (2007) surveyed the perceptions of Yemeni teachers and students about the importance of integrating suprasegmental-based instruction materials to improve the students' communicative competence. His study found that both the teachers and students reported a lack of suprasegmental materials in class, despite their importance for improving learners' communicative competence. The present study also addressed this issue by investigating what materials the Saudi EFL students would prefer to enhance their awareness of suprasegmental features and improve their perception and production of speech. The results showed that students appreciate the materials when they were authentic, useful, clear and familiar to them, as these helped them increase their confidence and motivation towards learning suprasegmental features.

In summary, the findings of the present study indicate that although the materials adopted from *English Pronunciation in Use*, used in the suprasegmental based course helped improve the Saudi EFL students' perception and production of speech, designing appropriate materials reflecting local Saudi cultural content, and which are authentic, useful, clear and appropriate to their level of English might lead to better outcomes. These findings closely reflect previous studies' recommendations for the use of authentic and useful suprasegmental materials, tailored to students' language competence, to improve their speech perception and production to the level where their pronunciation difficulties have no impact on comprehensibility.

5.5.4 The students' and the teacher's responses to the activities and techniques of the course

The investigation of the participants' responses to the course also covered their perceptions of the activities and techniques used to teach the suprasegmental features targeted in the course. This was intended to investigate which activities and techniques that Saudi EFL learners prefer when learning pronunciation, especially suprasegmental features. The students were asked for their views on the course's classroom activities and techniques, and to suggest effective techniques and activities to improve the implementation of suprasegmental-based instruction in future applications. The students' and the teacher's answers indicated that the classroom environment was different from their other classes and that this novelty increased their curiosity towards learning English pronunciation. The students appreciated the unconventional format of the suprasegmental based course because it was different from the teaching methods they were taught in their regular classes. They also reported that the classroom environment gave them more opportunities to speak and to participate in class. This contributed to a better balance of power in the classroom, and to students not feeling like passive listeners, as they were accustomed to being treated in traditional classes. This also helped them practice what they learned and receive immediate feedback from the teacher on their pronunciation. Explicit feedback is important in pronunciation instruction because it helps learners raise their awareness about their pronunciation errors (Derwing & Munro, 2015).

In my classroom observation, however, I noted that some students were unaccustomed to speaking up and seemed somewhat shy and reluctant to participate in the class. This may suggest that not all students will respond immediately to more interactive teaching techniques. They may need time to adjust to the new learning environment, and indeed some less extroverted students may feel marginalized by the interactive approach (Khan, 2011). According to Alrabai (2016), one of the factors behind low achievement among Saudi students in English is that they can feel resentful about being asked to speak up in class or forced to participate, and that increases their anxiety towards the course. This may be the case with some students, who expressed their dissatisfaction towards the suprasegmental based course in this way. However, Altuhafi (2011) found that English L2 learners need to be encouraged to participate in class and accept correction of errors in their speech because the students who are confident and active gain better improvement in their pronunciation than those who are shy or embarrassed by their pronunciation. Misfer and Busabaa (2019) also noted that students often lack opportunities to speak in class, and this often makes the teacher become unable to identify the students' pronunciation errors. Therefore, it is suggested that teachers need to encourage

their students to speak in English through enjoyable pair and group activities, and provide students with more opportunities to practice what they have learned in class to increase their confidence and ensure of their understanding of the lesson.

The suprasegmental based course also involved a variety of activities and techniques to ensure that each lesson was delivered effectively. The activities used in class involved visual, audio and physical activities that the students found unique and useful for improving their perception and production of English speech. The students appreciated auditory materials and exercises, such as repeating after a native speaker, whom they used as a model, as well as listening to their own production in English. Repeating after the teacher allowed them to compare their own production with that of the native speaker's and helped them recognise their own mistakes. Celce-Murcia et al. (2010) found that using recordings of learners' production is a useful pronunciation teaching technique that provides opportunities for students to check their own production and receive feedback from their teacher and classmates. They also found that students' judgment of their own production help students overcome the difficulties they have in their production (Celce-Murcia et al., 2010). It is likely therefore that the use of this technique in the present study had the same effect.

Some students also stated that they wished the course had introduced more listening materials to improve their English perception, through listening to short stories or authentic conversations. This suggests that the students want to familiarise themselves with the correct pronunciation before they are exposed to production. The auditory materials were also appreciated by the teacher, who recommended that the quantity of listening materials used in the course should be increased. The listening exercises were found to be useful in helping the students mimic the correct pronunciation of English native production.

I also found in my classroom observation that the visual aids, including reading from a whiteboard, charts and drawings, were useful in explaining some points of the suprasegmental features. Although some visual aids were used in other classes, those used in the observed suprasegmental class helped the students improve their visual memory by emphasising word and sentence stress, as well as falling and rising intonation. For example, the teacher used small and big circles above the words to highlight the stressed syllable or word in the sentence. These helped the students understand how native English speakers reduce and link their spontaneous and reading speech. Furthermore, physical activities were effective when used in the course, as one of the students reported that hand gestures helped them to identify the stress in the sentence.

In my observation, I noted that the use of kinesthetic techniques through physical movement or playing games helped the students improve their awareness of suprasegmental features and encouraged them to participate in the class. For example, the teacher used clapping and beating on the floor to draw the students' attention to word and sentence stress.

The use of these techniques is also suggested by Yates (2002) and Zhang (2006), who showed that they are beneficial for learners to improve their suprasegmental perception and production. Zhang (2006) proposed a 'somatically-enhanced approach', which involved several physical activities such as clapping, walking around the class and stamping feet on ground to highlight word and sentence stress, and was found to be effective in teaching Mandarin prosody to L2 learners. However, some physical activities included in the somatically-enhanced approach, such as lying on the floor and walking in circles, might not be appropriate to Saudi adult learners who may feel reluctant to perform them in class. Therefore, only activities that were appropriate to the Saudi adult students, such as clapping and beating on the ground, were included in the course. More recently Lee et al. (2020) found that using physical activities including tapping, clapping and jumping were effective in teaching suprasegmental features, and recommended using them in pronunciation instruction, especially if the duration of the lesson is limited.

Additionally, Zhang's (2006) study found that the use of technology was effective and motivating for the adult learners in her study. However, the present study did not use technological resources extensively, as only a CD and a sound recorder were employed to teach the suprasegmental features covered in the course. Although these resources proved adequate to successfully deliver the suprasegmental materials in the present study, additional resources may have made the course delivery easier. This is supported by Alsofyani and Algethami (2017) who urged the need for using technological resources to teach English pronunciation. Alsofyani and Algethami (2017) found that technological resources are not available in pronunciation classes in Saudi Arabia, therefore teachers are left without teaching resources that help them to teach English pronunciation effectively. Almulhim (2014) earlier had noted that absence of technology, lack of teacher training and time given to the lessons are key obstacles impeding teachers from succeeding in their jobs. Therefore, she recommended that teachers be given more time for their lessons, provided with effective training and have sufficient technologies made available. This view was supported by Al-Maini (2011) who found the lack of access to technology in Saudi Arabian classrooms led language teachers to complain about a lack of expertise in using technological resources. If technology is not being

used properly by teachers in class, this in itself may lead to ineffective results. Al-Domi (2017) is another researcher who found that the use of technology for teaching English suprasegmental features is effective for improving learners' perception and production of speech. All of this suggests that it is important to increase the use of technology in the Saudi language class, to train language teachers to use technology in class, and to provide them with resources that align with the content of their courses, and help teaching pronunciation effectively.

The students also noted an appreciation of the use of individual, pair and group activities. They thought these activities helped them increase their skills in working together as well as working independently. In the classroom observation, it was observed that these activities gave students a greater chance to speak in class, and enhanced their confidence and motivation towards pronunciation learning. Speaking with a classmate in English helped them lower their anxiety when speaking in a foreign language. Some students were found to be too shy to speak in front of their classmates, so these pair and group activities helped them increase their confidence to speak. However, it was also observed that students preferred to use Arabic when discussing in the group activities, either due to their lack of practice in English, or because it was easier and quicker for them to explain their ideas in Arabic. Alghazo (2015) found that students who are at lower level of proficiency tend to prefer to use Arabic in their pronunciation instruction either with each other or by the teacher because that they believe that this technique helps them understand better. This also suggests that the students need to be supervised or challenged not to use Arabic in class, to help them obtain more English practice with each other. To sum up, I concluded from my observation that these activities and techniques were effective in improving students' pronunciation, listening, and learning skills. The exercises changed the atmosphere of the classroom and helped the students enjoy the lessons and learn better.

These considerations confirm similar conclusions put forward in scholarly literature. Earlier studies conducted to investigate students' and teachers' feedback on pronunciation learning via suprasegmental features have found that using communicative and interactive activities and techniques plays a crucial role in making courses effective (Ahmad, 2012; Al-Asmari, 2013; Hamad, 2013; Ahmed & Nazim, 2014; Algonhaim, 2014; Alrabai, 2016). For example, Ahmed and Nazim (2014) investigated the views on pronunciation learning of 100 Saudi students enrolled in the Preparatory Year Program at Najran University. Their survey found that Saudi students were hesitant to speak in English, and new pronunciation methods that give students more opportunities to speak in class were needed to help students improve

their English production. The participants in their study also indicated that the communicative activities used in class were not effective. In response, Ahmed and Nazim suggested some visual and auditory activities and materials that teachers could use in class to improve pronunciation among learners. Alrabai (2016) also noted that Saudi Arabian classes are teacher-centered, and the learners are totally ignored and do not have enough opportunities to practice English in class, which makes learning outcomes unsatisfactory. In addition, Hamad (2013) noted that due to students' low levels of confidence with English, they tend to avoid practicing English in class. Therefore, she recommended that the teachers should not let students use Arabic in class to encourage them to develop their perception and production skills. The present study also found that the students learnt better when they were encouraged to use English in class. The findings of the study also found that the students benefitted from engaging in individual and group activities which made them feel responsible for their learning. Unlike the regular classes which give no active role to learners, the students in the present study were given numerous opportunities to interact and express their feelings through a variety of activities.

In conclusion, the findings of previous studies and the present study confirm the need for interactive and communicative activities and techniques that are effectively presented, and suitable to the students' needs and learning goals. These are effective in enhancing motivation and assuaging anxiety, but they need to be at a level of difficulty appropriate to the linguistic competence of EFL learners. The present study shows that Saudi EFL learners are keen to improve their pronunciation in order to become more better speakers and listeners when communicating in English. However, they lack pronunciation practice in Saudi classrooms, which is mainly due to the emphasis of traditional language courses in which the teaching methodology tends to focus on grammar and vocabulary and listening skills, rather than on pronunciation aspects that are particularly beneficial in enhancing learners' perception and production abilities and communicative skills. Also, the teaching methods in these courses tends to be quite constrained by textbooks. The students, as it was observed, need to be engaged with the taught materials through interactive and communicative activities that they find enjoyable and motivating and help them learn effectively.

The use of a variety of activities to improve their perception, production and communicative competence was also appreciated by the participants of the present study, because it gave the students a more interactive role in class. Although some activities and techniques were used in the regular classes, this study found the use of activities and techniques

with the suprasegmental features to be more effective. Finally, although some students made fewer positive comments about the length of the course, which they found challenging, and a few of them preferred learning language components other than pronunciation, the majority of students and the teacher appreciated the content of suprasegmental-based instruction, and confirmed its effectiveness in improving perception and production skills. The positive attitudes of the students and the native teacher, combined with the effectiveness of teaching English suprasegmental features in improving the students' perception and production of speech, suggest that this type of instruction is an effective alternative method for learning English pronunciation in the Saudi Arabian context.

5.6 Conclusion

This chapter presented a summary of the results and a thorough discussion of the main findings in response to the research questions that guided the study. The findings showed that suprasegmental-based instruction had a positive impact on improving learners' spontaneous speech production. In particular, this type of pronunciation instruction significantly improved the comprehensibility and fluency of the learners' speech in the spontaneous speech task, but did not reduce foreign accent in their production to a significant level. However, the findings showed this type of instruction to have a less positive impact on improving comprehensibility and reducing accentedness in reading aloud production. The improvement in comprehensibility and also accentedness reduction among the experimental group was not found to be significant as a result of receiving suprasegmental-based instruction. In addition, suprasegmental-based instruction was found to have a greater impact on improving the learners' production on both spontaneous speech and reading aloud tasks than the instruction with no explicit pronunciation teaching as evidenced by the results found in independent sample t-test and one-way ANOVA.

Furthermore, the results of the perception tests showed that suprasegmental-based instruction significantly improved the students' perception ability to correctly perceive and identify words and intonation patterns in English connected speech with a large effect on the students' performance improvement. The positive impact of this type of instruction on the experimental group was found to be greater than the instruction with no explicit pronunciation teaching had on the control group. As it was evident from the end-of-course questionnaires and the classroom observation, both the teacher and the students appreciated the use of suprasegmental-based instruction, materials and activities, and believed in their effectiveness for improving their perception and production of speech.

As this is among the first studies undertaken to evaluate the impact of suprasegmental-based instruction on improving Saudi EFL learners' perception and production of speech, the findings of the present research reveal that this type of instruction is appropriate and useful for improving learners' production and listening perception, especially at intermediate level. The findings also reveal that Saudi male EFL learners would significantly improve their perception and production of speech when taught English suprasegmental features.

It is evident from the present study that pronunciation instruction in Saudi Arabia should take comprehensibility as a main goal for pronunciation instruction rather than attempting to achieve native-like pronunciation which might not be possible with adult learners and possibly reduce their motivation toward pronunciation learning. Setting attainable goals for Saudi EFL learners is crucial for enhancing their motivation towards pronunciation learning. Nevertheless, pronunciation instruction in Saudi Arabia should target the pronunciation features that interfere with understanding rather than helping them achieve accurate pronunciation, because adult L2 learners largely only want to be intelligible and comprehensible to communicate successfully in their oral communication.

In addition, the success of the suprasegmental-based instruction used in the present study can be attributed to the selection of the materials that enhanced the students' awareness of suprasegmental features and helped them overcome their pronunciation difficulties. These could have been further enhanced by the use of a needs analysis of the students' pronunciation difficulties before commencing the course to ensure that the course materials are accurately tailored to the students' pronunciation needs, and a better selection of authentic materials which relate to the cultural background of Saudi students. In addition, although teaching suprasegmental features over a four-week period improved learners' perception and production, a course of longer duration would help to achieve better outcomes. Furthermore, the present study suggests that presenting suprasegmental features through communicative and interactive activities helps to make pronunciation learning more effective.

In the concluding chapter, a summary of the main findings and their contributions, their pedagogical implications and the limitations of the present research are presented.

Chapter 6: Conclusion

6.1 Introduction

This quasi-experimental study specifically aimed to investigate the impact of suprasegmental-based instruction on improving Saudi male EFL learners' perception and production of speech. To do so, it aimed to answer four main questions:

1. To what extent does suprasegmental-based instruction improve comprehensibility and fluency and reduce accentedness among Saudi EFL learners in spontaneous speech production?
2. To what extent does suprasegmental-based instruction improve comprehensibility and reduce accentedness among Saudi EFL learners in reading aloud production?
3. To what extent does suprasegmental-based instruction improve the listening perception of Saudi EFL learners in terms of their ability to identify words and intonation in English spontaneous speech?
4. What are the responses of both the teacher and the students towards suprasegmental-based instruction?

This concluding chapter presents a summary of the main findings and their contributions and discusses the pedagogical implications of the findings. It also outlines the associated limitations and provides recommendations for future studies to be conducted in Saudi Arabia.

6.2 Main findings of the study

As mentioned in chapter 5, the findings of the present experimental study showed that explicit pronunciation instruction with a sole focus on suprasegmental features can contribute to the improvement of both perception and production of speech, and has a positive impact on helping Saudi learners of English process speech easily and making their speech easily understood when communicating in English. In particular, the results showed that suprasegmental-based instruction was useful for improving the learners' comprehensibility and fluency, to a significant degree with a medium effect, as found in the paired sample *t*-tests and the calculation of the effect size. Suprasegmental-based instruction was also found to be effective in increasing speech rate and reducing the duration of pauses in spontaneous speech production to a significant degree with a medium effect size. However, this type of instruction

was not found to be effective for reducing accentedness in spontaneous speech to a significant level.

In addition, the findings showed that suprasegmental-based instruction was not found to be significantly effective for improving comprehensibility and reducing accentedness in reading aloud production. The results showed that this type of instruction did not help the students in the experimental group to improve their comprehensibility and reduce their accentedness in reading aloud production to a significant level.

In terms of perception, the results confirmed that suprasegmental-based instruction was also effective at improving the students' ability to perceive and identify the words and intonation of a speaker in English running speech, to a significant degree with a large effect in both tests, as found in the paired sample *t*-tests and the calculation of the effect size before and after the intervention.

The analysis of the performance between groups also showed that suprasegmental-based instruction helped the students in the experimental group improve their perception and production of speech to a greater degree than the instruction with no explicit pronunciation teaching used with the control group. The higher efficacy of suprasegmental-based instruction over no explicit pronunciation instruction was evidenced in the comparison of means of improvement between the two groups using one-way ANOVA and independent sample *t*-test results, which showed that the experimental group recorded a higher degree of improvement than the control group (See Tables 5.1, 5.2, 5.3).

