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THE USE OF LINGUA FRANCA CORE: A CLASSROOM BASED STUDY ON SAUDI EFL LEARNERS' PRONUNCIATION

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Abstract

This action research study investigates the effectiveness of Lingua Franca Core (LFC) in Saudi EFL context. The aim of this research is to examine the influence of LFC on Saudi EFL pre-intermediate level learners' intelligibility and comprehensibility. It is carried out in an EFL class of 15 Saudi learners. One native and four non-native speakers of English performed the role of evaluators. A mixed-method approach was adopted to collect and analyse quantitative and qualitative data. The potential effect of the LFC was determined by comparing learners' scores they achieved in their pre and post-intervention speeches. The scores were awarded by five evaluators responding to a five-point Likert scale questionnaire while judging learners' intelligibility and comprehensibility separately. The results showed moderate improvement in the learners' post-intervention speeches in terms of intelligibility and comprehensibility. This procedure was followed by semi-structured interviews conducted with individual evaluators/listeners who rated post-intervention speeches as well-organised, lengthier and planned, delivered fluently and confidently in spite of insignificant improvement in the production of LFC features. Based on the findings, modifications are recommended in the core features of LFC to address the need of Saudi EFL learners.

Key words: *intelligibility, comprehensibility, lingua franca core, non-native speakers, EFL context*

1. INTRODUCTION

English language has achieved an elite position among the world languages and thus spoken all over the world. Due to its global status and worldwide acceptance in various social classes, it is recognized as Lingua Franca (Frath, 2010). Moreover, it has gained official status in a number of educational, technological and business domains (Graddol, 2007). McArthur (2002) reveals that English is used in over 90 countries as an official or semi-official language and Beneke (1991) makes a point that about 80% of verbal exchanges in EFL context involve only Non-native speakers (NNSs) of English.

In the Gulf Corporation Council (GCC) countries, the spread of English could be seen everywhere. Over the past 50 years, the developing economies of GCC have greatly relied on the expatriates from all parts of the world who outnumber the locals (Ali, 2009). The number of expats has had enormous sociolinguistic implications which have led to the emergence of English as a Lingua Franca in all sections of societies (Al-Issa, 2010). Moreover, in some parts of Gulf, such as UAE, it has taken the role of Lingua Franca over Arabic (Randall & Samimi, 2010).

Along with the global spread of English as Lingua Franca, its *ownership* has also been shifted. Widdowson (1994) and McKay (2003) assert that it should not be considered the NSs' property anymore. Similarly, Smith (1983) claims that speaking differently does not necessarily mean speaking incorrectly and it is not essential to appreciate native speakers' (NSs) culture for effective communication in English. However, some researchers have different opinion particularly about the language teachers. Quirk (1990) and Honey (1997) stress the point that non-native teachers require consistent support of native teachers to ensure the standard of their English. Due to the recruitment criteria, Ali (2009) considers the ELT profession the most discriminative one where professionals are judged based on their origins and L1s. Consequently, practitioners, employers and even students tend to favour native-like English (Jenkins, 2007).

Jenkins (2000) states that a non-native accent is disregarded even by the teachers themselves, and representative of their negative attitude to foreign accent. This phenomenon has also been reviewed in the empirical data by Timmis (2002), Matsuda (2003), Fraser (2006) and Jenkins (2009). Likewise, language learners have a very negative attitude towards non-native accents and often consider them 'unsophisticated, ugly, or irritating' (Pihko, 1997, p. 51). Thus, to achieve *native-like* accent becomes an impossible goal for them (Derwing & Munro, 2005). Nonetheless, teaching and learning pronunciation is given great importance for several reasons: firstly, for its role to discriminate NSs from NNSs; secondly, it facilitates communication (Kenworthy, 1987). It shows that along with grammar and vocabulary, pronunciation has to be given equal amount of attention as sounds are the first verbal impression in a speech (Nelson, 2008). Third reason which is directly linked with the purpose of this study is that the increasing diversity of English users across the globe requires high level of intelligibility to communicate effectively (Greenwood, 2002) which may be the ultimate goal of EFL/ESL practitioners.

Jenkins (2009) carried out enormous empirical research studies on the intelligibility of L2 learners of English language. She (2000) introduced Lingua Franca Core (LFC) (Appendix A), a list of phonological features which addresses the current situation of English as an international language (Walker, 2001). She assumes that teaching various components of LFC leads to improved intelligibility of L2 learners in EIL context. Since, there is dearth of empirical research on the effectiveness of LFC in Arab world in general and Saudi Arabia in particular, this study will fill that gap by investigating the effectiveness of LFC in relation to the intelligibility and comprehensibility of Saudi EFL learners. The action research will aim to answer the key research questions:

Does Lingua Franca Core (LFC) help to improve the learners' intelligibility and comprehensibility as a result of classroom instructions?

What are the listeners' perceptions of EFL learners' intelligibility and comprehensibility in relation to the LFC features?

How do the evaluators perceive the intelligibility as a goal of pronunciation teaching in EFL contexts?

1.1. Context of the Study

In Saudi Arabia, although the government authorities have come to realize the importance of English language in times recent, Arabic is still the main language for communication in the Kingdom and its neighbouring gulf states. It is the language of the Holy Quran and hence, is deemed a holy language. In Saudi schools and universities, Arabic is the language of teaching for almost all the subjects and students get their first exposure to English language at the age of 12 in schools. When they enter the universities where they have to take the mandatory foundation year courses, they are equipped with 6 to 7 years of English learning.

This action research study is carried out in the English Language Institute (ELI) at King Abdul-Aziz University, Jeddah, Saudi Arabia. At the ELI, there are about 300 male teachers from 25 different countries with various L1 backgrounds and this number is enormously growing. Likewise, every year nearly 7000 students enroll in the preparatory year programme where they take 18 hours of English language classes per week.

At the ELI, prior to the enrollment in the foundation year programme, students take the Oxford Placement Test designed by the University of Oxford. Achieved grades demonstrate their levels of English proficiency which help stream them into appropriate levels; beginners, elementary, pre-intermediate and intermediate. It is observed that more than 70% of the students are usually placed in lower levels as they mostly lack motivation (Shah et al, 2013). In a modular system, learners remain in one level for a module of six teaching weeks before they are promoted to another level. The Oxford Headway Plus (Special Edition) textbook is adopted for teaching beginner, elementary, pre-intermediate and intermediate level students at the ELI.

2. LITERATURE REVIEW

This chapter explores relevant literature on the use of LFC and develops a conceptual and theoretical framework for the study. The opening section highlights the concept of intelligibility and comprehensibility in general. Then, the core contents of LFC followed by the Arabic phonology which is of course the learners' L1 and relevant to this study.

2.1. *Concepts of Intelligibility and comprehensibility*

The concept of 'intelligibility' is abundantly found in the literature particularly focusing on EIL. Although, intelligibility is considered a prominent criterion for a pronunciation model and an ultimate goal of pronunciation teaching, it is difficult to find consensus on its definition (Derwing & Munro, 2005; Pickering, 2006).

In the work done by Smith and Nelson (1985), intelligibility is considered the listener's ability to recognize individual words or utterances whereas comprehensibility refers to the ability of a listener to understand the meaning of words or utterances in their given contexts. For Kenworthy (1987) 'intelligibility' means 'understandability' (p.13). He (ibid) asserts that 'intelligibility as being understood by a listener at a given time in a given situation' (p.13). He further explains that 'the more words a listener is able to identify accurately when said by the particular speaker, the more intelligible that speaker is' (p. 13). Likewise, Bamgbose (1985) identifies 'intelligibility' as 'a complex of factors comprising recognizing an expression, knowing its meaning, and knowing what that meaning signifies in the sociocultural context' (p.11). On the other hand, Munro and Derwing (1995), Derwing and Munro (1997), Derwing et al. (2006), and Derwing (2006) offer separate definitions for both the terms 'intelligibility' and 'comprehensibility' where the former is the extent to which speakers' utterances are understood whereas the latter refers to the listener's judgment of understanding an utterance in terms of its level of difficulty.

Literature reflects a vital distinction between intelligibility and comprehensibility as scholars believe that to be intelligible does not necessarily ensure comprehensibility on part of the speaker (Derwing, 2006; Munro & Derwing, 1995; Smith & Nelson, 2006; Munro et al., 2006; Smith, 1992). Likewise, Nelson (2008) elucidates that 'comprehensibility can fail even when the degree of intelligibility between participants is high' (p.302). Zeilinski (2004) reiterates this idea, arguing that listeners who fail to identify words accurately also find the whole message confusing. However, the definition by Smith and Nelson (1985) has a balanced viewpoint where the message might be understandable despite lack of intelligibility in the speech. The reciprocal relationship of intelligibility and comprehensibility is further explained in the following lines:

We may find an argument intelligible but not comprehensible because of the way it was structured. It is not uncommon to hear people complain, 'What was he trying to say?' I don't think that refers to intelligibility of the speaker to the hearer but to the comprehensibility of the speaker's presentation (Nelson, 2008, p. 301).

The definition of intelligibility and comprehensibility by Smith and Nelson (1985) suits the dynamics of this study from two perspectives. First, both have a reciprocal relationship between recognition of words and understanding of the utterances. Second, a clear distinction between the levels of understanding a word, phrase or sentences helps to analyze and explain and discuss the data accurately in this study.

2.2. *The Pronunciation of English as a Lingua Franca*

Jenkins (2000) proposes a list of phonological features (Appendix, A) which could possibly enhance intelligibility in communication among NNSs of English language. This list of features is called Lingua Franca Core (LFC). She establishes her claim on the types of evidence, miscommunication and accommodation of data which are both gathered from interaction between NNSs of different L1s, however, their proficiency level was almost similar. Jenkins (2000) includes all the phonological features which could potentially influence learners' intelligibility while bearing learnability and teachability principles in mind. However, Jenkins in her research in 2005, 2006 and 2007, she does not consider this list a definitive one and emphasizes a need for the replication and improvement of its

core contents as 'LFC is neither a pronunciation model nor a restricted simplified core' (Jenkins, 2000, p. 158).

LFC has been viewed differently in the literature. For example, Sobkowiak (2005) considers it a *standard*, Llurda (2004) describes it a *variety*, whereas Trudgill (2005), Dauer (2005), Riney et al. (2005) and Smit (2005) deem it as a *model*. However, Jenkins (2002) does not call it a model, despite the fact it is based on NS model, Received Pronunciation (RP) and General American (GA). She further goes on saying that LFC is neither a *model* nor a *variety*. In fact, these are the core features which can help design a pronunciation syllabus for ELF learners. Therefore, the main focus of this investigation is the core features of phonology proposed by Jenkins (2000).

There has been a mixed response to the proposed LFC as some researchers consider it a promising approach such as Walker (2001), Seidlhofer (2005) and Cook (2002) while others (i.e. Trudgill, 1998; Wells, 2005; Sobkowiak, 2005; and Dauer, 2005) find some problems with it. Scovel (1969) and Krashen (1973) believe that achieving native-like pronunciation is biologically conditioned and teachers and learners both can find it extremely daunting to achieve this goal (Cook, 2002; Levis, 2005). Therefore, the target should be a realistic one as *intelligibility* (Celce-Murcia et al., 1996; Wells, 2005). Moreover, motivation, attitude, aptitude of the learner and proper pronunciation instruction also add to this complexity of acquiring native-like accent (Celce-Murcia et al., 1996).