The impact of suprasegmental-based instruction was also perceived positively by the native English teacher and the students in the experimental group, as shown in the findings of the survey questionnaires and the classroom observations, which indicated that both the teacher and the students found learning suprasegmental features explicitly through materials aligned with the students' level of proficiency and presented interactively and communicatively is important for the improvement of learners' perception and production of speech.

In general, the findings of this study revealed the effectiveness of teaching pronunciation explicitly with a focus on the suprasegmental features of the language because these features play a major role in improving L2 learners' perception and production of speech.

<u>The main findings of the present study can be summarised as follows:</u>

1. **Teaching suprasegmental features, especially word and sentences stress, intonation, pauses and linking has a positive impact on improving Saudi EFL learners' comprehensibility and fluency in spontaneous speech to a significant level, but not in reducing accentedness.** This was shown by the significant improvement (p= 0.042 in comprehensibility and p= 0.019 in fluency), found in the paired sample *t*-test after comparing the performance of the experimental group, before and after the suprasegmental-based instruction intervention. This was also supported by the measurement of effect size that shows the effect of improvement among Saudi EFL learners to be medium in comprehensibility (*d*= 0.517), and in fluency (*d*= 0.450) within a four-week instruction period. However, this type of instruction did not reduce accentedness in the students' spontaneous speech production to a significant level (p= 0.387). In addition, suprasegmental-based instruction was effective in significantly increasing the speech rate (p= 0.025), and reducing the length of pauses in spontaneous speech production (p= 0.039 in Wilcoxon test). This was also supported by the measurement of effect size that shows the effect of improvement among Saudi EFL learners in reduction the length of pauses and increasing speech rate to be medium (*d*= 0.401 and *d*= 0.429), respectively, within a four-week instruction period.

2. **Suprasegmental-based instruction was not found to be significantly effective in improving comprehensibility and reducing accentedness among Saudi EFL learners in reading aloud production.** This was shown by the investigation of significant improvement found in the paired sample *t*-test and Wilcoxon tests (in accentedness) after comparing the performance of the experimental group, before and after the suprasegmental-based instruction intervention in reading aloud production. The results showed that the students in the experimental group did not record significant improvement in their performance in both comprehensibility and accetedness (p= 0.261 and p= 0.329 respectively) as rated by the English native listeners.

3. **Suprasegmental-based instruction was also found to have a significant impact on perception.** The findings showed that teaching suprasegmental features was effective in improving the Saudi EFL learners' perception abilities to the level where they can identify words in connected speech easily and identify the speaker's intonation in natural speed native English production. The results showed that teaching English suprasegmental features helped the experimental group correctly identify words and intonation patterns in running speech to a significant level (p= 0.000 and p= 0.000 respectively) with a large effect size (*d*= 1.998 and *d*= 1.110 respectively).

4. **The suprasegmental-based instruction applied in the course, including the teaching materials and activities, was considered to be useful and effective at improving the speech perception and production, according to the opinions gathered from the native English teacher and the students in the experimental group as well as the researcher's classroom observation**.

6.3 Contributions of the study

This study has produced valuable contributions to English language pedagogy in Saudi Arabia, in particular the teaching of pronunciation, and as well as to the methodology of research on pronunciation. It should also contribute to raising awareness, among both teachers and language learners in Saudi Arabia, of the importance of suprasegmental features of the language and of their essential role in improving learners' perception and production of speech. The present study demonstrates that suprasegmental-based instruction can be used as an effective way of pronunciation teaching to help Saudi EFL learners overcome their pronunciation difficulties and communicate successfully and easily in English.

The effectiveness of suprasegmental-based instruction in Saudi Arabia

As mentioned in the literature review, pronunciation teaching has changed over the years and in recent decades there has been an increasing interest worldwide in suprasegmental-based instruction. However, this type of instruction is still not given enough attention in Saudi Arabian classrooms, despite having been used internationally for the past 40 years. As noted above, this is due to the lack of attention paid to pronunciation instruction generally, and the focus only on teaching segmental features when pronunciation is taught in Saudi Arabian classrooms. This dissertation, therefore, shed light on the importance of teaching suprasegmental features in Saudi Arabia to improve Saudi EFL learners' perception and production of speech, and is among the very few studies conducted in Saudi Arabia that provide an assessment of teaching English suprasegmental features to improve the perception and production of speech of learners to improve their communicative skills, and helping comprehend speech easily and become easily comprehensible when communicating with others. It responds to the recommendations of several theoretical studies undertaken in Saudi Arabia (e.g. Abu Seileek, 2007; Alharbi, 2009; Hamouda, 2013; Jarrah, 2015; Al-Domi, 2017; Ababneh, 2018; Misfer & Busabaa, 2019) that have recommended paying attention to teaching English suprasegmental features to reduce communication difficulties among Saudi EFL

learners, and to improve their perception and production of speech. It does so by examining in detail the impact of this type of instruction on comprehensibility, fluency and accentedness in spontaneous speech, and comprehensibility and accentedness in reading aloud production, as well as speech perception of Saudi learners of English.

The study also shows suprasegmental-based instruction to be more useful in improving the speech perception and production of L2 students, compared to the standard methods of teaching that pay little attention to pronunciation instruction, which are currently used in Saudi Arabian classrooms, as reported by the results of one-way ANOVA and independent sample t-test. The study further shows that English suprasegmental features need to be delivered through interactive activities that make pronunciation learning meaningful and effective. The use of interactive and communicative activities in the present study, such as recording their own production, receiving immediate feedback from the teacher, and participating in pair and group work, helped in delivering the suprasegmental-based materials more effectively, and enhanced learners' awareness and motivation towards learning English pronunciation.

The importance of setting comprehensibility as a goal for pronunciation instruction

This study also supports the need to set comprehensible pronunciation as the primary goal for teaching pronunciation in Saudi Arabia, instead of achieving native-like pronunciation. This latter goal, as mentioned in chapter 2, has been shown in other studies to be unrealistic and counterproductive, as it is hard to achieve, especially after the age of puberty, and tends to discourage L2 learners of English from learning pronunciation. The results of the present study showed that the listeners perceived the learners' production as comprehensible and fluent despite the presence of the foreign accent in their speech. These findings corroborate those of previous studies (e.g. Derwing & Rossiter, 2003; Derwing & Munro, 2005; Riney et al., 2005; Kashiwagi & Snyder, 2008; Levis & Zhou, 2018) that showed that L2 English learners' production might be perceived as comprehensible, even though they have a strong accent in their production. In addition, the study's results showed that this type of instruction did not have a large effect on reducing accentedness in learners' production. The degree of foreign accent in the students' production was not reduced to a significant degree by the intervention. However, despite the presence of foreign accent in their speech, the students' production was perceived as comprehensible as shown in the comprehensibility ratings. The lack of impact of this type of instruction on reducing accentedness in learners' production might, as discussed in chapter 5, be due to accentedness being more impacted by segmental features than

suprasegmental features as reported in many studies (e.g. Trofimovich & Isaacs, 2012; Crowther et al., 2015; Crowther et al., 2017). In addition, previous researchers (e.g. Jenkins, 2000; Thomson & Derwing, 2014) noted that foreign accent is part of speakers' L2 identity and they have the right to the right to retain their foreign accent when speaking a second language if their accented pronunciation features do not affect understanding. Therefore, the present study reveals the findings of Derwing and Munro's (1995) study that comprehensibility, fluency and accentedness should be treated independently, as pronunciation instruction might be effective in improving one dimension but not on the others. The present study also supports the recommendations of previous studies (e.g. Derwing & Munro, 1995) that assert that pronunciation instruction should target the aspects interfering with understanding rather than expecting students to achieve accurate pronunciation, because adult L2 learners only need to be intelligible and comprehensible to communicate successfully in their oral communication.

Another important finding from the present study is that intermediate-level students in Saudi Arabia should not be only limited to segmental features. Pronunciation instruction in Saudi Arabia should help learners go beyond sounds and focus on suprasegmental features which are more relevant to improving learners' communicative skills (Levis & Grant, 2003). According to Kang, Vo and Moran (2016) pronunciation instruction seems to influence the way speech is perceived and understood. Therefore, L2 learners whose learning is limited to consonants and vowels tend to rely only on segmental features to understand speech, which makes it more difficult for them to comprehend connected speech, especially when it is spoken in natural contexts at normal speed. For this reason, Intermediate-level students in Saudi Arabia need to learn pronunciation features that help them to use the language at discourse level to enable them to comprehend speech easily. By learning suprasegmental features, students will become more fluent, more comprehensible, and be able to understand speech more easily. Therefore, it is hoped that the findings of this study will contribute to providing evidence of the effectiveness of a top down approach for teaching pronunciation, and raising the awareness of curriculum designers, materials developers and language teachers in Saudi Arabia about the importance and effectiveness of improving students' perception and production of speech, and of enhancing their communicative competence by including suprasegmental features in ELT (English Language Teaching) curricula.

Contribution to the methodology of pronunciation research

The study also contributes to additional validation of the assessment of pronunciation research. The study confirmed the strong reliability of using listeners' ratings to evaluate the students' production in terms of comprehensibility, fluency and accentedness in spontaneous speech and comprehensibility and accentedness in reading aloud. This technique of evaluating the students' production has been used widely in other studies in the field (e.g. Derwing & Rossiter, 2003; Munro & Derwing, 2006; Kennedy & Trofimovich, 2010; Kang, Vo & Moran, 2016; Galante & Thomson, 2017; Isbell, 2018) and has proven its effectiveness in accurately evaluating students' production. The reliability and consistency of listeners' evaluation of the students' spontaneous speech and reading aloud production were ensured by computing the Intraclass Coefficient to assess the inter-rater agreement which was shown in the present study to be highly reliable (CI: [0.886]).

Another methodological contribution of the present study is demonstrated in the importance of acoustic analysis, using Praat software combined with listeners' evaluation in the assessment of learners' production. Acoustic analysis was shown to be a reliable evaluation method in combination with listeners' judgment to assess students' production, by evaluating prosodic aspects that cannot be easily assessed by human listeners. The study showed Praat to be an objective and reliable tool for measuring and analysing aspects of prosodic production among Saudi EFL learners. Nevertheless, although acoustic analysis using Praat can provide an objective analysis of learners' production, and thus enhance reliability, acoustic analysis should not be used on its own without human judgement because comprehensibility and intelligibility ultimately depend on the listeners' perception of speech. Thus, greater validity is ensured by asking human raters to evaluate the students' comprehensibility, fluency and accentedness in spontaneous speech and comprehensibility and accentedness in reading aloud production. Therefore, the present study corroborates previous studies (e.g. Thomson & Derwing, 2014) which claimed that acoustic analysis can contribute to analysis of effective production, but does not offer a substitute to human evaluation.

Positive reception of suprasegmental-based instruction by students and teacher

The findings of the present study also revealed the positive attitude of Saudi students towards learning English pronunciation with a sole focus on suprasegmental features and presented using motivating and enjoyable materials and activities. The feedback gathered from

both the students and the native English teacher showed that the students were keen to improve their pronunciation, in order to effectively communicate in English. It also confirmed that they found suprasegmental-based instruction applied in the course to be useful for improving Saudi EFL learners' speech perception and production. Therefore, the present study makes a contribution to the teaching of English as a foreign language pedagogy in Saudi Arabia by providing some helpful teaching suggestions which can be used to assist Saudi language teachers to teach English suprasegmental features to effectively improve learners' speech perception and production.

In summary, the present study has shown that suprasegmental-based instruction is effective at improving Saudi English learners' spontaneous speech and, to a lesser extent, reading aloud production, and their listening abilities to correctly identify words and intonation patterns in English running speech. The study also has shown that it is important to set comprehensible pronunciation as a main goal for pronunciation instruction, to improve learners' communicative skills. In addition, it has shown that evaluating students' production using both human judgment and acoustic analysis enhances reliability of the evaluation of improvement in the students' production as a result of suprasegmental-based instruction. Suprasegmental-based instruction was also highly appreciated by both the students and the English teacher for its usefulness in improving the students' oral communicative skills. Therefore, it is hoped that the success of the study will positively influence the opinions of syllabus designers, material developers, language teachers and Saudi learners of English towards the teaching of pronunciation using suprasegmental-based instruction.

6.4 Limitations and future studies

The results of this study provide evidence of the positive impact that suprasegmental-based instruction has in improving students' perception and production of speech in the Saudi Arabian context. However, these results should be treated cautiously due to some limitations associated with the study:

1. This experimental study was only conducted in one particular institution. Although the institute was typical of many such language institutes and English learning academies in Saudi Arabia, the results of this study nevertheless may not be generalisable to other institutes in Saudi Arabia. In addition, this study only involved young adults, so the

results cannot necessarily be generalised to other age groups, such as adolescents or young children.

2. The population of this study was small in number. Although many pronunciation studies (e.g. Gordon & Darcy, 2016; Saito & Saito, 2016; Algethami, 2017; Levis & Levis, 2018), have used similarly-sized groups, the limited number of participants in the current study may make the results less generalisable to the Saudi population overall. For this reason, in future studies conducted in Saudi Arabia, researchers may wish to consider involving larger sample sizes to provide more accurate outcomes.
3. The course was also short in duration (in total of 13.5 hours in four weeks) and, as it was noted above, a longer duration might lead to more conclusive outcomes. In future studies, researchers may therefore wish to consider lengthening the duration of the course to make learning pronunciation more effective. It is important to point out however, that similar studies (e.g. Gordon, Darcy & Ewert, 2013; Lee, Plonsky & Saito, 2020) also showed it is possible to achieve a significant improvement in pronunciation in a short period of instruction.
4. This study aimed to improve Saudi EFL learners' perception and production to the level where they can easily understand and become easily understood, however future studies may consider investigating the impact of suprasegmental-based instruction on intelligibility by assessing Saudi EFL learners' actual understanding of speech and how their speech is actually understood by listeners.
5. The suprasegmental features addressed in the present study were chosen based on the recommendations of previous studies as well as the suggestions of the head of the English department at the academy and the native English teacher who taught the course. Future studies could involve a diagnostic test before the course is designed so that it can be tailored to their specific needs. Tailoring the course to the students' pronunciation needs would make it more effective.
6. The sentences used for testing the students' perception in the word and intonation identification tasks were limited in range and number. Testing the students' perception with more sentences and different sentence types might give more reliable results.
7. The perception tests only addressed the students' ability to identify words and intonation in connected speech. Therefore, testing the students' ability to also identify other suprasegmental features such as word stress, linking and pauses might lead to more accurate and insightful investigation of the effectiveness of suprasegmental-based instruction in improving learners' ability to perceive English suprasegmental features.

8. The Praat acoustic analysis only investigated the students' production of pauses and speech rate. However, investigating more suprasegmental aspects, such as articulation rate, falling and rising tones and stress placement acoustically may give a better evaluation of the students' production improvement.
9. This study compared the impact of suprasegmental-based instruction with no explicit pronunciation instruction, however future studies may consider comparing its impact with both segmental-based instruction and with no explicit pronunciation instruction, in order to accurately investigate its impact on perception and production in comparison with other types of instruction.
10. This study was designed in a way that included only pre- and post-tests but without a delayed post-test. In future studies, researchers may wish to consider involving delayed post-test to investigate the long-term effects of suprasegmental-based instruction on students' speech perception and production.
11. Due to the gender segregation in Saudi education, it was impossible to involve female students in the study, therefore the study sample had to be limited to male participants. Hence, the results of this study cannot be generalised without considering gender differences. Saudi female students may have different attitudes than male students towards improving pronunciation perception and production of speech through suprasegmental-based instruction. It is recommended that future studies to be conducted in Saudi Arabia consider involving both male and female students, in order to obtain more comprehensive data that are representative of the whole population of language students.
12. The classroom observation only took place in the experimental group class and no observation of the control group was conducted. Conducting classroom observation also in the control group class may be helpful in assessing the materials and activities used in their class. More comprehensive observation may also facilitate more accurate investigation of the similarities and differences between the regular type of instruction used at the academy and suprasegmental-based instruction in terms of materials and activities. In addition, video recordings of the experimental group, which were not allowed in the present study, may provide richer classroom observation in future studies.

In light of the above considerations, the findings of this study may not necessarily be generalised to all English learners in Saudi Arabia, other than the

institution where this study was conducted. However, despite these limitations, which characterise experimental research, the study makes a significant contribution. As the curriculum and methodology at this private English teaching academy is typical of many adult language learning contexts in Saudi Arabia, the findings of the present study indicate that teaching suprasegmental features is likely to be successful in assisting young adults in Saudi Arabia to improve their production and perception of English. The above limitations also provide guidelines for future, more comprehensive studies on the impact of suprasegmental-based instruction on language teaching both in Saudi Arabia and other English teaching contexts.

6.5 Pedagogical implications

Pronunciation is one of the most important components of successful communication. Without correct and clear pronunciation, speakers might not be easily understood by listeners, even if they use correct grammar and vocabulary (Yates & Zielinski, 2009). For this reason, language teachers in Saudi Arabia should provide explicit pronunciation training to Saudi English learners to help them overcome pronunciation problems, enhance their perception and production of speech, and improve their communicative competence. As mentioned in the literature review, learners of English in Saudi Arabia tend to be competent in grammar and vocabulary, but still have communication difficulties which can be attributed, at least in part, to their pronunciation problems (Ahmad, 2011; Algonhaim, 2014; Ababneh, 2018). Pronunciation should therefore be treated with equal importance to other linguistic components taught in Saudi Arabia.