It is believed that LFC promotes intelligibility among English as International Language (EIL) interlocutors. It presumably excludes NS varieties. Research findings demonstrate that NNSs might be more intelligible to other NNSs rather than NSs (Smith and Nelson, 2006). Munro and Derwing (2006) also state that foreign accents do not necessarily hamper intelligibility and can result into remarkably successful communications. Similarly, Matsuura et al. (1999) and Rajadurai (2007) prove the point that lower intelligibility ratings on part of the NNSs might be due to factors other than NNS phonology; such as tolerance and attitudes towards NNS. However, there are studies which show that NNSs are difficult to understand in comparison to NSs (Bent and Bradlow, 2003). In nutshell, these findings confirm the fact that EFL or ESL learners need not to sound like NSs rather they should aim for intelligibility and successful communication.

Jenkins' (2000) LFC has posed many questions as learners, teachers and researchers have strongly reacted to its model. It is believed that LFC might lead to the diversification of the language use and end up with unintelligible varieties (Dziubalska-Kończyk, 2005). In Language universals theory (Anderson, 1987), substitution of sounds used by learners in cases where L2 features do not exist in L1 is a common phenomenon, however, L1 transfer will not affect intelligibility (Jenkins, 2000). Jenkins (2007) affirms that the proposed contents of the LFC are not definitive and require to be fine-tuned to meet the pronunciation requirements of learners in different contexts where instructions will vary based on the learners' L1. This gives teachers liberty to modify LFC according to the learners' needs.

2.3. Content Features of the LFC

The content features of LFC (Appendix A) by Jenkins (2000) are introduced in the following sections; segmental and Suprasegmental, √ indicates features that influence intelligibility whereas × means elements that cannot influence intelligibility.

2.3.1. Segmental Features

Consonant Sounds

All consonants that exist in GA/RP are included in LFC except dental fricatives /ð/ and /θ/ which do not cause intelligibility problems as shown in Jenkins' empirical data. The RP intervocalic /t/ ([t]) is included as core feature since it is more relevant to orthography and commonly found in many varieties. However, GA intervocalic /t/ might become the voiced flap [ɾ] and thus word 'matter' ['mætə] in RP may become ['mæɾə] in GA.

The dark [ɫ] is eliminated from LFC as it is considered to be a problematic sound for most EFL learners.

Fortis plosives /p/, /t/, and /k/ with aspiration [h] are included in core features. For the listener, the identification of voiceless sounds becomes difficult and the unaspirated phonemes /p/, /k/ and /t/ may sound like /b/, /g/ and /d/.

Jenkins (2000) has included GA rhotic, retroflex approximant [ɹ] instead of RP post-alveolar approximant [ɻ]. She considers the former much easier and simpler for the learners to produce while focusing on one version of it.

Vowel Sounds

Jenkins (2000) discusses vowels with two characteristics; vowel quality and vowel quantity. The former deals with the place of articulation, i.e. the position of tongue or lips whereas the latter focuses on relative length of the vowels. For Jenkins, vowel quantity plays a vital role in intelligible speeches, however, L2 regional (consistent) varieties would be acceptable and intelligible. Nonetheless, she makes an exception in long vowel /ɜ:/ which is the core feature of LFC in both categories; vowel quality and quantity.

Jenkins (2000) includes appropriate vowel length before fortis or lenis consonants as core features in the LFC. The precise length of vowel primarily depends on its phonetic position and on whether it is followed by a fortis or lenis consonant. For instance, /i:/ is longer in 'seed' than in 'seat'. In relation to diphthongs, three centering diphthongs /ɪə/, /eə/, and /ʊə/ are excluded and schwa is substituted with [ɪ]. This is due to the choice of rhotic /r/. Similar to the monophthongs the length matters rather than the quality of diphthong that is important for intelligibility.

Consonant Clusters

Clusters are groups of two or more consonants which can occur at the beginning, in the middle or at the end of a word. For example; cluster, cluster, consonants. Generally, NNSs try to simplify difficult clusters by either deleting syllables or inserting another sound. According to Jenkins (2000), the former hampers the intelligibility of learners. In LFC, consonant cluster in medial and initial position are the core features. Jenkins (2000) found that the elision of /t/ and /d/ in 'next-week or second-class does not affect learners' intelligibility.

2.3.2. Suprasegmental Features

Word Stress

Jenkins (2000) considers word stress a non-core feature of LFC for couple of reasons. First, it is almost unteachable due to its complex rules. This idea is supported by other researchers such as Zawaydeh et al. (2002) and Kharma and Hajjaj (1997). Secondly, it can affect the nuclear stress in a sentence by unnecessarily stressing a group of words which might influence the nucleus in the speaker's speech and the listener might fail to distinguish between words stressed purposefully for their importance in the message and other stressed words. Jenkins (2000) believes that this confusion can cause serious intelligibility problems.

Intonation

Intonation is discussed in relation to three aspects: pitch movement, nuclear stress and tone units.

Pitch Movement

For Jenkins (2000) pitch movement is a non-core feature for several reasons. Firstly, it is highly subjective and dependent on the speaker, his/her circumstantial needs (Brazil, 1994) and the context of interaction (Chapman, 2007). Secondly, it is inappropriately linked with grammar (Levis, 1999) as in the case of yes/no questions which is regarded as an unimportant issue in ELT and which has minimal role in successful and intelligible communication. Thirdly, it is difficult to acquire English intonation by simply exposing learners to authentic speeches (Celce-Murcia et al., 1996).

Tone Unit

Brazil (1996) defines a tone-unit as the 'the minimal stretch of speech for which assembly plans are made' (p. 9) It is mainly concerned with utterances divided into smaller units. Tone units are included

in LFC because they facilitate explaining the ‘nuclear stress’; or the most prominent syllable of the tone-unit (Roach, 2009a).

Nuclear Stress

The most prominent syllable in a phrase with the highest pitch is usually described as a nuclear stress. It can occur on the last content word in a group which is called unmarked stress. Also, it can occur somewhere else in the group of words to convey a different meaning from that neutral meaning carried in the unmarked case. This is known as contrastive stress (Jenkins, 2000). According to Jenkins (2000) the placement of the nucleus has the potential to influence the listener’s ability to process entire chunks of the speaker’s message. She also argues that both unmarked and contrastive stresses are simple enough for learners to master. They can easily be integrated receptively and productively into classroom activities, and work at a more conscious level than the other aspects of the intonation system (e.g. pitch movement).

2.4. The phonology of Standard Arabic

2.4.1. Segmental Features

Vowel Phonemes

Vowel phonemes in English are classified into twelve monophthongs (/æ/, /ɑ:/, /ɒ/, /ɔ:/, /e/, /ə/, /ɜ:/, /i:/, /ɪ/, /u:/, /ʊ/, /ʌ/), eight diphthongs (/aɪ/, /aʊ/, /ɔɪ/, /eə/, /eɪ/, /əʊ/, /ɪə/, /ʊə/), and five triphthongs (/aɪə/, /aʊə/, /ɔɪə/, /eɪə/, /əʊə/) (Roach, 2009b). This number is not certain due to varieties of English and diversity of linguists in a single variety. This particularly affects the number of triphthongs as /ə/ at the end of diphthongs is dropped in some varieties. However, Arabic has no triphthongs at all. According to Kharma and Hajjaj (1997) and Swan and Smith (2001), it has only two diphthongs (/aɪ/, /aʊ/) and six monophthongs (three short vowels: /ɪ/, /ʊ/, /æ/ and three long vowels: /u:/, /i:/, /ɑ:/).

As schwa substitutes many sounds especially function words (i.e. does, the, for, and to) when they are unstressed, it is considered the most difficult sound for the learners to produce. Since, this feature does not exist in Arabic, Arab listeners while listening to NSs get the impression that they ‘eat up half the sounds of the language’ (Kharma & Hajjaj, 1997, p. 16).

Consonant Phonemes

English has 24 while Arabic has 28 consonants (Kharma & Hajjaj, 1997). /p/, /v/, /ʒ/, /r/ and /ŋ/ are the problematic sounds for Arab learners (Swan & Smith, 2001). Like English, Arabic has pharyngealized ([ħ]) or velarized /l/ as an allophone to the voiced alveo-dental approximant consonant /l/. Its production involves moving the tongue body and root from their neutral vocal tract position towards the position of the vowel phonemes [ɐ] and [ʊ]. In Arabic, these emphatic consonant sounds like /l/, are either velarized or pharyngealized (Clark et al., 2007).

Consonant Clusters

A great difference of consonant sequence exists between Arabic and English. English has almost four consonant phonemes with no vowel intervening between them, e.g. /ɪk'skleɪm/ (exclaim) and /teksts/ (texts) whereas Arabic has no sequence of more than two consonant phonemes. The English consonant sequence is quite unusual in other languages, which makes it very difficult for different L1 learners to acquire it. Thus, the learners employ two strategies; consonant deletion or vowel insertion (Jenkins, 2000; Walker, 2010). In the case of Arab learners, they are more inclined towards addition than deletion (Kharma & Hajjaj, 1997).

2.4.2 Suprasegmental Features

Intonation

Kharma and Hajjaj (1997) believe that Arabic and English intonation pattern are quite similar, however, Arab learners still face difficulties employing English intonation patterns. They further clarify that various patterns of intonation convey various meanings depending on the speaker’s intention (e.g., polite and friendly, asking to repeat, detached and reserved, reassuring). This is why

Arabs may sound abrupt, impolite and commanding when expressing themselves in English. It shows that they are often unaware of its attitudinal role. Similarly, the grammatical structures are dissimilar in both languages. For instance, 'whereas word order and grammatical words are the major signal for questions in English, intonation is the major signal for questions in colloquial Arabic' (Nasr, 1963:38).

Word Stress

In Arabic, the length of syllables is not as much as in English. Arabic syllables do not become weak as schwa in English which indicates the weakening quality of vowels (Benrabah, 1997). Jenkins (2000) introduces word stress differences between English and other L1s including Arabic:

English tends to make rather greater use of vowel duration than do the majority of L1s, which tend to rely more on pitch change and loudness ... The English stress system also involves far more weakening of unstressed syllables than most other L1s (except European Portuguese), with many L1s making a small distinction here between stressed and unstressed syllables (p.40).

Like English, Arabic has three patterns of word stress; primary, secondary and weak stress. However, Arabic stress pattern is more predictable (Nasr, 1963, Zawaydeh et al., 2002; Kharma & Hajjaj, 1997; Benrabah, 1997).

Sentence Stress, Weak Forms and Rhythm

Most researchers believe that Arabic is a stressed-time language, but Kharma and Hajjaj (1997) claim that it is a syllable-timed language. Primary stress occurs more frequently in Arabic than in English, and unstressed syllables are clearly pronounced in Arabic with neutral vowel sounds, and not 'swallowed' as in English (Swan & Smith, 2001; Zawaydeh et al., 2002). While speaking English, 'Arabs will often avoid contracted forms and elisions' and thus sound as having, 'a rather heavy staccato rhythm' (Avery & Ehrlick, 1992, p. 199). Moreover, English has a greater reduction in duration between stressed and unstressed syllables than in Arabic (De Jong & Zawaydeh, 2002).