The findings of the present study show that explicit pronunciation instruction through suprasegmental-based instruction is effective in helping learners improve their comprehensibility and fluency, and communicate successfully in English in the Saudi Arabian context. Furthermore, the learners' perception and production performance can be improved significantly through intensive instruction in suprasegmental features. There are several pedagogical implications to these findings:

Firstly, the study confirmed that teaching pronunciation in Saudi Arabia to improve learners' production, listening perception and the communicative competence is of great importance. This was indicated by the students' enthusiastic responses to the suprasegmental-based instruction course. In the questionnaire provided, the students stated that pronunciation is one of the crucial skills for them to master when learning a language and that they found this

type of instruction useful for improving their pronunciation production and listening perception skills.

The students' opinions about learning pronunciation are similar to the findings of previous research. Prior to this study, research on Saudi EFL learners (e.g. Alhaisoni, 2012; Ahmad & Muhiburrahman, 2013; Jarrah, 2015; Al-Ahdal et al., 2015; Ababneh, 2018), stressed the need for trialling new pronunciation instructional methods. In particular, scholars urged the adoption of suprasegmental-focused instruction to improve learners' perception and production skills, and overall communicative competence. Ahmed and Nazim (2014), for example, stated that Saudi learners of English lack knowledge of English pronunciation, despite its importance for their language proficiency and communicative competence. Alsowat (2017) also noted that pronunciation instruction should be provided to deal with the pronunciation problems of Saudi learners. The present study was found to be useful in dealing with the issues causing difficulties in pronunciation and communication among learners in Saudi Arabia. Explicit suprasegmental-based instruction that addresses the pronunciation difficulties of Saudi learners of English that interfere with understanding should therefore be used to improve learners' perception, production and communicative competence.

Secondly, effective instruction in suprasegmental features requires appropriate teaching methods that challenge and motivate learners to improve their language skills. As explained previously, pronunciation teaching is not common in Saudi Arabia and tends to be limited to traditional teaching methods that are teacher-based, less communicative and largely dependent on repetition techniques. However, these teaching methods have been found to be less effective in improving learners' production and listening skills (Alharbi, 2009; Alsowat, 2017). Alharbi (2009) in particular argues that pronunciation is widely taught in Saudi Arabia using old techniques like imitation and repetition of segmental features, and that there is a lack of teaching methods dealing with suprasegmental features.

The findings of the present study showed that both teacher and learners in Saudi Arabia generally appreciated the materials and activities used in the suprasegmental-based instruction course, due to their usefulness in improving perception, production and communicative competence. In addition, the general atmosphere of the pronunciation class was also appreciated by the students because it gave them more opportunities to interact with each other and express themselves in class.

In addition, similar to previous studies (e.g. Saito & Saito, 2016), the present study reveals that in order to make pronunciation instruction more effective, the material addressed in the classroom should target the students' specific pronunciation difficulties. Although targeting suprasegmental features in the present study, based on the recommendations of previous studies as well as the Head of English department and the native teachers at the academy, was effective, having a prior analysis of the students' specific pronunciation difficulties before the course would make the course delivery more effective. Designing materials based on the learners' needs is crucial for the effectiveness of any course (Derwing & Munro, 2015; Alghazo, 2015). According to Wei (2006), the development of suprasegmental activities, materials and techniques plays a major role in implementing pronunciation teaching successfully. Therefore, curriculum designers and language teachers should develop appropriate materials and activities which meet learners' needs and desires, and which they can practice both inside and outside the class. According to Burns (2006), selecting well-tailored, practical, interesting and motivating materials and activities is necessary to make pronunciation teaching successful. It is also necessary to take into consideration these aspects before designing and implementing suprasegmental course materials and activities. The teaching materials and activities should address learners' pronunciation difficulties that affect understanding, and be practical, interesting and motivating, and delivered carefully to raise the learners' awareness of suprasegmental features. Materials and activities are instrumental to creating effective learning and to helping students improve their perception and production of speech. They are also important in raising students' awareness of their pronunciation difficulties and importance of pronunciation for their communicative competence.

Thirdly, although the findings of the current study showed that involving an English native teacher to teach the suprasegmental-based instruction course was effective, it certainly does not preclude non-native teachers from becoming highly effective teachers of pronunciation. In a study conducted by Levis, Sonsaat, Link and Barriuso (2016) to investigate whether the pronunciation improvement among students depends on the teacher being a native or non-native English speaker, they involved one native and one non-native English teacher who were given similar materials to teach two groups of students to improve comprehensibility and reduce accentedness, and found that both teachers could help their students improve their production significantly in terms of being comprehensible to listeners and less accented. Levis et al. (2016) concluded that pronunciation teaching does not require a native teacher to be effective. Derwing and Munro (2015) further note that non-native teachers can provide a

similar quality of teaching to that of native English teachers because the effectiveness of the pronunciation instruction depends on the teacher's knowledge of pronunciation features, not on the native language of the teacher. If teachers are aware of these features and are aware of strategies to teach them, they will be as effective as native teachers. In fact, Saudi national teachers may be even more effective than native speaker teachers when teaching pronunciation in Saudi Arabia as they are more familiar with the Saudi cultural context. Saudi teachers of English may also have an advantage over native teachers as they know how the target language is learned and what difficulties and challenges their students may face in English pronunciation. Further research comparing the impact of native and non-native teachers of pronunciation could shed more light on this issue.

However, in Saudi Arabia, language teachers generally neglect pronunciation teaching, due to lack of interest, lack of confidence, lack of competence in it, or lack of knowledge about pronunciation features and how they should be taught (Alhaisoni, 2012; Alhmadi, 2014; Hameed & Aslam, 2015; Al-Seghayer, 2019). For these reasons, the findings of this study also imply that EFL teachers need to be given better knowledge and training about English phonetics and phonology, in order to make them more effective at teaching pronunciation. As Tergujeff (2012) reported, since teachers themselves are the primary model for students' pronunciation learning, they need intensive training to be qualified to accomplish this mission successfully. However, as explained in section 1.2, teachers in Saudi Arabia tend to avoid teaching pronunciation especially suprasegmental features because they lack knowledge and proficiency in teaching pronunciation (Alhaisoni, 2012; Ezza, 2013). MacDonald (2002) notes that teachers tend to avoid teaching pronunciation because they lack of confidence, skills and knowledge about how to teach it. Huensch (2018) similarly found that nonnative teachers tend to be less confident in teaching pronunciation compared to native teachers. Therefore, she recommends providing nonnative teachers with more pedagogical training which would help them become aware of how to significantly contribute to the improvement of their learners' pronunciation and what pronunciation features are more crucial to target. For this reason, language teachers in Saudi Arabia should also be provided with professional training programs in the area of pronunciation teaching, and particularly in the use of suprasegmental-based instruction. Teacher training programs should also help Saudi English teachers be equipped with appropriate materials and textbooks that meet learners' needs and that teachers find interesting to teach and consider relevant to the learners' cultural interests and personal goals.

In conclusion, implementing the recommendations of the present study would fill a significant gap in English learning instruction in Saudi Arabian schools, university and language institutes. Future course curricula and programs should pay explicit attention to pronunciation instruction involving suprasegmental features of the language. Furthermore, curriculum designers in Saudi Arabia should propose materials and activities that both teachers and learners feel comfortable with and find familiar. At the same time, the study shows that Saudi students would welcome being challenged with new types of pronunciation instruction, particularly if such learning materials were complemented with activities that learners find useful and enjoyable, as well as motivating and stimulating.

6.6 Concluding remarks of the thesis

The present study has shown that pronunciation is important for Saudi learners of English, however this area has been neglected in Saudi Arabian classrooms despite its importance in improving learners' perception and production of speech and in enabling them to communicate successfully in English.

Numerous studies have been carried out on pronunciation pedagogy in Saudi Arabia, but have mainly focused on teaching segmental features rather than suprasegmental features. For this reason, the present study expanded scholarly investigation and tested the impact of teaching suprasegmental features on improving the perception and production of speech among Saudi students learning English in Saudi Arabia.

The findings revealed that explicit instruction on suprasegmental features improved students' production, and their listening perception. It is evident from the findings of this study that suprasegmental-based instruction can play a vital role in helping language learners in Saudi Arabia become more comprehensible and fluent when speaking in English, and become able to process speech correctly and easily in English.

In addition, the study revealed that Saudi students are keen to improve their pronunciation; however, they need new pronunciation methods that address their needs and enhance their motivation towards pronunciation learning. In order to meet these learning needs and goals, suprasegmental-based instruction can make a significant contribution to the improvement of the perception and production of Saudi EFL learners.

Improving Saudi EFL learners' perception and production skills through focusing on aspects that are highly relevant to the learners' communicative competence, in particular suprasegmental features, will also help to make Saudi EFL learners more successful in their language learning, become more proficient and competent in English, and enhance their motivation toward improving their English perception and production skills. Ultimately, this will help to build bridges between Saudi Arabia and other nations, and help achieve the objectives of Saudi Arabia's Vision 2030.

References

Ababneh, I. (2018). English pronunciation errors made by Saudi students. *European Scientific Journal, 14*(2), 244-261. https://doi.org/10.19044/esj.2018.v14n2p244

Abdulrahman, A., & Ramamoorthy, L. (2018). Vowel length/duration in geminated and non-geminated Arabic words. *Language in India*, *18*(4), 24-31.

Abercrombie, D. (1949). Teaching pronunciation. *English Language Teaching*, *3*, 113-122.

Abrahamsson, N., & Hyltenstam, K. (2009). Age of acquisition and nativelikeness in a second language: Listener perception versus linguistic scrutiny. *Language Learning*, *59*, 249-306. https://doi.org/10.1111/j.1467-9922.2009. 00507.x

Abueish, T. (2020, September 21). English classes to begin from first grade in Saudi Arabia in 2021. *Al-Arabiya News*. https://english.alarabiya.net/en/News/gulf/2020/09/21/English-classes-to-begin-from-first-grade-in-Saudi-Arabia-in-2021-says-minister

Abugohar, M., & Yunus, K. (2018). Difficulties encountered by Arab students in pronouncing English correctly. *International Journal of Education & Literacy Studies*, *6*(4), 93-100. https://doi.org/10.7575/aiac.ijels.v.6n.4p.93

Abu Seileek, A. F. (2007). Computer assisted pronunciation instruction as an effective means for teaching stress. *The JALT CALL Journal*, *3*, 3-22.

Adams-Goertel, R. (2013). Prosodic elements to improve pronunciation in English language learners: A short report. *Applied Research on English Language*, *2*(2), 117–128.

Adriàn, M. (2014). The efficacy of a reading aloud task in the teaching of pronunciation. *Journal of English Studies*, *12*, 95-112.

Afroogh, M. R. (2018). The superiority and the history of English language pronunciation teaching. *Annals of Language and Literature*, *2*(3), 33-37.

Ahmad, J., & Muhiburrahman, M. (2013). Teachers' perspectives on errors in English consonant sounds by Saudi EFL learners. *Asian Journal of Humanities and Social Sciences*, *1*(3), 150-163.

Ahmad, J. (2011). Pronunciation problems among Saudi learners: A case study at the preparatory year program, Najran University Saudi Arabia. *Language in India*, *11*, 22-36.

Ahmad, J. (2012). English language teaching (ELT) and integration of media technology. *Procedia - Social and Behavioral Sciences*, *47*, 924-929.

Ahmad, J., & Muhiburrahman, M. (2013). Teachers' perspectives on errors in English consonant sounds by Saudi EFL learners. *Asian Journal of Humanities and Social Sciences*, *1*(3), 150-163.

Ahmad, J., & Nazim, M. (2014). Saudi EFL learners' views on English pronunciation. *Asian Journal of Studies and Social Studies*, *2*(2), 355-366.

Ahmed, Z. A. (2017). Difficulties encountered by EFL students in learning pronunciation: A case study of Sudanese higher secondary schools. *International Journal of English Linguistics*, *7*(4), 75-82. https//:doi.org/10.5539/ijel.v7n4p75

Akteruzzaman, M., & Islam, R. (2016). L1 interference on L2 speech Sounds in an EFL context: A study on the English speakers from the Southwestern parts of Bangladesh. *Journal of Applied Linguistics and Language Research, 3,* 151-173.

Al-Ahdal, A. A. M. H., Al-Hattami, A. A., Al-Awaid, S. A. A., & Al-Mashaqba, N. J. H. (2015). Pronunciation for the Arab learners of EFL: Planning for better outcomes. *English Language Teaching, 8*(10), 100–106. https//:doi.org/10.5539/elt.v8n10p100

Al-Ani, S. H. (1970). *Arabic phonology: An acoustical and physiological investigation*. Mouton.

Alameen, G. (2014). *The effectiveness of linking instruction on NNSs speech perception and production* [Unpublished doctoral dissertation]. Iowa State University.

Alameen, G., & Levis, J. M. (2015). Connected speech. In M. Reed, & J. M. Levis (Eds.), *The handbook of English pronunciation* (pp. 159-174). Wiley-Blackwell.

Alamri, M. (2011). Higher education in Saudi Arabia. *Journal of Higher Education Theory and Practice, 11*(4), 88-91.

Alamro, M. (2019). Word stress in Saudi Najdi Arabic. *American International Journal of Social Science, 8*(3), 30-34. https//:doi.org/10.30845/aijss.v8n3p5

Al-Asmari, A. (2013). Practices and prospects of learner autonomy: Teachers' perceptions. *English Language Teaching, 6*(3), 1-10.

Albaaly, E. (2017). EFL teacher challenges in suprasegmental stress. *Journal of Faculty of Education, 2,* 3-21.

Albedaiwi, S. (2014). *EFL materials in public school classrooms in Saudi Arabia: An investigation of the extent to which teachers engage in materials/textbooks development in order to design learning experiences to meet the needs of their students as an indicator of teacher autonomy* [Unpublished doctoral dissertation]. The University of Glasgow, Glasgow Scotland.

Albiladi, W. (2019). Teaching English pronunciation revisited: The challenges of teaching EFL in non-English speaking countries. *European Journal of Foreign Language Teaching, 4*(3), 41-50. https//:doi.org/10.5281/zenodo.3566658

Al-Domi, I. M. B. (2017). The effect of using authentic videos on training center and community service students' prosodic competence and motivation. *Arab World English Journal, 8*(4), 85-100. https//:doi.org/10.24093/awej/vol8no4.6

Alduais, A. M. (2007). *Assessing the importance of stress and intonation as supra-segmental features of speech and sound-attributes to the process of comprehension* [Unpublished doctoral dissertation]. The University of Ibb, Ibb. The Republic of Yemen.

Alduais, A. M., & Al-Shamiry, R. (2013). ESL Yemeni learners' perceptions and perspectives on the importance of learning stress and intonation as supra-segmental features of speech and sound attributes to the process of comprehension: A survey study. *International Research in Education, 1*(1), 52-74. https//:doi.org/10.5296/ire.v1i1.3630

Alfallaj, F. (2013). The use of linguistics in teaching pronunciation to Saudi students. *Journal of Human Science, 14*(2), 134–143.

Alfehaid, M. (2015). Pronunciation problems Arab speakers encounter while learning English. *International Journal of Scientific & Engineering Research*, *6*(10), 581-582.

Algethami, G. (2012). The production and perception of English speech rhythm by L2 Saudi Speakers. *Proceedings of the PoRT workshop: Perspectives on rhythm and timing,* University of Glasgow, July 19-21, 2012.

Algethami, G. (2017). Effect of explicit pronunciation instruction on the degree of perceived foreign accent in the speech of EFL learners. *Research in Language, 15*(3), 253-263.

Al-Ghazali, A., & Alrefaee, Y. (2019). Silent pauses in the speech of Yemeni EFL learners. *ELS Journal on Interdisciplinary Studies on Humanities*, *2*(1), 39-48. https//:doi.org/10.34050/els-jish.v2i1.6142

Alghazo, S. M. (2015). Advanced EFL learners' beliefs about pronunciation teaching. *International Education Studies*, *8*(11), 63-76. https//:doi.org/10.5539/ies.v8n11p63

Algonhaim, A. (2014). Saudi university students' perceptions and attitudes towards communicative and non-communicative activities and their relationship to foreign language anxiety. *Research Journal of English Language and Literature*, *2*, 83–101.

Alhaisoni, E. (2012). Language learning strategy use of Saudi EFL students in an intensive English learning context. *Asian Social Science, 8*(13), 115-127.

Alharbi, A. (2009). Analyzing spoken Arabic-English language. *Research Gate Journal*. https://www.researchgate.net/publication/258630945_Analyzing_Spoken_Arabic-English_language_by_Alharbi_Adel

Alhmadi, N. (2014). English speaking learning barriers in Saudi Arabia: A case study of Tibah University. *Arab World English journal, 5*(2), 38-53.

Alhudhaif, A. (2020). Saudi Arabic stress effect on the L2 acquisition of English. *International Journal of Thesis Projects and Dissertations*, *8*(1), 1-16.