2.5. Conclusion

This chapter has explored and critically analyzed relevant literature on intelligibility and comprehensibility. Apparently, there is no consensus found on the definitions of intelligibility and comprehensibility, however, both are considered two different concepts. For this research, the definition of intelligibility and comprehensibility by Smith and Nelson (1985) has been adopted which considers the two concepts as layers of perceiving speech. Intelligibility is limited to the ability of a listener to recognize individual words or utterances in a speech while comprehensibility is the ability of a listener to comprehend the meaning of a word or utterance within a context. A substantial amount of the section has covered the phonology of LFC and Arabic, the L1 of the learners.

3. METHODOLOGY

This study strives for potential change and improvement of the Saudi EFL learners' pronunciation, hence action research can be a powerful tool to realize improvement and change (Cohen, Lawrence & Morrison, 2007). Action research is defined in a variety of ways by various scholars. Cohen and Manion (1994) define it as 'a small-scale intervention in the functioning of the real world and a close examination of the effects of such intervention' (p. 186). This study justifiably subscribes to this definition as it basically involves intervention stage of about six weeks which is followed by analyzing pre and post intervention data. Similarly, Somekh (1995) asserts that action research is designed to bridge the gap between research and practice. In relation to this definition, the present study aims to discover the effectiveness of LFC specifically in Saudi context in a bid to enlighten other practitioners in the field on its effectiveness.

This study has adopted a mixed-method approach. According to Sandelowski (2003), mixed-method approach has two main purposes, '(a) to achieve a fuller understanding of a target phenomenon and (b) to verify one set of findings against another. It may have strengths and weaknesses as it can enhance the advantages and minimize disadvantages (Burgess et al., 2006). However, according to Read and

Marsh (2007) it will ensure the validity of the research as one method will serve as a check on another. Moreover, it can facilitate better understanding of a complex phenomenon by converging numeric trends from quantitative data and specific details from qualitative data (Dornyei, 2007). In the case of current study, the questionnaire generates numerical data which is graphically represented whereas the semi-structured interviews allow the researcher to provide detail description and in-depth understanding of the phenomenon.

Semi-structured interviews 'offers a compromise between the two extremes' (Dornyei, 2007, p. 136). Its purpose is twofold. Firstly, its 'adaptability' gives access to the person's thinking in investigating information in depth (Cohen et al., 2007). Secondly, its 'flexibility' helps to rethink, rephrase and redefine any word, phrase or sentence to clear ambiguity (Brenner et al., 1985).

3.1. Data Collection and Analysis

3.1.1 Integrating the LFC with the textbook (Headway Plus)

Integrating the LFC syllabus with the textbook can have two major issues. Firstly, pronunciation teaching and learning are differentiated at receptive and productive levels. Secondly, organizing pronunciation materials based on the LFC by modifying, supplementing and adapting the already available materials in the course book. In the present study, non-core features of the LFC were dealt at receptive (through listening exercises) and core features at productive levels. At productive level, learners were encouraged to produce, correct and reflect on their pronunciation. Exercises used in 'English Pronunciation in Use' by Hankook, 'Pronunciation in Use' by Hewings (2007) and 'English Pronunciation Made Simple' by Dale and Poms (2005) were integrated with exercises used in the Oxford Headway Plus (Special Edition) by Liz and Soars (2011) for pre-intermediate students at the ELI.

The students' speeches as pre-intervention data were recorded during the first week of the second module. Kenworthy (1987) sets two parameters for judging learners' intelligibility based on their speeches; reading aloud and spontaneous speeches. It suggests that samples of spontaneous speeches on the same topics, but not identical can help the evaluators (to) properly judge the speakers' intelligibility and comprehensibility (Kenworthy, 1987). Therefore, learners were given a choice to choose, prepare and talk about a topic from a list. It was assumed that the choice of the topic and thinking time would reduce the element of stress and reluctance. For post-intervention data collection, similar procedure was followed; however, the topics were based on the themes covered in the syllabus. It was assumed that learners would feel motivated to prepare themselves well for oral examination which was conducted the following day.

Pre-intervention speech duration ranged from 30 seconds to 1 minute whereas post-intervention speeches were a bit long. They were digitally recorded on Olympus MP3 recorder and copied onto a password protected HP computer. All the speeches were labeled with students' pseudonyms.

3.2. Research Instrument

Kenworthy (1987) and Samar and Metz (1988) propose two reliable ways of measuring speech: rating scales and write-down procedure. The latter is time consuming and labour intensive whereas the former can be very quick and easy (Svirsky et al., 1999). The present study adopted five-point Likert scale procedure. The questionnaire (Appendix, C) was used by Zoghbor (2010) for the same purpose. However, we modified it after consulting experienced colleagues. Firstly, the questions were rephrased and simplified. Secondly, the rating choices were changed to clear the ambiguity and make the judgment more precise and accurate. Both questions subscribe to the definition of intelligibility and comprehensibility by Smith and Nelson (1985).

Intelligibility: The ability of the listener to recognize individual words or utterances in a speech

Comprehensibility: The ability of the listener to comprehend the meaning of the word or utterance in its given context (Smith & Nelson, 1985).

Evaluators used separate questionnaires for individual students both at pre and post intervention stages of data collection. This allowed us to measure the individual students' speech intelligibility and comprehensibility and present the data into two separate graphs.

James (1980) describes Contrastive Analysis (CA) as featuring L1 phonology and L2 phonology with assumption that their differences will pose problems to the learners. These problematic features require considerable attention in classroom teaching (Walker, 2001a). For the current study, Contrastive Analysis is drawn based on the suggestions given by Walker (2010). Thus, the table (Appendix B) is divided into three columns. The left column represents the LFC features proposed by Jenkins (2000) excluding non-core features such as *word stress, rhythm and weak forms*. The middle column represents the Arabic content features discussed by Swan and Smith (2001) and Kharma and Hajjaj (1997) whereas the right-hand column constitutes the LFC features recommended by Walker (2010).

The table (Appendix B) includes not only the phonological features required by Arab learners to improve their intelligibility and comprehensibility but it also describes a methodology for classroom practice (Tomlinson, 2006; Walker, 2001), e.g. setting classroom priorities and integrating, supplementing and adapting materials etc.

3.3. Participants

To execute LFC, evaluate its effectiveness and assess the learners' intelligibility and comprehensibility, pre-intermediate level students were the only available group since I had no option to teach a particular group of learners rather it was on the discretion of the authorities. Owing to the nature of action research, I had complete access to my own class of twenty students; however, only fifteen students aged 18-21 expressed their interest in the project. All the informants were Saudi nationals who spoke Arabic as their L1.

Five purposively chosen listeners/evaluators who judged the intelligibility and comprehensibility of the learners through a five-point Likert scale, participated in the semi-structured interviews. With regards to the evaluators' expertise, they all had master degrees either in TESOL, applied linguistics or linguistics with solid background knowledge of English phonetics and phonology.

3.4. The Procedure for Data Presentation

For the data presentation, MS Excel is used. In order to make the graphic representation of the data reader friendly, data figures are given different values from 5 to 1. In contrast to the Likert scale questionnaire, the most intelligible speech is given 5 and the least intelligible speech is given 1 value. Each student is assessed by five different evaluators. Thus their responses (√) to the Likert Scale questionnaire are valued and counted. Then, the total score is graphically presented. For example, the score of Ali is 21.

Name	Very easy	Easy	Average	Difficult	Very difficult	Total
Ali	√√	√√	√			
Formula	5+5	4+4	3			21

Same procedure is followed for pre and post intervention speeches.

All five interviews are transcribed. The transcription is linked to the interpretation and relevance of the research questions by concentrating on the phonological remarks made by the interviewees which are subject to *content analysis*, 'an approach to the analysis of documents and texts that seeks to quantify content in terms of predetermined categories and in a systematic and replicable manner' (Bryman, 2001, p. 274). The collected data is divided into two phonological categories; segmental and

suprasegmental along with intelligible/unintelligible and comprehensible/incomprehensible utterances explained by the five judges who were interviewed at their convenience.

3.5. Ethical Considerations

Ethical issues are expected at any point of a research study (Creswell, 2003; Cohen et al., 2007). Each individual signed a consent form. Prior to the research, the formal written consents of the Dean of the ELI, students and colleagues (evaluators) were sought. The participants were guaranteed confidentiality of their information and identities (Neuman, 2006). At the time of data analysis, the participants' anonymity was prioritized by using their pseudonyms.

4. FINDINGS AND DISCUSSIONS

This chapter presents and divides the qualitative and quantitative findings of the action research into two broad sections: the first section presents the numerical data obtained through a questionnaire and the second section presents the findings of semi-structured interviews and triangulates them with the first section.

4.1. Quantitative Data Presentation

To examine the difference between pre and post intervention speeches of the individual learners, the MS Excel graphic representation is used. Figure 1 represents the scores of intelligibility and figure 2 delineates the scores of comprehensibility. The difference between the pre and post intervention speeches of the pre-intermediate level Saudi EFL learners' intelligibility is summarized in the chart below.

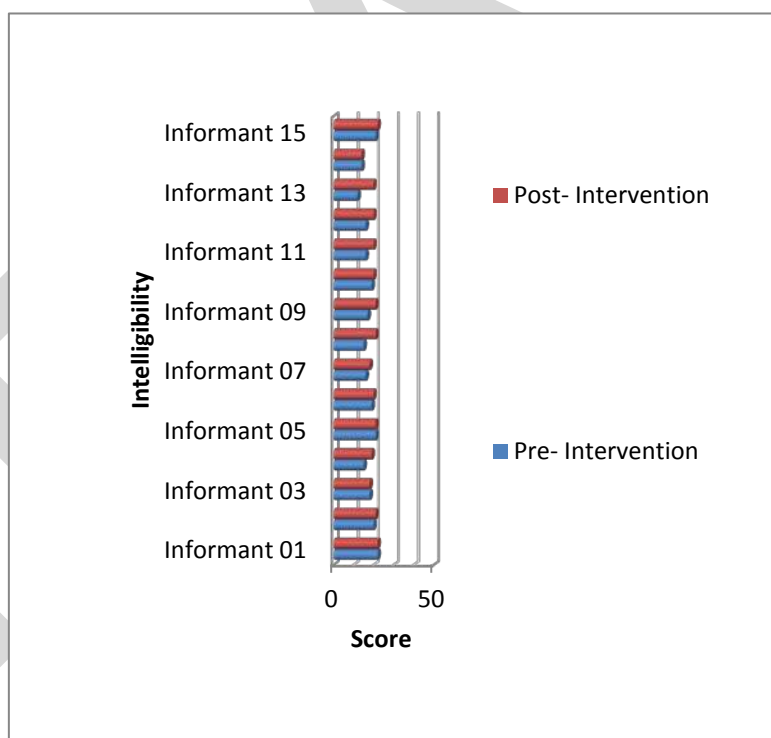


Figure 1. The intelligibility score of the learners

The above chart delineates the intelligibility scores of the informants in their pre and post intervention audio speeches. Based on the five evaluators' understanding of the speeches, the scores suggest that the difference varies from informant to informant. The blue bars indicate pre-intervention scores whereas the red ones show the post intervention scores of the learners.