Ali, T. E. M. (2011). *Speech intelligibility problems of Sudanese learners of English: An experimental approach* [Unpublished doctoral dissertation]. Leiden University, Leiden, Netherlands. https://openaccess.leidenuniv.nl/bitstream/handle/1887/17577/Tajeldin_diss_V12.pdf?sequence=1

Aljohani, N. (2016). English as a second language in Saudi Arabia. *International Journal of Scientific & Engineering Research*, 7(3), 360-367. https://doi.org/10.14299/ijser.2016.03.002

Al-Khairy, M. (2013). English as a foreign language learning demotivational factors as perceived by Saudi undergraduates. *European Scientific Journal*, *9*(32), 365-382. https://doi.org/10.19044/esj.2013.v9n32p%25p

Alkhateeb, A. (2014). Hypothesis of interaction: Reflections on its theoretical and practical contributions for second language acquisition (SLA). *Studies in English Language Teaching, 2*(3), 294-305

Alkhateeb, M. M. (2016). My mother tongue pulls my leg Arabic language interference in the acquisition of English language: An attempt to know how. *Journal of Education and Practice, 7*(23), 96-102.

Al-Maini, Y. (2011). Using technology in EFL in Saudi Arabia. *Literacy Information and Computer Education Journal*, *2*(3), 477-480.

Almaqrn, R., & Alshabeb, A. (2017). EFL learners' attitudes towards the proper pronunciation of English and podcasts as a facilitator of proper pronunciation. *Arab World English Journal*, *8*(1), 208-219.

Almulhim, E. (2014). The barriers to the use of ICT in teaching in Saudi Arabia: A review of literature. *Universal Journal of Educational Research*, *2*(6): 487-493. https//:doi.org/10.13189/ujer.2014.020606

Al-Nasser, A. S. (2015). Problems of English language acquisition in Saudi Arabia: An exploratory-cum-remedial study. *Theory and Practice in Language Studies*, *5(*8), 1612– 1619. https//:doi.org/10.17507/tpls.0508.10

Alonazi, S. (2017). The role of teachers in promoting learner autonomy in secondary schools in Saudi Arabia. *English Language Teaching*, *10*(7), 183-202.

Alotaibi, Y., & Meftah, A. (2013). Review of distinctive phonetic features and the Arabic share in related modern research. *Turkish Journal of Electrical Engineering and Computer Sciences*, 2, 1426–1439. https://doi.org/10.3906/elk-1112-29

Alotaibi, Y. A., Selouani, S. A., & Cichocki, W. (2009). Investigating emphatic consonants in foreign accented Arabic. *Journal of King Saud University-Computer and Information Sciences*, *21*, 13-25.

Alqahtani, M. S. M. (2014). *Syllable structure and related processes in optimality theory: An examination of Najdi Arabic* [Unpublished doctoral dissertation]. University of Newcastle, Newcastle, England.

Al-Qahtani, A. (2016). Why do Saudi EFL readers exhibit poor reading abilities? *English Language and Literature Studies*, *6*(1), 1-15. https://doi.org/10.5539/ells.v6n1p1

Alrabai, F. (2014). Motivational practices in English as a foreign language classes in Saudi Arabia: Teachers' beliefs and learners' perceptions. *Arab World English Journal*, *5*(1), 224-246.

Alrabai, F. (2016). Factors underlying low achievement of Saudi EFL learners. *International Journal of English Linguistics*, *6*(3), 21-37. https://doi.org/10.5539/ijel.v6n3p21

Alrashidi, O., & Phan, H. (2015). Education context and English teaching and learning in the Kingdom of Saudi Arabia: An overview. *English Language Teaching*, *8*(5), 33.

Alsaidat, E. M. (2010). Phonological analysis of English phonotactics: A case study of Arab learners of English. *The Buckingham Journal of Language and Linguistics*, *3*, 121–134.

Al-Seghayer, K. (2011). *English teaching in Saudi Arabia: Status, issues, and challenges.* Hala Printed Co.

Al-Seghayer, K. (2014). The four most common constraints affecting English teaching in Saudi Arabia. *International Journal of English Linguistics*, *3*(1), 144-151.

Al-Seghayer, K. (2019). Unique challenges Saudi EFL Learners face. *Studies in English Language Teaching*, *7*(4), 490-515. https://doi.org/10.22158/selt.v7n4p490

Alseweed, M. (2012). University students' perceptions of the influence of native and non-native teachers. *English Language Teaching, 5*(12), 42-53.

Alseweed, M. A., & Daif Allah, A. S. (2012). University students' perceptions of the teaching effectiveness of native and nonnative teachers of English in the Saudi context. *Language in India, 12*, 35-60. http://www.languageinindia.com/july2012/alseweedaymannonnativefinal.html

Alshahrani, M. (2016). A brief historical perspective of English in Saudi Arabia. *Journal of Literature, Languages and Linguistics, 26*, 43-47.

Al-Shuaibi, A. (2009). Phonological analysis of English phonotactics of syllable initial and final consonant clusters by Yemeni speakers of English. *Language in India, 9*, 195–328.

Al-Sobhi, B. M., & Preece, A. S. (2018). Teaching English speaking skills to the Arab students in the Saudi school in Kuala Lumpur: Problems and Solutions. *International Journal of Education and Literacy Studies, 6*(1), 1-11.

Alsofyani, M., & Algethami, G. (2017). Exploring EFL teachers' beliefs and practices regarding pronunciation teaching in a Saudi Setting. *Arab World English Journal, 8*(4), 384-400. https://doi.org/10.24093/awej/vol8no4.26

Alsowat, H. (2017). A systematic review of research on teaching English language skills for Saudi EFL students. *Advances in Language and Literary Studies, 8*(5), 31-43.

Alsubeiy, M. (2016). Saudi Arabia [PDF file]. http://pirls2016.org/wp-content/uploads/encyclopedia-pirls/downloadcenter/3.%20Country%20Chapters/Saudi%20Arabia.pdf

Alsudais, A. (2017). Teaching English as a foreign language: The case of Saudi Arabia. *European Journal of English Language and Literature Studies, 5*(9), 18-27.

Al-Tamimi, N., & Attamimi, R. (2018). Using explicit pronunciation instructions to develop students' English speaking competencies: A quasi-experimental study. *International Journal of English Language Teaching, 6*(4), 57-73.

Altuhafi, H. (2011). Teaching English pronunciation to non-English speakers. *Research Gate Journal*. https://www.researchgate.net/publication/308076104_Teaching_English_pronunciation_to_non-English_speakers_2011

Al-Zoubi, M. (2019). The speech sounds of Arabic language and their effect on learning English pronunciation: A contrastive analysis. *International Journal of Humanities and Social Science, 9*(1), 15-27. https://doi.org/10.30845/ijhss.v9n1p2

Amer, M., & Amer, W. (2011). The role of explicit instruction in English word stress patterns in an EFL Arab university context. *Indonesian Journal of English Language Teaching, 7*(2), 71-87.

Anderson-Hsieh, J., Johnson, R., & Koehler, K. (1992). The relationship between native speaker judgments of nonnative pronunciation and deviance in segmentals, prosody, and syllable structure. *Language Learning, 42*, 529–555.

Anderson-Hsieh, J., Riney, T., & Koehler, K. (1994). Connected speech modifications in the English of Japanese ESL learners. *Ideal, 7*, 31–52.

Anderson-Hsieh,J., & Venkatagiri, H. (1994). Syllable duration and pausing in the speech of Chinese ESL speakers. *TESOL Quarterly, 28*, 807-812.

Aquil, R. (2012). L1 shapes L2 auditory representation elicited imitation of Arabic-speaking learners of English. *International Journal of Applied Linguistics & English Literature, 1*(1), 39–63.

Archibald, J. (2018). Transfer, contrastive analysis, and interlanguage phonology. In O. Kang, R. I. Thomson, & J. M. Murphy (Eds.), *The Routledge handbook of contemporary English pronunciation* (9-24). Routledge.

Ar-Riyahi, A. A. (2015). The perception and interpretation of English tones by Iraqi learners at the university Level: A statistical study. *Journal of Basrah Research, 40*(4), 5-25.

Ashour, H. (2017). Major differences between Arabic and English pronunciation systems: A contrastive analysis study. *AL-Lisan International Journal for Linguistic & Literary Studies, 1*(1), 132-150. http://ojs.mediu.edu.my/index.php/AIJLLS/article/view/552

Ashraf, T. (2018). Teaching English as a foreign language in Saudi Arabia: struggles and strategies. *International Journal of English Language Education*, 6(1), 133-154.

Axford, B., Harders, P., & Wise, F. (2009). *Scaffolding literacy: An integrated and sequential approach to teaching reading, spelling and writing*. Australian Council for Educators Research.

Bada, E. (2001). Native language influence on the production of English sounds by Japanese learners. *The Reading Matrix, 1*(2), 1-15.

Baese-Berk, M. M., & Morrill, T. H. (2015). Speaking rate consistency in native and non-native speakers of English. *The Journal of the Acoustical Society of Americ*a, *138*(3), EL223–EL228. https://doi.org/10.1121/1.4929622

Baker. A. A. (2018). Pronunciation teaching in the pre-CLT era. In O. Kang, R. I. Thomson, & J. M. Murphy (Eds.), *The Routledge handbook of contemporary English pronunciation* (pp. 249-266). Routledge.

Basalamah, M. S. (1990). *A study of certain aspects of the suprasegmentals of Arabic and their influence on the English pronunciation of Arab teachers of English* [Unpublished doctoral dissertation). University of London.

Bataineh, A., & Al-Qadi, N. (2014). The effect of using authentic videos on English major students' prosodic competence. *Journal of Education and Practice, 5*(3), 157-172.

Becker, M. R., & Kluge, D. C. (2014). *Intelligibility of English as a lingua franca (ELF): Perception by speakers of Brazilian Portuguese*. In Proceedings of the International Symposium on the Acquisition of Second Language Speech Concordia Working Papers in Applied Linguistics, *5*, 50-57.

Bengrait, N. & Hamlaoui. N. (2016). Using better accent tutor and Praat for learning English intonation. *Arab World English Journal*, (3), 99-112

Benrabah, M. (1987). The intelligibility of Algerian speakers of English. *International Review of Applied Linguistics, 35*(3), 157-165.

Benrabah, M. (1997). Word-stress - A source of unintelligibility in English. *International Review of Applied Linguistics in Language Teaching*, *35*(3), 157-166. https//:doi.org/10.1515/iral.1997.35.3.157

Bertran, A. B. (1999). Prosodic typology: On the dichotomy between stress-timed and syllable-timed languages. *Language Design: Journal of Theoretical and Experimental Linguistics*, *2*, 103-131.

Best, C. T., McRoberts, G., & 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. https://doi.org/10.1121/1.1332378

Best, C. T., & Tyler, M. D. (2007). Nonnative and second-language speech perception: Commonalities and complementarities. In M. J. Munro & O.-S. Bohn (Eds.), *Language experience in second language speech learning: In honor of James Emil Flege* (pp. 13-34). John Benjamins.

Betti, M. J., & Ulaiwi, W. A. (2018). Stress in English and Arabic: A contrastive study. *English Language and Literature Studies*, *8*(1), 83. https://doi.org/10.5539/ells.v8n1p83

Bin Hady, W. R. (2016). Teaching pronunciation for Arab learners of English: Using Gilberts' prosody pyramid. *South-Asian Journal of Multidisciplinary Studies*, *3*(3), 138-151.

Birkner, V. (2016). Revisiting input and output hypotheses in second language learning. *Asian Education Studies*, *1*(1), 19-22. https://doi.org/10.20849/aes.v1i1.18

Bolarinwa, O. A. (2015). Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *The Nigerian Postgraduate Medical Journal*, *22*(4), 195–201.

Bongaerts, T., Mennen, S., & van derSlik, F. (2000). Authenticity of pronunciation in naturalistic second language acquisition: The case of very advanced late learners of Dutch as a second language. *Studia Linguistica*, *54*, 298-308.

Bosker, H. R., Quené, H., Sanders, T., & de Jong, N. H. (2014). The perception of fluency in native and nonnative speech. *Language Learning*, *64*(3), 579–614. https://doi.org/10.1111/lang.12067

Bosker, H. R., Pinget, A.-F., Quen´e, H., Sanders, T. J. M., & De Jong, N. H. (2012). What makes speech sound fluent? The contributions of pauses, speed and repairs. *Language Testing*, *30*, 157–175.

Bouchhioua, N. (2016). The effects of explicit pronunciation instruction on the comprehensibility and intelligibility of Tunisian EFL learners. *International Journal of Research Studies in Language Learning*, *6*(3), 73-88.

Bradlow, A., Clopper, C., Smiljanic, R., and Walter, M. A. (2010). A perceptual phonetic similarity space for languages: evidence from five native language listener groups. *Speech Communication*, *52*, 930–942. https://doi.org/10.1016/j.specom.2010.06.003

Brazil, D. (1994). *Pronunciation for advanced learners of English*. Cambridge University Press.

Brown, D. H. (2000). *Principles of language learning & teaching* (4th ed.). Longman.

Brown, H. D. (2007). *Principles of language learning and teaching* (5th ed.). Longman.

Buck, G. (2001). *Assessing listening*. Cambridge University Press.

Burns, A. (2006). Integrating research and professional development on pronunciation teaching in a national adult ESL program. *TESL Reporter*, *39*(2), 34–41.

Burns, A., & Claire, S. (2003). *Clearly speaking pronunciation in action for teachers*. National Centre for English Language Teaching and Research Macquarie University, Sydney, Australia.

Çakır, İ. (2012). Promoting correct pronunciation through supported audio materials for EFL learners. *Social and Educational Studies*, *4*(3). 1801-1812.

Celce-Murcia, M., Brinton, D., & Goodwin, J. (1996). *Teaching pronunciation*. Cambridge University Press.

Celce-Murcia, M., Brinton, D.M., Goodwin, J.M., & Griner, B. (2010). *Teaching pronunciation: A course book and reference guide.* (2nd ed.). Cambridge University Press.

Check, J. W., & Schutt, R. K. (2012). *Research methods in education*. Sage Publications.

Chela-Flores, B. (2001). Pronunciation and language learning: an integrative approach. *International Review of Applied Linguistics in Language Teaching*, *39*, 85–101. https://doi.org/10.1515/iral.39.2.85

Choy, L. T. (2014). The strengths and weaknesses of research methodology: Comparison and complimentary between qualitative and quantitative approaches. *IOSR Journal of Humanities and Social Science*, *19*(4), 99–104.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Sage Publications.

Couper, G. (2006). The short and long-term effects of pronunciation instruction. *Prospect*, *21*(1), 46-66.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed method approaches*. Sage Publications.

Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Pearson/Merrill Education.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.

Crowther, D., Trofimovich, P., Isaacs, T., & Saito, K. (2017). Linguistic dimensions of L2 accentedness and comprehensibility vary across speaking tasks. *Studies in Second Language Acquisition*, *40*(2), 443-457. https://doi.org/10.1017/S027226311700016X

Crowther, D., Trofimovich, P., Saito, K., & Isaacs, T. (2015). Second language comprehensibility revisited: Investigating the effects of learner background. *TESOL Quarterly*, *49*(4), 814-837.

Cucchiarini, C., Strik, H., & Boves, L. (2002). Quantitative assessment of second language learners' fluency: Comparisons between read and spontaneous speech. *Journal of the Acoustical Society of America*, *111*, 2862–2873.

Cutler, A. (1980). Errors of stress and intonation. In V. A. Fromkin (Ed.), *Errors in linguistic performance: Slips of the tongue, ear, pen, and hand* (pp. 167–180). Academic Press.

Cutler, A. (2015). Lexical stress in English pronunciation. In M. Reed, & J. M. Levis (Eds.), *The handbook of English pronunciation* (pp. 106-124). Wiley-Blackwell.

Cutler, A., Dahan, D., & Donselaar, W. (1997). Prosody in the comprehension of spoken language: A literature review. *Language and Speech*, *40*(2), 141–201. https://doi.org/10.1177/002383099704000203

Darcy, I. (2018). Powerful and effective pronunciation instruction: How can we achieve it? *The CATESOL Journal*, *30*,13–45.

Darcy, I., Ewert, D., & Lidster, R. (2012). Bringing pronunciation instruction back into the classroom: An ESL teachers' pronunciation "toolbox". In. J. Levis & K. LeVelle (Eds.). *Proceedings of the 3rd Pronunciation in Second Language Learning and Teaching Conference, Sept. 2011*. (pp. 93-108). Iowa State University.

Dauer, R., & Browne, S. (1992). *Teaching the pronunciation of connected speech*. Paper presented at the 26th annual meeting of TESOL, Vancouver, Canada.

Davies, A. (2006). What do learners really want from their EFL course. *ELT Journal*, *60*(1), 3–12. https://doi.org/10.1093/elt/cci076

Defense Language Institute. (1974). *A contrastive study of English and Arabic* [PDF file]. Department of Linguistics, University of Michigan. https://files.eric.ed.gov/fulltext/ED105761.pdf

De Jong, N. H. (2018). Fluency in second language testing: Insights from different disciplines. *Language Assessment Quarterly*, *15*(3), 237-254. https://doi.org/10.1080/15434303.2018.1477780

De Jong, N. H., & Bosker, H. R. (2013). *Choosing a threshold for silent pauses to measure second language fluency*. In R. Eklund (Ed.), *Proceedings of the 6th Workshop on Disfluency in Spontaneous Speech (DiSS)* (pp. 17–20). The Royal Institute of Technology (KTH), Stockholm, Sweden.

De Jong, N., Steinel, M., Florijn, A., Schoonen, R., & Hulstijn, J. (2012). Linguistic skills and speaking fluency in a second language. *Applied Psycholinguistics*, *34*(5), 893–916. https://doi.org/10.1017/S0142716412000069

De Jong, N., & Perfetti, C. (2011). Fluency training in the ESL classroom: An experimental study of fluency development and proceduralization. *Language Learning*, *61*(2), 533–568.