It is evident from the chart that there is no difference in speech intelligibility of the informants 1, 3, 5 and 14 as their pre and post intervention scores are virtually identical. Similarly, informants 2, 6, 7, 10 and 15 have improved their scores only a little. On the other hand, there is a significant difference found in the pre and post intervention speeches of the informants 4, 9, 11 and 12. Moreover, informants 8 and 13 have greatly improved their intelligibility scores in their post intervention speeches. The difference between the pre and post intervention speeches of the pre-intermediate level Saudi EFL learners' comprehensibility is summarized in figure 2.

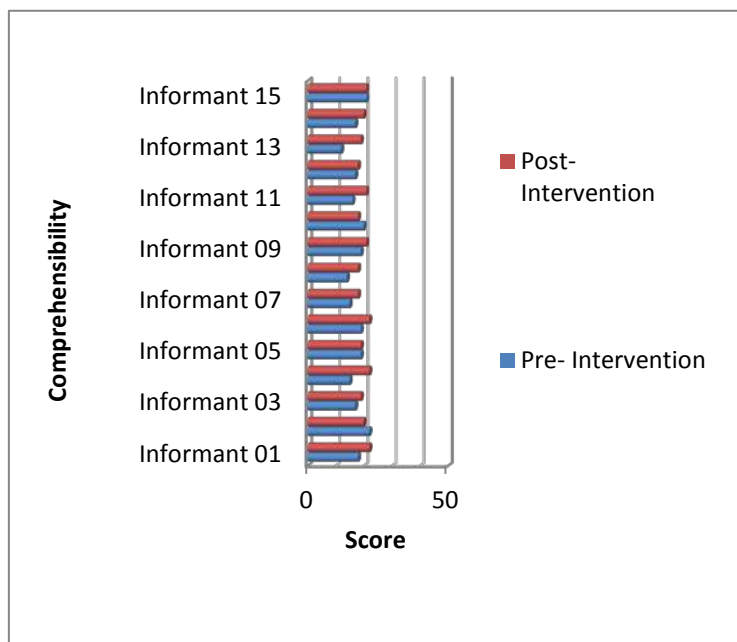


Figure 2. The comprehensibility score of the learners

Resembling the intelligibility scores, the above chart indicates variation in the learners' comprehensibility of the speeches. No difference is found in the pre and post intervention speeches of informants 5 and 15. Surprisingly, there is an obvious decrease in the comprehensibility scores of informants 2 and 10. On the other hand, informants 3, 9, 12 and 14 have managed to improve but very little. However, significant improvement can be seen in the post intervention results of the informants 1, 6, 7 and 8. Similarly, informants 4, 11 and 14 have improved their comprehensibility scores a great deal.

4.1.1. Analysis and Discussion of the LFC Findings

This chapter explains and discusses the findings of the semi-structured interviews. The in-depth responses of evaluators about the LFC features were recorded and compared to those of Jenkins (2000). Based on these findings, the LFC contents are revised to meet the requirements of Saudi EFL learners.

Segmentals

The Consonantal Inventory

/θ/, /ð/ and [ɫ] (dark or velarized /l/)

The LFC includes all consonant in consonantal inventory except /θ/, /ð/ and dark [ɫ] as they do not hamper intelligibility. Similarly, the data of this study indicates that learners' intelligibility is not affected due to the mispronunciation of these sounds, so their exclusion is justified. It is also noticed that [ɫ] and /u:/ are replaced by /l/ and /ʊ/ which make the speakers intelligible.

Rhotic /r/ only

Jenkins (2000) prefers the GA rhotic variant, the retroflex approximant. It is different from the Arabic trilled /r/ which is frequently used by all speakers and reported by evaluators. However, it does not impede the intelligibility as the Arabic trilled /r/ is considered closer to the GA rhotic /r/ in terms of its articulation. Since students have not used the GA rhotic and Arabic trilled /r/ is quite intelligible, Saudi EFL learners are encouraged to maintain the trilled /r/.

Intervocalic [t]

The LFC includes the RP /t/ which is alveolar stop consonant whereas Arab speakers use dental /t/. There is no intelligibility problem reported which prioritises the latter sound for Saudi EFL learners.

Phonetic Requirements

Aspiration after /p/, /t/, and /k/

Jenkins (2000) has included aspirated /p/, /t/, and /k/ which are voiceless plosives. They must be stressed with aspiration [h] particularly in initial position. The responses of the evaluators in this research are consistent with the findings of Jenkins as the lack of aspiration caused intelligibility problems. For example, problem, talk and carries were all unintelligible due to unaspirated sounds.

Consonant Cluster

This study does not trace any unintelligible words in relation to problems with consonant clusters. Although, incorrect clusters at final positions are reported especially in regular form of past verbs, however they are intelligible. Thus, it cannot be considered a core feature of LFC designed for Saudi EFL learners.

Vowel Quantity

Long-short contrast

This study is in line with Jenkins' (2000) findings that vowel length or vowel quantity is a core feature of LFC. The long vowels /i:/ in read, /u:/ in food and /ɔ:/ in ball are all shortened and made unintelligible.

Vowel Quality

L2 (consistent) regional qualities Plus /ɜ:/

As LFC considers vowel quality an insignificant and non-core feature, this study also traces no such instances where its occurrence may hamper learners' intelligibility. Jenkins (2000) considers the quality of /ɜ:/ as core feature of LFC; however, in this study evaluators do not report a phoneme which could potentially affect the intelligibility of the learners.

Suprasegmentals

Nuclear stress is the only core feature of LFC and the rest are considered non-core features.

Features of Connected Speech

LFC considers the features of connected speech inconsequential/unhelpful. Since this feature is ignored in classroom teaching, it is not found in the learners' speeches. Evaluator 4 pointed out that in post intervention speeches speakers' use contractions; however, no traces of connected speech are reported. As the speakers are intelligible and comprehensible, this feature is not required for Saudi learners to master.