De Jong, N. & Wempe, T. (2009). Praat script to detect syllable nuclei and measure speech rate automatically. *Behavior Research Methods*, *41*(2), 385–390.

De Jong, K., & Zawaydeh, B. A. (1999). Stress, duration, and intonation in Arabic word-level prosody. *Journal of Phonetics*, *27*(1), 3-22.

Derwing, T. M. (2010). Utopian goals for pronunciation teaching. In J. Levis & K. LeVelle (Eds.), *Proceedings of the 1st Pronunciation in Second Language Learning and Teaching Conference,* Iowa State University, Sept. 2009. (pp. 24-37), Iowa State University.

Derwing, T. M. (2017). What do we know about comprehensibility? http://www.pronunciationforteachers.com/key-concepts.html

Derwing, T. M., & Munro, M. J. (1995). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning*, *45*, 73–97.

Derwing, T. M., & Munro, M. J. (1997). Accent, intelligibility, and comprehensibility: Evidence from four L1s. *Studies in Second Language Acquisition*, *19*, 1–16.

Derwing, T. M., & Munro, M. J. (2001). What speaking rates do nonnative listeners prefer? *Applied Linguistics*, *22*(3) 324–37.

Derwing, T. M., & Munro, M. J. (2005). Second language accent and pronunciation teaching: A research-based approach. *TESOL Quarterly*, *39*(3), 379–397.

Derwing, T. M., & Munro, M. J. (2009). Comprehensibility as a factor in listener interaction preferences: Implications for the workplace. *Canadian Modern Language Review*, *66*, 181–202.

Derwing, T. M., & Munro, M. J. (2015). *Pronunciation fundamentals: Evidence-based perspectives for L2 teaching and research*. John Benjamins Publishing Company.

Derwing T. M., Munro, M. J., & Thomson, R. I. (2007). A longitudinal study of ESL learners' fluency and comprehensibility development. *Applied Linguistics*, *29*, 359-380. https://doi.org/10.1093/applin/amm041

Derwing, T. M., Munro, M. J., & Wiebe, G. (1998). Evidence in favour of a broad framework for pronunciation instruction. *Language Learning*, *48*(3), 393–410. https://doi.org/10.1111/0023-8333.00047

Derwing, T. M., & Rossiter, M. J. (2003). The effects of pronunciation instruction on the accuracy, fluency, and complexity of L2 accented speech. *Applied Language Learning*, *13*(1), 1–17.

Derwing, T. M., Rossiter, M. J., Munro, M. J., & Thomson, R. I. (2004). Second language fluency: judgments on different tasks. *Language Learning*, *54*(4), 655–679. https://doi.org/10.1111/j.1467-9922.2004. 00282.x

Derwing, T. M., Rossiter, M. J., Munro, M. J., & Thomson, R. I. (2009). The relationship between L1 fluency and L2 fluency development. *Studies in Second Language Acquisition*, *31*(4), 533–557. https://doi.org/10.1017/S0272263109990015

Derwing, T. M., Thomson, R. I., Foote, J. A., & Munro, M. J. (2012). A longitudinal study of listening perception in adult learners of English: Implications for teachers. *Canadian Modern Language Review*, *68*(3), 247–66.

Derwing, T. M., Thomson, R. I., & Munro, M. J. (2006). English pronunciation and fluency development in Mandarin and Slavic speakers. *System*, *34*, 183-193.

Donesch-Jezo, E. (2011). The role of output and feedback in second language acquisition: A classroom-based study of grammar acquisition by adult English language learners. *The Journal of Estonian and Finno-Ugric Linguistics (ESUKA–JEFUL)*, *2*(2), 9-28.

Drummond, K. E., & Murphy-Reyes, A. (2018). *Nutrition research: Concepts and applications*. Jones and Bartlett Learning.

Ellis, R. (1991). The interaction hypothesis: A critical evaluation. In E. Sadtono (Ed.), *Language acquisition in the second/foreign language classroom* (Anthology Series 28, pp. 179–211). Singapore: SEMEO, Regional Language Centre.

Ellis, R. (2015). The importance of focus on form in communicative language teaching. *Eurasian Journal of Applied Linguistics,1*(2), 1-12.

Elliott, A. R. (1995). Foreign language phonology: Field independence, attitude, and the success of formal instruction in Spanish pronunciation. *The Modern Language Journal*, *79*, 530-542.

Esling, J. H. (1994). Some perspectives on accent: Range of voice quality variation, the periphery and focusin*g*. In J Morely (Ed.), *Pronunciation pedagogy and theory: New views, new directions*. TESOL.

Euler, S. S. (2014). Approaches to pronunciation teaching: History and recent developments. In E. Guz (Ed.), *Recent developments in applied phonetics (Studies in linguistics and methodology)* (pp. 35-78). University of Lublin Press.

Ezza, E. (2013). Scaffolding pronunciation in Saudi EFL classroom at Majma'ah University. *International Journal of Applied Linguistics & English Literature, 2*(3), 62-68. https://doi.org/10.7575/aiac.ijalel.v.2n.3p.62

Faqeih, H. (2015). Learners' attitudes towards corrective feedback. *Procedia – Social and Behavioral Sciences*, *192*, 664-671.

Field, J. (2003). Promoting perception: Lexical segmentation in second language listening. *ELT Journal, 57*(4): 325–33.

Field, J. (2004). An insight into listeners' problems: Too much bottom-up or too much top-down? *System*, *32*(3), 363-377.

Field, J. (2005). Intelligibility and the listener: The role of lexical stress. *TESOL Quarterly*, *39*(3), 399-423.

Ferris, D. R. (2010). Second language writing research and written corrective feedback in SLA. *Studies in Second Language Acquisition*, *32*(2), 181–201.

Flege, J. (1992). The intelligibility of English vowels spoken by British and Dutch talkers. In R. Kent (Ed.), *Intelligibility in speech disorders: Theory, measurement, and management* (pp. 157-232). John Benjamins.

Flege, J. (1999). The relation between L2 production and perception. *Proc. of the 14th Int. Congress of Phonetic Sciences*, (2), 1273–1276. https://www.internationalphoneticassociation.org/icphs-proceedings/ICPhS1999/papers/p14_1273.pdf

Flege, J. E. (1984). The detection of French accent by American listeners. *Journal of the Acoustical Society of America 76*, 692-707.

Flege, J. E. (1995). Second language speech learning: Theory, findings and problems. In W. Strange (Ed.), *Speech perception and linguistic experience: Issues in cross-language research* (pp. 233–277). York Press.

Flege, J. (2003). Assessing constraints on second-language segmental production and perception. In A. Meyer & N. Schiller (Eds.), *Phonetics and phonology in language comprehension and production: Differences and similarities* (pp. 319–355). Mouton de Gruyter.

Flege, J. (2009). Give input a chance! In T. Piske & M. Young-Scholten (Eds.), *Input matters in SLA* (pp. 175–190). Multilingual Matters.

Flege, J. E., & Fletcher, K. L. (1992). Talker and listener effects on degree of perceived foreign accent. *Journal of the Acoustical Society of America*, *91*(1), 370-389.

Flege, J. E., Munro, M. J., & Mackay, I. R. (1995). Factors affecting strength of perceived foreign accent in a second language. *Journal of the Acoustical Society of America*, *97*(5), 3125–3134.

Flege, J. E., Mackay, I. R. A., & Meador, D. (1999). Native Italian speakers' perception and production of English vowels. *Journal of the Acoustical Society of America*, *106*(5), 2973–2987.

Flowerdew, J., & Miller, L. (2005). *Second language listening: Theory and practice*. Cambridge University Press.

Foote, J. A. (2018). Ethics and the business of pronunciation instruction. In O. Kang, R. I. Thomson, & J. M. Murphy (Eds.), *The Routledge handbook of contemporary English pronunciation*. (pp. 284-297). Routledge.

Foote, J. A., & Trofimovich, P. (2018). Second language pronunciation learning: An overview of theoretical perspectives. In O. Kang, R. I. Thomson & J. M. Murphy (Eds.), *The Routledge handbook of contemporary English pronunciation* (75-90). Routledge.

Fraser, H. (2001). *Teaching pronunciation: A handbook for teachers and trainers.* DETYA.

Galante, A., & Thomson, R. I. (2017). The effectiveness of drama as an instructional approach for the development of second language oral fluency, comprehensibility, and accentedness. *TESOL Quarterly*, *51*(1), 115-142. https://doi.org/10.1002/tesq.290

Ghanem, R., & Kang, O. (2018). Linguistic features in L2 pronunciation. In O. Kang & A. Ginther (Eds.), *Assessment in Second Language Pronunciation* (pp. 115-136). Routledge.

Gilakjani, A. P. (2012). Goals of English pronunciation instruction. *International Journal of Language Teaching and Research*, *1*(1), 4–8.

Gilakjani, A.P., & Ahmadi, S.M. (2011). The effect of text familiarity on Iranian EFL learners' listening comprehension. *Journal of Language Teaching and Research*, *2*(4), 783-789.

Gilakjani, A., & Sabouri, N. (2016). The significance of listening comprehension in English language teaching. *Theory and Practice in Language Studies*, *6*(8), 1670-1677.

Gilbert, J. (1994). Intonation: A navigation guide for the listener. In J. Morley (Ed.), *Pronunciation pedagogy and theory: New ideas, new directions* (pp. 36-48). TESOL.

Gilbert, J. B. (2008). Teaching pronunciation using the prosody pyramid (1st ed.). Cambridge University Press.

Goh, C. C. (1994). Exploring the teaching of discourse intonation. *RELC Journal*, *25*(1), 7798. https://doi.org/10.1177/003368829402500104

Goldman-Eisler, F. (1968). *Psycholinguistics: Experiments in spontaneous speech*. Academic Press.

Gordon, J., & Darcy, I. (2016). The development of comprehensible speech in L2 learners: A classroom study on the effects of short-term pronunciation instruction. *Journal of Second Language Pronunciation*, *2*(1), 56-92. https://doi.org/10.1075/jslp.2.1.03gor

Gordon, J., Darcy, I., & Ewert, D. (2013). *Pronunciation teaching and learning: Effects of explicit phonetic instruction in the L2 classroom*. In: J. Levis & K. LeVelle (Eds.), Proceedings of the

4th Pronunciation in Second Language Learning and Teaching Conference (pp. 194–206). Iowa State University.

Götz, S. (2013). *Fluency in native and nonnative English speech*. John Benjamis Publishing Company.

Guz, E. (2015). Establishing the fluency gap between native and non-native-speech. *Research in Language*, 13(3), 230–247. https//:doi.org/10.1515/rela-2015-0021

Habibi, N. (2019). Implementing Saudi Arabia's vision 2030: An interim balance sheet. *Crown Center for Middle East Studies. Brandeis University*. https://www.brandeis.edu/crown/publications/middle-east-briefs/pdfs/101-200/meb127.pdf

Hago, O., & Khan, W. (2015). The pronunciation problems faced by Saudi EFL learners at secondary schools. *Education and Linguistics Research*, *1*(2), 85–99. https://doi.org/10.5296/10.5296/elr.v1i2.7783

Hahn, L. (2004). Primary stress and intelligibility: Research to motivate the teaching of suprasegmentals. *TESOL Quarterly*, *38*(2), 201-223.

Hahn, L., & Watts, P. (2011). (Un)Intelligibility tales. In. J. Levis & K. LeVelle (Eds.), *Proceedings of the 2nd Pronunciation in Second Language Learning and Teaching Conference, Sept. 2010*. (pp. 17-29). Iowa State University.

Halpern, J. (2009). *Word stress and vowel neutralization in modern standard Arabic.* Proceedings of the Second International Conference on Arabic Language Resources and Tools, Cairo, Egypt. http://www.cjk.org/cjk/arabic/an_paper.pdf

Han, J. I. (1996). The effects of pronunciation based listening practice on Korean EFL learners. *English Teaching*, *51*(4), 35-56.

Hancock, M. (2013). *English pronunciation in use: Self-study and classroom use. Intermediate*. Cambridge University Press.

Hamad, M. M. (2013). Factors negatively affect speaking skills at Saudi colleges for girls in the South. *English Language Teaching*, *6*(12), 87-97.

Hammond, J. (2001). *Scaffolding teaching and learning in language and literacy education*. Primary English Teaching Association.

Hameed, P.. & Aslam, M. (2015). Pronunciation as a stumbling block for the Saudi English learners: An analysis of the problems and some remedies. *Theory and Practice in Language Studies*, *5*(8), 1578-1585.

Hamouda, A. (2013). An investigation of listening comprehension problems encountered by Saudi students in the EL listening classroom. *International Journal of Academic Research in Progressive Education and Development*, *2*(2), 113-155.

Harding, L. (2017). What do raters need in a pronunciation scale? The user's view. In T. Isaacs & P. Trofimovich (Eds.), *Second language pronunciation assessment: Interdisciplinary perspectives* (pp. 12-34). Bristol; Blue Ridge Summit: Multilingual Matters / Channel View Publications. https://www.jstor.org/stable/10.21832/j.ctt1xp3wcc.6

Harding, L. (2018). Validity in pronunciation assessment. In O. Kang & A. Ginther (Eds.), *Assessment in second language pronunciation*. Routledge.

Hardison, D. M. (2004). Generalization of computer-assisted prosody training: Quantitative and qualitative findings. *Language Learning & Technology, 8*, 34-52.

Harmer, J. (2007). *The practice of English language teaching*, (4th ed.). Pearson Education.

Hashemian, M., & Fadaei, B. (2011). A comparative study of intuitive-imitative and analytic-linguistic approaches towards teaching English vowels to L2 learners. *Journal of Language Teaching and Research, 2*(5), 969–976.

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, 4*(4), 31-44.

Hayes-Harb, R., Smith, B.L., Bent, T., & Bradlow, A. R.(2008).The interlanguage speech intelligibility benefit for native speakers of Mandarin: Production and perception of English word-final voicing contrast. *Journal of Phonetics, 36*, 664–679.

Helal, S. (2014). *Stress in English: Prosodic and rhythmic complexity for Arab learners*. In Proceedings of the International Symposium on the Acquisition of Second Language Speech, *5*, 261-294

Hemmati, F., & Ghaderi, E. (2014). The effect of four formats of multiple-choice questions on the listening comprehension of EFL learners. *Procedia - Social and Behavioral Sciences, 98*, 637–644. https://doi.org/10.1016/j.sbspro.2014.03.462

Hewings, M. (2017). *English pronunciation in use: Self-study and classroom use.* Cambridge University Press.

Heydari, E. (2015). Comparative study of grammar translation method (GTM) and communicative language teaching (CLT) in language teaching methodology. *International Journal of Science and Research Methodology, 1*(3), 16-25.

Hismanoglu, M, & Hismanoglu, S. (2010). Language teachers' preferences of pronunciation teaching techniques: Traditional or modern? *Procedia-Social and Behavioral Sciences 2*(2), 983-989.

Hubais, A., & Pillai, S. (2010). An instrumental analysis of English vowels produced by Omanis. *Journal of Modern Languages, 20*, 1–18.

Hudson, J. (2012). *The sound of English: A practical course in English Pronunciation e-book.* Pronunciation Studio.

Huensch, A. (2018). Pronunciation in foreign language classrooms: Instructors' training, classroom practices, and beliefs. *Language Teaching Research, 23*, 745-764. https://doi.org/10.1177%2F1362168818767182

Hussain, S., & Sajid, S. (2015). Applications of suprasegmental in EFL classroom: A short review. *International Journal of Scientific and Research Publications, 5*(9), 1-6.

Ingham, B. (1994). *Najdi Arabic: Central Arabian*. John Benjamins.

Isaacs, T. (2008). Towards defining a valid assessment criterion of pronunciation proficiency in non-native English speaking graduate students. *Canadian Modern Language Review, 64*(4), 555–580.

Isaacs, T. (2009). Integrating form and meaning in L2 pronunciation instruction. *TESL Canada Journal, 27,* 1–12.

Isaacs, T., & Thomson, R. I. (2013). Rater experience, rating scale length, and judgments of L2 pronunciation: Revisiting research conventions. *Language Assessment Quarterly, 10,* 135-159. https://doi.org/10.1080/15434303.2013.769545

Isaacs, T., & Trofimovich, P. (2012). Deconstructing comprehensibility: Identifying the linguistic influences on listeners' L2 comprehensibility ratings. *Studies in Second Language Acquisition, 34,* 475-505.

Isaacs, T., Trofimovich, P., & Foote, J. A. (2017). Developing a user-oriented second language comprehensibility scale for English-medium universities. *Language Testing*. https://doi.org/10.1177/0265532217703433

Isarankura, S. (2013). Variability of pause patterns in English read speech of Thai EFL learners. *Journal of Education and Social Research, 3*(7), 346-354. https://doi.org/10.5901/jesr.2013.v3n7p346

Isbell, D. (2018). Assessing pronunciation for research purposes with listener-based numerical scales. In O. Kang & A. Ginther (Eds.), *Assessment of second language pronunciation* (pp. 89-112). Routledge.

Jarrah, A. (2015). *Phonology in language learning and teaching*. https://www.academia.edu/6840138/Phonology_in_Language_learning_and_teaching

Jenkins, J. (2000). *The phonology of English as an international language.* Oxford University Press.

Jenkins, J. (2002). A sociolinguistically based, empirically researched pronunciation syllabus for English as an international language. *Applied Linguistics, 23,* 83-103. https://doi.org/10.1093/applin/23.1.83

Jenkins, J. (2005). Implementing an international approach to English pronunciation: The role of teacher attitudes and identity. *TESOL Quarterly, 39,* 535–543.

Jones, R. H., (1997). Beyond "listen and repeat": Pronunciation teaching materials and theories of second language acquisition. *System, 25*(1), 103-112.

Jones, R. H. (2002). Beyond listen and repeat: Pronunciation teaching materials and theories of second language acquisition. In J. C. Richards & W. A. Renandya (Eds.), *Methodology in language teaching: An anthology of current practice* (pp. 178-187). Cambridge University Press.

Kashiwagi, A., & Snyder, M. (2008), American and Japanese Listener Assessment of Japanese EFL Speech: Pronunciation Features Affecting Intelligibility. *The Journal of Asia TEFL,* 5(4), 27-47

Kang, O. (2010). Relative salience of suprasegmental features on judgments of L2 comprehensibility and accentedness. *System, 38*(2), 301–315. https://doi.org/10.1016/j.system.2010.01.005

Kang, O. (2010). ESL learners' attitudes toward pronunciation instruction. In J. M. Levis & K. LeVelle (Eds.), *Proceedings of the 1st Pronunciation in Second Language Learning and Teaching Conference* (pp. 105-118). Iowa State University.

Kang, O., & Johnson, D. (2018). The roles of suprasegmental features in predicting English oral proficiency with an automated system. *Language Assessment Quarterly*, *15*(2), 150-168. https://doi.org/10.1080/15434303.2018.1451531

Kang, O., Rubin, D., & Pickering, L. (2010). Suprasegmental measures of accentedness and judgments of language learner proficiency in oral English. *The Modern Language Journal*, *94*, 1-13

Kang, O., & Pickering, L. (2011). The role of objective measures of suprasegmental features in judgments of comprehensibility and oral proficiency in L2 spoken discourse. *IATEFL pronunciation special group newsletter*, *44*, 4-8.

Kang, O., & Pickering, L. (2013). Using acoustic and temporal analysis for assessing speaking. In A. Kunnan (Ed.), *Companion to language assessment* (pp. 1047–1062). Wiley-Blackwell.

Kang, O., Rubin, D., & Pickering, L. (2010). Suprasegmental measures of accentedness and judgments of language learner proficiency in oral English. *The Modern Language Journal*, *94*(4), 554–566. https://doi.org/10.1111/modl.2010.94.issue-4

Kang, O., Thomson, R., & Moran, M. (2018). Empirical approaches to measuring intelligibility of different varieties of English. *Language Learning*, *68*(1), 115-146. https://doi.org/10.1111/lang.12270

Kang, O., Thomson, R., & Moran, M. (2018). Which features of accent affect understanding? Exploring the intelligibility threshold of diverse accent varieties. *Applied Linguistics*, 1-29. https//:doi.org/10.1093/applin/amy053.

Kang, O., Vo, S. T., & Moran, M. K. (2016). Perceptual judgments of accented speech by listeners from different first language backgrounds. *The Electronic Journal for English as a Second Language*, *20*(1), 1–25. http://www.tesl-ej.org/wordpress/issues/volume20/ej77/ej77a1/

Kendall T. (2013) *What we know about speech rate and pause. in: Speech rate, pause and sociolinguistic variation*. Palgrave Macmillan. https://doi.org/10.1057/9781137291448_2

Kennedy, S., & Trofimovich, P. (2008). Intelligibility, comprehensibility, and accentedness in L2 speech: The role of listener experience and semantic context. *The Canadian Modern Language Review*, *64*(3), 459-489.

Kennedy, S., & Trofimovich, P. (2010). Language awareness and second language pronunciation: A classroom study. *Language Awareness*, *19*(3), 171-185 https://doi.org/10.1080/09658416.2010.48643

Kenworthy, J. (1990). *Teaching English pronunciation*. Longman.

Kerr, J. (2000). Articulatory setting and voice production: Issues in accent modification. *Prospect*, *15*(2), 4–15.

Keyworth, P. (2014). The acoustic correlates of stress-shifting suffixes in native and nonnative English: Some preliminary findings. In J. Levis & S. McCrocklin (Eds.), *Proceedings of the 5th Pronunciation in Second Language Learning and Teaching Conference* (pp. 104-120). Iowa State University.

Khaghaninejad, M. S., & Maleki, A. (2015). The effect of explicit pronunciation instruction on listening comprehension: Evidence from Iranian English learners. *Theory and Practice in Language Studies*, *5*(6), 1249–1256.

Khalifa, F. M. (2018). Contrastive analysis, error analysis, markedness theory, universal grammar and monitor theory and their contributions to second language learning. *International Journal of Linguistics*, *10*(1), 12-45. https://doi.org/10.5296/ijl.v10i1.12479

Khan, I. (2011). *Learning difficulties in English: Diagnosis and pedagogy in Saudi Arabia*. http://www.academia.edu/7433878/Learning_difficulties_in_English_and_pedagogy_in_Saudi_arabia

Kim, T. (2008). Accentedness, comprehensibility, intelligibility, and interpretability of NNESTs. *The CATESOL Journal*, *20*(1), 7–25.

Kissling, E. (2018). Pronunciation instruction can improve L2 learners' bottom-up processing for listening. *The Modern Language Journal*, *102*(4), (653-675). https://doi.org/10.1111/modl.12512

Koponen, M., & Riggenbach, H. (2000). Overview: Varying perspectives on fluency. In H. Riggenbach (Ed.), *Perspectives on fluency* (pp. 5–24). University of Michigan Press.

Kormos, J., & Denes, M. (2004). Exploring measures and perceptions of fluency in the speech of second language learners. *System*, *32*, 145-164.

Kothari, C. R. (2004). *Research methodology: Methods and techniques* (2nd ed.). New Age International Publishers.

Krashen, S. (1985). *The input hypothesis: Issues and implications*. Longman.

Kraut, R., & Wulff, S. (2013). Foreign-accented speech perception ratings: A multifactorial case study. *Journal of Multilingual and Multicultural Development*, *34*, 249-263.

Kreidler, C. W. (1987). Stress differentiation in sets of English words. *Word*, *38*(2), 99-125. https://doi.org/10.1080/00437956.1987.11435883

Kusumoto, Y. (2012). Between perception and production: Is the ability to hear L1-L2 sound differences related to the ability to pronounce the same sounds accurately? *Journal of Polyglossia*, *22*, 15-33.

Kurt, B., Medlin, J., & Tessarolo, A. (2014). The perception of prosodically ambiguous intonation patterns by L2 English learners and the effects of instruction. Proceedings of the International Symposium on the Acquisition of Second Language Speech. *Concordia Working Papers in Applied Linguistics*, *5*, 353-372.

Lane, L. (2010). *Tips for teaching pronunciation: A practical approach*. Person Longman.

Larsen-Freeman, D. (2000). *Techniques and principles in language teaching* (2nd ed.). Oxford University Press

Larson-Hall, J. (2010). *A guide to doing statistics in second language research using SPSS*. Routledge.

Larudee, F. (1973). Word stress in the spoken Arabic of Cairo. *Language Sciences*, *26*, 31–34.

Lee, Y. (2014). Quantifying English fluency in Korean speakers' read-aloud and picture-cued storytelling speech. *Linguistic Research*, 31(3), 465-490. https://doi.org/10.17250/khisli.31.3.201412.003

Lee, G.B., Lee, H.Y., Song, J. Kim, B., Kang, S., Lee, J., & Hwang, H. (2017). Automatic sentence stress feedback for non-native English learners. *Computer Speech and Language 41*, 29–42.

Lee, B., Plonsky, L., & Saito, K. (2020). The effects of perception- vs production-based pronunciation instruction. *System*, *88*, 1-13. https://doi.org/10.1016/j.system.2019.102185

Lightbown, P. M., & Spada, N. (2006). *How languages are learned* (3rd ed.). Oxford University Press

Lennon, P. (1990). Investigating fluency in EFL: A quantitative approach. *Language Learning*, *40*, 387-417. https://doi.org/10.1111/j.1467-1770. 1990.tb00669.x

Levis, J. (2005). Changing contexts and shifting paradigms in pronunciation teaching. *TESOL Quarterly*, *39*, 369-377.

Levis, J. (2018). *Intelligibility, oral communication, and the teaching of pronunciation*. Cambridge Applied Linguistics, Cambridge University Press.

Levis, J., & Barriuso, T. A. (2012). Nonnative speakers' pronunciation errors in spoken and read English. In. J. Levis & K. LeVelle (Eds.), *Proceedings of the 3rd Pronunciation in Second Language Learning and Teaching Conference, Sept. 2011*. (pp. 187-194). Iowa State University.

Levis, J. M., & Grant, L. (2003). Integrating pronunciation into ESL/EFL classrooms. *TESOL*, *12*(2), 13-19.

Levis, J., & Levis, M. G. (2018). Teaching high-value pronunciation features: Contrastive stress for intermediate learners. *CATESOL Journal*, *30*(1), 139-160.

Levis, J., Sonsaat, S., Link, S., & Barriuso, T. A. (2016). Native and nonnative teachers of L2 pronunciation: Effects on learner performance. *TESOL Quarterly*, 1-38. https://doi.org/10.1002/tesq.272

Levis, J. M., & Wichmann, A. (2015). English intonation - Form and meaning. In M. Reed & J. M. Levis (Eds.), *The handbook of English pronunciation* (pp. 139-155). Wiley-Blackwell.

Levis, J., & Zhou, Z. (2018). Accent. Entry in the NEST and NNEST section of the *TESOL Encyclopedia of English Language Teaching*. Wiley.

Lewis, C., & Deterding, D. (2018). Word stress and pronunciation teaching in English as a Lingua Franca contexts. *CATESOL Journal*, *30*(1), 161–176.

Lima, E. F. (2011). Language and nonlanguage factors affecting nonnative undergraduate students' reactions to ITAs. In. J. Levis & K. LeVelle (Eds.), *Proceedings of the 2nd Pronunciation in Second Language Learning and Teaching Conference*, Sept. 2010. (pp. 43-55). Iowa State University.

Liu, D. (2015). A critical review of Krashen's input hypothesis: Three major arguments. *Journal of Education and Human Development*, *4*(4), 139-146. https://doi.org/10.15640/jehd.v4n4a16

Loewen, S., & Plonsky, L. (2015). *An A-Z of applied linguistics research methods*. Palgrave.

Long, M. H. (1983). Native speaker/non-native speaker conversation and the negotiation of comprehensible input1. *Applied linguistics*, *4*(2), 126-141.

MacDonald, S. (2002). Pronunciation – views and practices of reluctant teachers. *Prospect*, *17*(3), 3–18.

MacDonald, S. (2018). Pronunciation tutorials: not only sounds, but also awareness of self and context. *CATESOL Journal*, *30*(1), 249-265

Mackey, A. (1999). Input, interaction, and second language development. *Studies in second language acquisition*, *21*(4), 557-587.

Mackey, A., & Gass, S. M. (2005). *Second language research: Methodology and design*. Lawrence Erlbaum.

Mackey, A., & Gass, S. M. (2015). Input, interaction, and output in second language acquisition. In B. VanPatten, & J. Williams (Eds.), *Theories in Second Language Acquisition: An Introduction* (pp. 180-206). New York, NY: Routledge.

Madzlan, N., & Mahmud, C. (2018). Perception of the attitudinal function of intonation in responding to yes/no questions: A study of non-native English language teachers. *Studies in English Language and Education*, *5*(2), 217-229. https://doi.org/10.24815/siele.v5i2.10476

Mahboob, A., & Elyas, T. (2014). English in the Kingdom of Saudi Arabia. *World Englishes*, *33*(1), 128–142. https://doi.org/10.1111/weng.12073

Marinova-Todd, S., Marshall, B., & Snow, C. (2000). Three misconceptions about age and L2 learning. *TESOL Quarterly*, *34*(1), 9–34.

Mart, C. T. (2013). The direct-method: A good start to teach oral language. *International Journal of Academic Research in Business and Social Sciences*, *3*(11), 182-184.

McLaughlin, B. (1987). *Theories of second-language learning*. Edward Arnold

Mehler, J., Bertoncini, J., Dupoux, E., & Pallier, C. (1994). The role of suprasegmentals in speech perception and acquisition. *Dokkyo International Review*, *7*, 343–376.

Meng, H., Tseng, C., Kondo, M., Harrison, A. & Viscelgia, T. (2009). Studying L2 suprasegmental features in Asian Englishes: a position paper. *Proceedings from Interspeech 2009*, Brighton, UK.

Ministry of Finance. (2020). Saudi Arabia announces 2020 budget: Delivering efficiently and powering private sector growth. https://www.mof.gov.sa/en/MediaCenter/news/Pages/News/Saudi-Arabia-Announces-2020-Budget:Delivering-Efficiently-and-Powering-Private-Sector-Growth

Misfer, Z. A., & Busabaa, N. A. (2019). Stress placement and the difficulties encountered by female EFL students in Saudi Arabian context. *Arab World English Journal*, Special Issue: The Dynamics of EFL in Saudi Arabia (pp 32-43). https://doi.org/10.24093/awej/efl1.3

Mitchell, B., & Alfuraih, A. (2017). English language teaching in the Kingdom of Saudi Arabia: Past, present and beyond. *Mediterranean Journal of Social Sciences*, *8*(2) 317-325.

Mohammed, I. (2017, December 24). Education remains a top priority for Kingdom. *Saudi Gazette*. http://live.saudigazette.com.sa/article/524722/SAUDI-ARABIA/Education-remains-a-top-priority-for-Kingdom

Morley, J. (1991). The pronunciation component in teaching English to speakers of other languages. *TESOL Quarterly*, *25*(3), 481.

Morley, J. (1994). *Pronunciation pedagogy and theory: New views, new directions*. TESOL.

Munro, M. J. (2011). Intelligibility: Buzzword or buzzworthy?. In. J. Levis & K. LeVelle (Eds.), *Proceedings of the 2nd Pronunciation in Second Language Learning and Teaching Conference*, Sept. 2010. (pp.7-16). Iowa State University.

Munro, M. J. (2018). How well can we predict second language learners' pronunciation difficulties? *The CATESOL Journal*, *30*(1), 267–282

Munro, M. J., & Derwing, T. M. (1998). The effects of speaking rate on listener evaluations of native and foreign-accented speech. *Language Learning*, *48*, 159–182.

Munro, M. J., & Derwing, T. M. (1999). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning*, *49*, 285–310

Munro, M.J. & Derwing, T.M. (2001). Modeling perceptions of the accentedness and comprehensibility of L2 speech: The role of speaking rate. *Studies in Second Language Acquisition*, *23*, 451–468.

Munro, M. J., & Derwing, T. M. (2006). The functional load principle in ESL pronunciation instruction: An exploratory study. *System*, *34*(4), 520-531.

Munro, M., J., & Derwing, T. M. (2015). Intelligibility in research and practice: Teaching priorities. In: Reed, M. & Levis, J. *The Handbook of English Pronunciation*, (pp. 377-396). Wiley-Blackwell.

Munro, M., Derwing, T., & Morton, S. (2006). The mutual intelligibility of L2 speech. *Studies in Second Language Acquisition*, *28*, 111-131.

Munro, M. J., Flege, J. E., & Mackay, I. R. A. (1996). The effects of age of second language learning on the production of English vowels. *Applied Psycholinguistics*, 17(3), 313–334.

Murphy, J. (2014). Intelligible, comprehensible, non-native models in ESL/EFL pronunciation teaching. *System*, *42*, 258–269.

Murphy, M. J., & Baker, A. A. (2015). *History of ESL pronunciation teaching*. In M. Reed & J. M. Levis (Eds.), *The handbook of English pronunciation* (pp. 36-65). Wiley-Blackwell.

Naser, I., & Bin Hamzah, M. (2018). Pronunciation and conversation challenges among Saudi EFL students. *Journal of English Educators Society*, *3*(1), 85-104.

National Commission for Academic Accreditation & Assessment. (2015). Standards for accreditation of higher education institutions [PDF file]. https://www.ncaaa.org.sa/en/Releases/StandardsDocuments/D.1.I_%20Standards%20for%20Institutions_V3_Oct2015.pdf

Nelson, C. L., & Kang, S. Y. (2015). *Pronunciation and world Englishes.* In M. Reed & J. M. Levis (Eds.), *The handbook of English pronunciation* (pp. 320-330). Wiley Blackwell.

Nolan, F. (2006). Intonation. *The handbook of English linguistics*, (chapter 19). Wiley Blackwell.

O'Brien, M. G. (2014). L2 learners' assessments of accentedness, fluency, and comprehensibility of native and nonnative German speech. *Language Learning*, *64*, 715-748. https://doi.org/10.1111/lang.12082

Odisho, E. Y. (2005). *Techniques of teaching comparative pronunciation in Arabic and English.* Gorgias Press.

Oliveira, M. (2002). Pausing strategies as means of information processing in spontaneous narratives. In B. Bel and I. Marlien (Eds.), *Proceedings of the 1st Conference on Speech Prosody, Aix-en-Provence, France (2002)* (pp. 539-542).

Pennington, M. C. (1996). *Phonology in English language teaching.* Longman.

Phakiti, A. (2014). *Experimental research methods in language Learning*. Bloomsbury Academic.

Phan, H., & Vo, S. (2012). Pronunciation errors and perceptual judgements of accented speech by native speakers of English. *TESOL in Context, Special Edition* S3, 1-8.

Pinget, A., Bosker, H., Quené. H., & De Jong, N. H. (2014). Native speakers' perceptions of fluency and accent in L2 speech. *Language Testing*, *31*(3), 349-365.

Protea Textware. (2009). Connected speech. Intermediate and advanced levels. https://www.proteatextware.com/shopdisplayproducts.asp?id=11&cat=Pronunciation

Przedlacka, J. (2018). An overview of phonetics for language teachers. In O. Kang, R. I. Thomson, & J. M. Murphy (Eds.), *The Routledge handbook of contemporary English pronunciation* (pp. 39-57). Routledge.

Pullen, E. (2012). Cultural identity, pronunciation, and attitudes of Turkish speakers of English: language identity in an EFL context. In J. Levis & K. LeVelle (Eds.), *Proceedings of the 3rd Pronunciation in Second Language Learning and Teaching Conference*, Sept. 2011. (pp.65-83). Iowa State University

Rahman, M. M., & Alhaisoni, E. (2013). Teaching English in Saudi Arabia: Prospects and challenges. *Academic Research International*, *4*(1), 112-118.

Rajab, H. (2013). Developing speaking and writing skills of L1 Arabic EFL learners through teaching of IPA phonetic codes. *Theory and Practice in Language Studies*, *3*(4), 653-649.

Rasinger, S. M. (2013). *Quantitative research in linguistics. An introduction* (2nd ed.). Bloomsbury.

Reed, M. (July, 2012). *Pronunciation tools for fostering intelligibility and communication success. Australia Teachers of English to Speakers of Other Languages*, Australian Capital Territory, Canberra, Australia.

Renner, L. F. (2017). *The magic of matching – Speech production and perception in language acquisition*. Stockholm University, Stockholm, Sweden.

Richards, J. (2006). *Communicative language teaching today*. Cambridge University Press.

Richards, J., & Farrell, T. (2011). *Practice teaching: A reflective approach*. Cambridge University Press.

Richards, J., & Renandya, W. (2002). *Methodology in language teaching: An anthology of current practice.* Cambridge University Press

Richards, J. C., & Rodgers T. S. (2001). *Approaches and methods in language teaching* (2nd ed.). Cambridge University Press.

Riggenbach, H. (1991). Toward an understanding of fluency: A microanalysis of nonnative speaker conversations. *Discourse Processes*, *14*, 423-441. https://doi.org/10.1080/01638539109544795

Riney, T., Takagi, N., & Inutsuka, K. (2005). Phonetic parameters and perceptual judgments of accent in English by American and Japanese listeners. *TESOL Quarterly*, *39*(3), 441-466.

Río, D. C., Juan-Garau, M., & Pérez-Vidal, C. (2018). Teachers' assessment of perceived foreign accent and comprehensibility in adolescent EFL oral production in Study Abroad and Formal Instruction contexts: A mixed method study. In C. Pérez-Vidal, S. López-Serrano, J. Ament, & D. J. Thomas-Wilhelm (Eds.), *Learning context effects: Study abroad, formal instruction and international immersion classrooms* (pp. 179–211). Language Science Press. https://doi.org/10.5281/zenodo.1300632

Rivers, W. (1987). *Interactive language teaching*. Cambridge University Press.

Roach, P. (2009). *English phonetics and phonology* (4th ed.). Cambridge University Press.

Rogers, J., & Révész, A. (2020). Experimental and quasi-experimental designs. In J. McKinley & H. Rose (Eds.), *The Routledge handbook of research methods in applied linguistics* (pp. 133-143). Routledge.

Rossiter, M., Derwing, T., Manimtim, L., & Thomson, R. (2010). Oral fluency: The neglected component in the communicative language classroom. *Canadian Modern Language Review*, *66*(4), 583-606.

Saadah, E. (2011). *The production of Arabic vowels by English L2 learners and heritage speakers of Arabic* [Unpublished doctoral dissertation]. The University of Illinois, Illinois, USA.

Sabater, S. M. (1991). Stress and rhythm in English. *Revista Alicantina de Estudios Ingleses*, *4*, 145–162. https://doi.org/10.14198/raei.1991.4.13

Sabir, I., & Alsaeed, N. (2014). A brief description of consonants in modern standard Arabic. *Linguistics and Literature Studies*, *2*(7), 185-189. https://doi.org/10.13189/lls.2014.020702

Saito, K. (2011). Examining the role of explicit phonetic instruction in native-like and comprehensible pronunciation development: An instructed SLA approach to L2 phonology. *Language Awareness*, *20*(1), 45–59.

Saito, K. (2012). Effects of instruction on L2 pronunciation development: A synthesis of 15 quasi-experimental intervention studies. *TESOL Quarterly*, *46*(4), 842-854. https://doi.org/10.1002/tesq.67

Saito, K., & Hanzawa, K. (2016). Developing second language oral ability in foreign language classrooms: The role of the length and focus of instruction and individual differences. *Applied Psycholinguistics*, *37*, 813–840.

Saito, Y., & Saito, K. (2016). Differential effects of instruction on the development of second language comprehensibility, word stress, rhythm, and intonation: The case of inexperienced Japanese EFL learners. *Language Teaching Research*, *21*(5), 589-608. https://doi.org/10.1177/1362168816643111

Saito, K., Trofimovich, P., & Isaacs, T. (2016). Second language speech production: Investigating linguistic correlates of comprehensibility and accentedness for learners at different ability levels. *Applied Psycholinguistics*, *37*, 217-240. https://doi.org/10.1017/S0142716414000502

Saito, K., Trofimovich, P., & Isaacs, T. (2017). Using listener judgements to investigate linguistic influences on L2 comprehensibility and accentedness: A validation and generalization study. *Applied Linguistics*, *38*, 439-462. https://doi.org/10.1093/applin/amv047

Saito, K., & van Poeteren, K. (2018). The perception–production link revisited: The case of Japanese learners' English/ɹ/performance. *International Journal of Applied Linguistics*, *28*, 3-17. https://doi.org/10.1111/ijal.12175

Saito, K., Webb, S., Trofimovich, P., & Isaacs, T. (2016). Lexical profiles of comprehensible second language speech: The role of appropriateness, fluency, variation, sophistication, abstractness and sense relations. *Studies in Second Language Acquisition*, *37*, 677-701. https://doi.org/10.1017/S0272263115000297

Schaetzel, K., (2009). *Teaching pronunciation to adult English language learners.* http://www.cal.org/caelanetwork/resources/pronunciation.html

Sereno, J., Lammers, L., & Jongman, A. (2016). The relative contribution of segments and intonation to the perception of foreign-accented speech. *Applied Psycholinguistics*, *37*(1), 303-322. https://doi.org/10.1017/S0142716414000575

Setter, J. (2008). Theories and approaches in English pronunciation. In R. Monroy & A. Sanchez (Eds.), *25 Years of applied linguistics in Spain: Milestones and challenges* (pp. 447–457). Universidad de Murcia, Servicio de Publacaciaones.

Setter, J., & Sebina, B. (2018). English lexical stress, prominence and rhythm. In O. Kang, R. I. Thomson & J. M. Murphy (Eds.), *The Routledge handbook of contemporary English pronunciation* (pp. 137-153). Routledge.

Sifakis, N. (2014). Teaching pronunciation in the post-EFL era: lessons from ELF and implications for teacher education. *Utrecht Studies in Language and Communication*, *27*, 127-146.

Sharifo, V., Levy, E., Khamis-Dakwar, R., & Kharkhurin, A. (2013). Perceptual confusions of American-English vowels and consonants by native Arabic bilinguals. *Language and Speech*, *1*(1), 1-17. https://doi.org/10.1177/0023830912442925

Shehata, A. (2015). Problematic Arabic consonants for native English speakers: Learners' perspectives. *The international Journal of Educational Investigations*, *2*(9), 24–47.

Shepard, B., Elliot, N., & Baese-Berk, M. M. (2017). Comprehensibility and intelligibility of international student speech: Comparing perceptions of university EAP instructors and content faculty. *Journal of English for Academic Purposes*, *26*, 42–51.

https://doi.org/10.1016/j.jeap.2017.01.006

Silveira, R. (2002). Pronunciation instruction. Classroom practice and empirical research. *Linguagem & Ensino Journal*, *5*(1), 93–126.

Snow, C., & Hoefnagel-Hohle, M. (1978). The critical period for language acquisition: Evidence from second language learning. *Child Development, 49*, 1114–1128.

Southwood, M. H, & Flege, J. E. (1999). Scaling foreign accent: Direct magnitude estimation versus interval scaling. *Clinical Linguistics and Phonetics*, *13*, 335-349.

Stein-Smith K. (2017). Foreign languages: A world of possibilities. *International Journal of Language and Linguistics*, *4*(4), 1-10. http://ijllnet.com/journals/Vol_4_No_4_December_2017/1.pdf

Suzuki, W., & Itagaki, N. (2007). Learner metalinguistic reflections following output-oriented and reflective activities. *Language Awareness*, *16*(2), 131-146.

Swain, M. (1993). The output hypothesis: Just speaking and writing aren't enough. *The Canadian Modern Language Review*, *50*, 158-164.

Swain. M. (1995). Three functions of output in second language learning. In G. Cook, H. Widdowson & B. Seidelhofer (Eds.), *Principle and practice in applied linguistics: Studies in honour of H.G. Widdowson* (pp.125-144). Oxford University Press.

Swain, M. (2000). The output hypothesis and beyond: Mediating acquisition through collaborative dialogue. In J. P. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 97–114). Oxford University Press.

Swain, M. (2005). The output hypothesis: Theory and research. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 471-484). Routledge.

Swan, M. & Smith, B. (Eds.). (2001). *Learner English: A teacher's guide to interference and other problems* (2nd ed.). Cambridge University Press.

Swain, M., & Lapkin, S. (2002). Talking it through: Two French immersion learners' response to reformulation. *International Journal of Educational Research*, *37*, 285–304.

Taber, K. S., (2016). The use of Cronbach's Alpha when developing and reporting research instruments in science education. *Research in Science Education*, *48*(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

Taguchi, E., Sasamoto, E., & Gorsuch, G. (2006). Developing second and foreign language reading fluency and its effect on comprehension. *The Reading Matrix*, *6*(2), 1–18. http://www.readingmatrix.com/articles/taguchi_gorsuch_sasamoto/article.pdf

Tajima, K., Zawaydeh, B. A., & Kitahara, M. (1999, August 2). *A comparative study of speech rhythm in Arabic, English, and Japanese*. Poster presented at XIVth International Congress of Phonetic Sciences (ICPhS99), San Francisco, CA, USA.

Tanner, M. & Landon, M. (2009). The effects of computer-assisted pronunciation readings on ESL learners' use of pausing, stress, intonation, and overall comprehensibility. *Language Learning & Technology*, *13*(3), 51–65. https://doi.org/10125/44191

Tavakoli, P., Campbell, C., & McCormack, J. (2016). Development of speech fluency over a short period of time: Effects of pedagogic intervention. *TESOL Quarterly*, *50*(2), 447–471.

Tergujeff, E. (2012). English pronunciation teaching: Four case studies from Finland. *Journal of Language Teaching and Research*, *3*, 599–607.

Thomson, R. I. (2015). Fluency. In M. Reed & J. M. Levis (Eds.), *The handbook of English pronunciation* (pp. 209-226). Wiley-Blackwell.

Thomson, R. I. (2018). Measurement of accentedness, intelligibility and comprehensibility. In O. Kang & A. Ginther, (Eds.), *Assessment in second language pronunciation*. (pp. 11-29). Routledge.

Thomson, R. I., & Derwing, T. M. (2014). The effectiveness of L2 pronunciation instruction: A narrative review. *Applied Linguistics Journal*, *36*, 326–344. https://doi.org/10.1093/applin/amu076

Thompson, I., & Rubin, J. (1996). Can strategy instruction improve listening comprehension? *Foreign Language Annals*, *29*, 331–342.

Thompson, T., & Gaddes, M. (2005). The importance of teaching pronunciation to adult learners. *Asian EFL Journal*, *39*, 3–22.

Towell, R., Hawkins, R., & Bazergui, N. (1996). The development of fluency in advanced learners of French. *Applied Linguistics*, *17*, 84–119.

Trofimovich, P., & Isaacs, T. (2012). Disentangling accent from comprehensibility. *Bilingualism: Language and Cognition*, *15*(4), 905-916. https://doi.org/10.1017/S1366728912000168

Trofimovich, P., Kennedy, S., & Blanchet, J. (2017). Development of second language French oral skills in an instructed setting: A focus on speech ratings. *Canadian Journal of Applied Linguistics*, *20*, 3250. https://doi.org/10.7202/1042675ar

Trofimovich, P., Kennedy, S., & Foote, J. A. (2015). Variables affecting L2 pronunciation development. In M. Reed & J. Levis (Eds.), *The handbook of English pronunciation* (pp. 353–373). Wiley-Blackwell.

Tuan, L. (2010). Teaching English discrete sounds through minimal pairs. *Journal of Language Teaching and Research*, *1*(5), 540–561. https://doi.org/10.4304/jltr.1.5.540-561

Turner, H. M. III, & Bernard, R. M. (2006). Calculating and synthesizing effect sizes. *Contemporary Issues in Communication Science and Disorders*, *33*, 42-55.

Tyler, M. (2019). PAM-L2 and phonological category acquisition in the foreign language classroom. In A. M. Nyvad, M. Hejná, A. Højen, A. B. Jespersen & M. H. Sørensen (Eds.), *A sound approach to language matters: In honor of Ocke-Schwen Bohn* (pp. 607-630). https://doi.org/10.7146/aul.322.218

U.S. Energy Information Administration. (2017, October 20). *Country analysis brief: Saudi Arabia. Independent Statistics and Analysis* [PDF file]. https://www.connaissancedesenergies.org/sites/default/files/pdf-pt-vue/saudi_arabia.pdf

Vandergrift, L. (2004). Listening to learn or learning to listen? *Annual Review of Applied Linguistics, 24*, 3-25.

Vandergrift, L., & Goh, C. (2009). Teaching and testing listening comprehension. In M. Long & C. Doughty (Eds.), *The handbook of language teaching* (pp. 395-411). Wiley-Blackwell. https://doi.org/10.4324/9780203843376

Venkatagiri, H., & Levis, J. (2007). Phonological awareness and speech comprehensibility: An exploratory study. *Language Awareness*, *16*, 263–277. https://doi.org/https://doi.org/10.2167/la417.0

Vaissière, J. (2004). The perception of intonation. In D. B. Pisoni & R. E. Remez, (Eds.), *Handbook of speech perception* (pp. 236-263). Blackwell.

Wagner, E., & Toth, P. D. (2017). The role of pronunciation in the assessment of L2 listening ability. In T. Isaacs & P. Trofimovich (Eds.) *Second language pronunciation assessment: Interdisciplinary perspectives* (pp. 72-92). Multilingual Matters.

Wardhaugh, R. (1970). The contrastive analysis hypothesis. *TESOL Quarterly*, *4*(2), 123–130.

Warren, P., Elgort, I., & Crabbe, D. (2009). Comprehensibility and prosody ratings for pronunciation software development. *Language Learning & Technology*, *13*(3), 87-102.

Watson, J. (2011). Word stress in Arabic. In M. V. Oostendrop, C. Ewen, E. Hume & K. Rice (Eds.), *The Blackwell companion to phonology* (pp. 2990-3017). Blackwell Publishing Ltd. http://eprints.whiterose.ac.uk/75747/

Wei, M. (2006). A literature review on strategies for teaching pronunciation. *ERIC Journal*, 1-22. https://eric.ed.gov/?id=ED491566

Wells, J. C. (2006). *English intonation: An introduction*. Cambridge University Press.

Wennerstrom, A. (1994). Intonational meaning in English discourse: A study of nonnative speakers. *Applied Linguistics*, *15*(4), 399–421. https://doi.org/10.1093/applin/15.4.399

Wennerstrom, A. (2001). *The music of everyday speech: Prosody and discourse analysis*. Oxford University Press.

Wennerstrom, A. (2018). Intonation and language learning. In O. Kang, R. I. Thomson & J. M. Murphy (Eds.), *The Routledge handbook of contemporary English pronunciation* (154-168). Routledge.

Wennerstrom, A., & Siegel, A. F. (2003). Keeping the floor in multiparty conversations: Intonation, syntax, and pause. *Discourse Processes 36*, 77-107.

White, L. (1987). Against comprehensible input: The input hypothesis and the development of second language competence. *Applied Linguistics*, *8*, 95-110.

Xiaoyu, H. (2009). The relationship between Chinese EFL learners proficiency in suprasegmental features of pronunciation and their listening comprehension. *CELEA Journal*, *32*, 31-39.

Xu, F. (2011). The priority of listening comprehension over speaking in the language acquisition process. *International Education Studies*, *4*(1), 161-165.

Yan, X., & Ginther, A. (2017). Listeners and raters: Similarities and differences in evaluation of accented speech. In O. Kang & A. Ginther (Eds.), *Assessment in second language pronunciation* (pp. 67-88). Routledge.

Yanglang, W. (2013). Improving English stress and intonation pronunciation of the first-year students in Nakhon Ratchasima Rajabhat university through an E-learning. *Procedia - Social and Behavioral Sciences*, *91*, 444-452. https://doi.org/10.1016/j.sbspro.2013.08.442

Yates, L. (2002). Fact sheet—What is pronunciation? http://www.ameprc.mq.edu.au/docs/fact_sheets/01Pronunciation.pdf

Yates, L. (2002). *Fact sheet - Setting goals for teaching pronunciation*. From Macquarie University, National Centre for English Language Teaching & Research (NCELTR) AMPE Research Centre [on line]. http://www.nceltr.mq.edu.au/pdamep

Yates, L., & Zielinski, B. (2009). *Give it a go: Teaching pronunciation to adults.* AMEP Research Centre, Macquarie University. http://www.ameprc.mq.edu.au/resources/professional_development_resources

Yenkimaleki, M., & Heuven, V. J. (2016). Effect of explicit teaching of prosodic features on the development of listening comprehension by Farsi-English interpreter trainees: An experimental study. *International Journal of English Language Teaching*, *4*, 32–41.

Zoghbor, W. (2011). *The effectiveness of the lingua franca core (LFC) in improving the perceived intelligibility and perceived comprehensibility of Arab learners at post-secondary level* [Unpublished doctoral dissertation]. University of Leicester.

Zellner, B. (1994). Pauses and the temporal structure of speech. In E. Keller (Ed.), *Fundamentals of speech synthesis and speech recognition* (pp. 41-62). John Wiley.

Zhang, F. Z. (2006). *The teaching of Mandarin prosody: A somatically-enhanced approach for second language learners* [Unpublished doctoral dissertation]. University of Canberra.

Zhang, L. (2004). Awareness-raising in the TEFL phonology classroom: Student voices and sociocultural and psychological considerations. *International Journal of Applied Linguistics*, *145*, 219-268.

Zhang, S., Li, K., Lo, W. K., & Meng, H. (2010). Perception of English suprasegmental features by non-native Chinese learners. In *SP-2010*, paper 942. http://www.se.cuhk.edu.hk/hccl/ Publications/pub/Zhang_SpeechProsody2010.pdf

Zielinski, B. (2015). The segmental/suprasegmental debate. In Reed, M. & Levis, J. M. (Eds.), *The handbook of English pronunciation* (pp. 397–410). Wiley-Blackwell.

Appendix 1: Lesson Plan and Lesson Sample

Level: Intermediate
Lesson 1
Lesson topic: Word stress
Lesson duration: 40 minutes
Tools: recordings, audio recorder, colourful highlighters, rubber band, white board, handouts and ping-pong ball
Method: **Suprasegmental-based instruction**

Purpose: To understand the nature of stressed and unstressed syllables in words and to identify word stress through the application of suprasegmental-based instruction

Lesson Objectives:

At the end of the lesson, students will

1- understand how word stress is produced in given words,
2- identify stress in two-syllable words and
3- pronounce two-syllable words with the correct stress.

Procedures:

Stage 1: Explanation (8 minutes)

The teacher will start the lesson by explaining to the students what word stress is and how important it is to make the primary stress in two-syllable words, as incorrect stress might change the meaning of some words.

The teacher will write some of the target words on the board, highlighting the stressed syllables with a different colour or using a large dot (•) for the primary stress and a small dot (•) for the secondary or unstressed syllables.

Stage 2: Perception (5 minutes)

The teacher will play words from the book on the computer to help learners perceive the correct pronunciation of two-syllable words.

The teacher will then clap to the rhythm of each word and emphasise the stressed syllable by clapping stronger at a higher pitch and weaker to the unstressed syllables.

The teacher can beat with his foot on the ground or raise his hand on the stressed syllable.

Note: The students only perceive how words are pronounced without being asked to repeat the words uttered.

Stage 3: Practice (12 minutes)

The students will then follow their teacher, repeating after him, raising their hand on the stressed syllable or clapping to the same words.

The teacher will encourage each student in class to participate in the activity in order to ensure that each student has the ability to produce the words with the correct stress.

The teacher can ask the students to come up with their own words other than those in the book.

Stage 4: Production (15 minutes)

The teacher will ask the students to form groups of four and have each student in each group read a word aloud from the list of words in the book (ex. 27.1). The other group members will then attempt to identify the two-syllable words and the stressed syllable in each word.

The teacher can hold a competition between the groups by playing some words from the book, and ask the groups to write them down and then circle the correct stressed syllable. The teacher checks each group's answers.

The teacher can also record some students' production and ask them or their peers to determine whether the students correctly identified the primary stress.

Note: The teacher needs to provide feedback and immediate error correction on the students' production.

Stage 5: Expansion

At the end of the lesson, the students can be asked to do an exercise from the book as a homework (p. 63).

Note: The teacher can explain to the students how each exercise is done, if time permits, and then he checks their answers in the next class.

27 Saturday September 13th

Introducing word stress

A

We can divide a word into syllables. A syllable is a vowel sound (shown in blue below) and the consonant sounds that go with it. So, for example, if a word has three vowel sounds, it has three syllables.

day /deɪ/ = one syllable
Friday /ˈfraɪdeɪ/ = two syllables
Saturday /ˈsætədeɪ/ = three syllables

If a word has more than one syllable, you give stress to one of the syllables. To give it stress, do one or more of these to the syllable:

- Make it longer: **Saaaturday**
- Make it louder: **Sat urday**
- Make it higher: **Sat urday**

We can show stress with circles: each circle is a syllable and the bigger circle shows which syllable has the stress. For example, *Saturday* is ●●●. In phonemic spelling, the stress is shown by the symbol ˈ at the start of the stressed syllable: /ˈsætədeɪ/.

B

B38 Different words have different stress patterns (patterns of stressed and unstressed syllables).

Listen to these two- and three-syllable words.

●● **A**pril, **thir**ty, **mo**rning, **Sun**day
●○ July, mid**day**, thir**teen**, **to**day, thir**teenth**
●●● **Sa**turday, **thir**tieth, **ye**sterday, **ho**liday, **se**venty
○● **Sep**tember, **to**morrow, **e**leventh
○○● after**noon**, seven**teen**, twenty-**one**

⚠ **Note:** The stress pattern of numbers with *-teen* is sometimes different when the word is in a sentence. For example, the normal stress pattern of *nineteen* is ○●, but when it is followed by a noun, e.g. *the nineteen nineties*, *nineteen people*, the pattern is ●○.

⚠ **Note:** *January* and *February* may be pronounced with the stress patterns ●●● or ●●●●.

C

B39 | Stress patterns can help you to hear the difference between similar words, e.g. numbers ending in *-teen* or *-ty*.

Listen to these examples.

○●	●○
thir**teen**	**thir**ty
four**teen**	**for**ty
six**teen**	**six**ty
eight**een**	**eight**y
nine**teen**	**nine**ty

Exercises

27.1 **Write the full versions of these words in the correct column, according to their stress pattern.**

Mon Tues Thu Sat today tomorrow Apr Jul Aug Sept Oct
Nov holiday 2nd 11th 13 30 13th 30th 17 70 afternoon

●○	○●	●●●	●○●	○○●
Monday				

27.2 **Write one word from 27.1 in the gap in each sentence below. The word must have the stress pattern shown in brackets. Then say the sentences.**

1 I'm going to have a party on ..... (●●●).
2 My grandfather is ..... (●●●) years old.
3 I often sleep for an hour in the ..... (○○●)
4 My birthday is on the ..... (○●○) of March
5 In Europe, the weather is warm in ..... (○●).
6 I left school when I was ..... (○○●).
7 Goodnight. See you ..... (○●○).
8 How long is your summer ..... (●●●)?

27.3 B40 **Write the stress patterns under each of the blue words in the dialogue. Then listen and check.**

A: When do you begin your holiday?
○ ● ● ● ●
B: On the thirtieth of August.
A: That's next Saturday!
B: We're leaving in the afternoon.
A: And when are you coming back?
B: Saturday September the thirteenth.
A: Thirtieth?
B: No, thirteenth!

Follow-up: Play the recording again. Pause after each line and repeat it.

27.4 B40 [cont.] **Listen and underline the number you hear.**

1 100 dollars! It only cost *17 / 70* last year!
2 He was the *14th / 40th* president of my country.
3 The maximum number of people is *15 / 50*.
4 She was born in *1916 / 1960*.
5 He was *13 / 30* on his last birthday.
6 She'll be *16 / 80* in March.

Follow-up: Record yourself saying the sentences in 27.4, choosing one of the two words. Make a note of which words you say. Then listen to your recording in about two weeks. Is it clear which words you said?

Appendix 2: The course plan

Day	SS Feature	Lesson	Pages
		Pre-test	
1	**Word Stress**	Introducing word stress	62-63
2		Stress in two-syllable words	64-65
3		Stress in compound words	66-67
4		Stress in longer words 1	68-69
5		Stress in longer words 2	70-71
6	**Sentence Stress**	Introducing sentence stress	72-73
7		Stress in short sentences	74-75
8		The verb *to be* in stress patterns	76-77
9		Auxiliary verbs in stress patterns	78-79
10		Pronouncing short words (a, of, or)	80-81
11	**Intonation**	Rising and falling tones	98-99
12		Continuing and finishing tones	110-111
13		Intonation in questions	112-113
14		Intonation in instructions	114-115
15		Intonation in opinions	116-117
16	**Linking**	Connected speech 1	104-105
17		Connected speech 2	106-107
18		Fast and careful speech	108-109
19	**Pauses**	Dividing speech into speech units	82-83
20		Speech units and grammar	84-85
		Post-test	

Appendix 3: Spontaneous speech test

1. Please, look at the pictures below, and spontaneously describe one or more of them in English in one minute.

Appendix 4: Reading aloud test

2. Please, look at the English text below, and read it aloud as naturally and clearly as possible.

‘These are my glasses. I don’t wear them very often because I have contact lenses, which I think are great. I got my first pair of glasses when I was nine years old and had to wear them every day because my eyes weren’t very good; I’m short sighted. Then, when I was about twenty, I got my first pair of contact lenses, which was wonderful. Glasses aren’t very good because you can’t play sports very easily. Some sports require a lot of movement, which means you have to run, or if there’s a ball, it can be dangerous. Now that I have contact lenses, I’m much happier!’.

Appendix 5: Listening comprehension test (word identification task)

A. Listen carefully and underline the word you hear:

1. Just *across/cross* the road.
2. The cat was following its *tail/trail*.
3. Before that I had *tried/to ride* a motorbike.
4. It's Michael's *twin/to win*.
5. He fell into a *deeper/deep* sleep.
6. I thought it was a terrible *slight/sight*.
7. Just *blow/below* your nose.
8. This one is *a pear/spare*.
9. It can't be *two/true*.
10. We *grew/glue* them together.
11. She looked at her untidy hair and *blushed/brushed*.
12. The *climb/crime* was terrible.
13. Have you tried *flying/frying* it?
14. All the children were *present/pleasant*.

Appendix 6: Listening comprehension test (intonation identification task)

B. Listen carefully to each question twice and circle the intonation pattern (Rising ↗, falling ↘, falling-rising ↘↗) you hear:

1. Does anybody have a pen? ↗ | ↘↗ | ↘

2. Didn't you go out last night? ↘↗ | ↘ | ↗

3. Can I ask you a question? ↘↗ | ↗ | ↘

4. Will there be anyone I know there? ↘↗ | ↘ | ↗

5. Were my glasses on the table? ↗ | ↘ | ↘↗

6. Has anybody got a camera? ↗ | ↘ | ↘↗

7. Are you coming to the match? ↗ | ↘↗ | ↘

8. Would they like some more tea? ↘↗ | ↘ | ↗

Appendix 7: Students' end of course questionnaire

Section A: Demographic Information
Age:

Section B: Multiple Choice Opinions
For the last four weeks, you have been learning English pronunciation using suprasegmental-based instruction. Please indicate your opinions of the lessons and activities used in the pronunciation course by placing a circle around your responses:

1. **Describe your level of English pronunciation before and after your participation in the pronunciation course.**

Before	Very Poor	Poor	Satisfactory	Good	Very Good
After	Very Poor	Poor	Satisfactory	Good	Very Good

2. **To what extent do you agree that the course helped you improve your pronunciation?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. **On a scale of 0 to 10, how would you rate the improvement in your pronunciation?**

No Improvement	Low Improvement			Moderate Improvement				High Improvement		
0	1	2	3	4	5	6	7	8	9	10

4. **To what extent do you agree that the course helped you improve your listening skills.**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. **On a scale of 0 to 10, how would you rate the improvement in your listening skills?**

No Improvement	Low Improvement			Moderate Improvement				High Improvement		
0	1	2	3	4	5	6	7	8	9	10

6. On a scale of 1 to 5, what is your general opinion of the course?

Not Useful At All	Mostly Not Useful	Neutral	Useful	Very Useful
1	2	3	4	5
Not Fun at All	Not Much Fun	Neutral	Fun	Most fun
1	2	3	4	5
Not Clear at All	Mostly Unclear	Neutral	Clear	Very Clear
1	2	3	4	5

7. How would you rate your understanding of these suprasegmental features? Tick (√) your responses.

	Very Poor	Poor	Satisfactory	Good	Very Good
Word Stress					
Sentence Stress					
Linking					
Falling and Rising Tones					
Silent Pauses					

Section C: Comments

Please answer the following questions:

1. Do you want to improve your pronunciation? If so, why? If not, why not?
   .....
   .....

2. Have you enjoyed the pronunciation course? If so, why? If not, why not?
   .....
   .....

3. What activities in class did you find helpful for improving your pronunciation and listening skills? Why?
   .....
   .....
4. What other comments or suggestions do you have to improve the pronunciation course?
   .....
   .....

Appendix 8: Teacher's end of course questionnaire

For the last four weeks, you have been teaching English pronunciation using suprasegmental-based instruction. Based on your opinions of the materials and activities used in the pronunciation course, please answer the following questions:

1. What are the most effective aspects in helping students to learn pronunciation in the course?

   ……
   ……
   ……
   ……
   ……

2. What are the most challenging aspects to teach in the course?

   ……
   ……
   ……
   ……
   ……

3. What is your general opinion about the course?

   ……
   ……
   ……
   ……
   ……

4. What suggestions do you have for improving the pronunciation course?

   ……
   ……
   ……
   ……
   ……

Appendix 9: Listeners Background Questionnaire

Confidentiality

Privacy and confidentiality will be assured at all times. The individual information provided by respondents will be stored securely and only accessed by the researcher. Great care will be taken to ensure that any reports of the data do not identify any individual or their circumstances.

Gender: _ Female _ Male

Age: _ 18-24 _ 25-39 _ Over 40

Please answer the following questions:

1. What is the highest level of education you have completed?

.....

2. Are you an English teacher? If yes, please specify your years of experience.

_ Yes _ No

.....

3. Have you participated in an L2 pronunciation assessment before?

_ Yes _ No

4. How often do you interact with non-native speakers of English?

_ Daily
_ Weekly
_ Monthly
_ Yearly
_ Never

5. How often do you interact with an English speaker who has a Saudi accent?

Never 1	2	Sometimes 3	4	Very often 5

Thank you for your time!

Appendix 10: Rating information sheet

You will listen to 128 audio files collected from 32 Saudi male EFL learners in spontaneous speech and reading aloud tasks. The spontaneous speech task will be evaluated for three main variables: comprehensibility, accentedness and fluency; while reading aloud is only evaluated for comprehensibility and accentedness. Each variable is set out on a scale from 1 to 9, where 1 is the minimum score and 9 is the maximum score. You can put your rating score by writing any number between 1 and 9 in your rating sheet, depending on your judgment of the speech sample being played.

1. Likert Scale for Comprehensibility Rating:

This variable measures the effort necessary for the listener to understand the speaker. In particular, it assesses the degree of attention the listener can maintain during the speech. This term is associated with effort and speech processing difficulty. Therefore, if you find listening to the recorded speech effortless and you understand it with ease, then you give the speaker a high score. However, if you find listening to the recorded speech challenging, you struggle to understand, must listen very carefully or cannot understand it at all, then you give the speaker a low score. Comprehensibility is evaluated using a 9-point Likert scale as follows:

1 **Very hard to understand**	2	3	4	5	6	7	8	**9** **Very easy to understand**

2. Likert Scale for Accentedness Rating:

This variable measures the listener's perception of how different a speaker's accent is from that of an L1 speaker. Accentedness measures the difference between an L2 speaker's accent and that of a native English speaker. If the speaker sounds entirely like a native English speaker, then you give the speaker a high score. However, if the speaker has a very strong foreign accent, then you give the speaker a lower score. Accentedness is evaluated using a 9-point Likert scale as follows:

1 **Very strong foreign accent**	2	3	4	5	6	7	8	**9** **No foreign accent at all**

3. Likert Scale for Fluency Rating:

This variable measures the degree to which the speech sounds smooth and flows easily without hesitations, despite having limited grammatical ability, limited knowledge of vocabulary or poor pronunciation. Fluency is affected by several variables, such as filled and unfilled pausing, rate of speech, false starts, self-corrections and self-repetitions. If you find the speech to be smooth and flowing easily without hesitations or other dysfluency markers, you will give the speaker a high score. On the contrary, if you find that speech is not smooth and does not flow easily while hesitations and other dysfluency markers are present in the speech, then you will give the speaker a lower fluency score. Fluency is evaluated using a 9-point Likert scale as follows:

1 **Extremely dysfluent**	2	3	4	5	6	7	8	**9** **Very fluent**