Word Stress, Weak Forms and Stress-Timed Rhythm

LFC does not consider word stress a core feature due to its intricate nature and problems with teachability. Furthermore, it reduces flexibility. Although, Arabic is believed to be a stress-timed language by Swan and Smith (2001), unstressed syllables are pronounced clearly by the learners. In this study, mispronounced words are not due to the incorrect stress pattern.

The data reveal that speakers' accents are heavy and strong, there were no instances of stress or rhythm, but even then the speeches are intelligible. Evaluator 4, the only native speaker has noticed few instances of stress-timed rhythm and proper word stress. For other evaluators the speeches bear no such features since they speak syllable-timed languages which are much more widespread in the world (Crystal, 1996). It supports the view of Benrabah (1997) that native speaker would better understand the significance of word stress. If stress and rhythm do not affect the Saudi learners' intelligibility, it does not need to be taught, rather learners can be made aware of its significance at a higher level.

Intonation

Pitch movement

LFC supposes pitch movement unteachable which is inappropriately related to NS grammar and attitude. This study is not in line with studies carried out by Binns and Culling (2007), Laures and Weismer (1999), and Watson and Schlauch (2008) which state that monotone speech is less intelligible than intonated one, rather it shows that learners' speeches are monotonous, but intelligible. Despite the fact that Kharama and Hajjaj (1997) find intonational similarities between English and Arabic, learners may not easily learn the grammatical function of it.

Tone unit

According to LFC, tone unit helps teaching nuclear stress and planning time for NNSs. It aims at the division of longer utterances into smaller units. In this study, speakers have spoken longer sentences in chunks with pauses which facilitate the intelligibility and comprehensibility of their speeches.

Nuclear (tonic) stress

LFC considers nuclear stress a critical feature. This study completely negates the role of nuclear stress identified by Jenkins (2000) which improves comprehensibility of the utterances and makes speech more interactive and conversational. However, this feature is totally absent in the speeches of Saudi EFL learners. Although, the speeches lack the quality of nuclear stress, it does not impact intelligibility. Therefore, nuclear stress can be considered least important if it hardly makes any difference to the learners' intelligibility.

4.2. Analysis and Discussions of the Questionnaire and Semi-structured Interviews Findings

This study partially supports the work by Jenkins (2000, 2005, and 2007). The empirical data collected in her studies show improvement in learners' intelligibility. However, in this study there is moderate improvement in speech intelligibility and comprehensibility of most students and very few learners have shown significant progress as a result of classroom instruction.

This study also supports the definition of 'intelligibility' stated by Bamgboose (1985) 'as a complex of factors comprising recognising an expression, knowing its meaning, and knowing what that meaning signifies in the sociocultural context' (p.11). The listeners who have taught the Arab EFL learners have a good understanding of their socioculture context. Therefore, they found it easy to understand expressions and their meanings in a given context.

Due to my exposure to Arabic English, I find it easy to understand Arab speakers because I have developed good knowledge of their culture' Evaluator 1.

The above quote indicates that constant interaction with Arab speakers has helped the listeners understand Saudi culture and its version of English which has influenced the intelligibility and comprehensibility of the speakers in this action research.

This research also supports the findings of Nelson (2008) where he states that an argument might be intelligible but not comprehensible due to its structure. Evaluator 5 noted down number of incomprehensible sentences and phrases where the words were quite intelligible but their meanings in given context were unclear due to its inappropriate structures and thus he declared them as 'misfit' sentences.

This research study underpins the claim made by Jenkins (2000) and Smith and Nelson (2006) that LFC enhances intelligibility of the NNSs of English interacting mainly with other NNSs of English. It presumably excludes NS varieties. In this study four non-native English speakers have little or no problems to understand the learners whereas evaluator 4 who was a native speaker have found it difficult to rate the questionnaire and thus listened to the tracks more than once.

To effectively teach pronunciation and gain maximum outcomes, the goal should be a realistic one as 'intelligibility' (Cook, 2002; Levis, 2005, Celce-Murcia et al., 1996; Wells, 2005) which is set by LFC considering native-like pronunciation least important in EIL context. All the evaluators unanimously agreed on this point that learners in learning and teachers in teaching should set an achievable goal which is of course 'intelligible accent'. Evaluator 5 stated that:

My preference is intelligible accent. My aim is to communicate and if the ideas are communicated properly, words are intelligible and sentences are comprehensible then it's good.

Moreover, the findings of this study partially support the work done by Munro and Derwing (1999) who believe that foreign accents does not necessarily hamper intelligibility and may result into remarkably successful communications. Likewise, the evaluator 1 and 3 on this study have the same viewpoint that the accents of the Saudi EFL learners didn't impact on their intelligibility. However, evaluators 2, 4 and 5 have opposite opinion:

Yes, the listeners' accents surely influence their intelligibility and comprehensibility because the listener is used to certain phonemic patterns whenever he finds something different from that pattern then he finds it very difficult to understand (Evaluator1).

Regarding segmentals, certain phonemes are expected to be perceived and articulated without great difficulty by Arab learners. However, Unshaded phonemes in the below chart might be a source of difficulty (Swan & Smith, 2001).

ɪː	ɪ	e	æ	eɪ	aɪ	ɔɪ
ɑː	ɒ	ɔː	ʊ	aʊ	əʊ	ɪə
uː	ʌ	ɜː	ə	eə	ʊə	aɪə aʊə

Swan and Smith (2001, p.196)

In contrast to what Swan and Smith (2001) propose in the above chart, the findings of this research indicated that Saudi EFL learners have difficulties articulating or producing long vowels, i.e. /ɪː/, /ɑː/, /ɔː/ and /uː/. Similarly, Swan and Smith (ibid) propose the list of consonants (unshaded) which could be difficult for Arab learners to produce.

p	b	f	v	θ	ð	t	d
s	z	ʃ	ʒ	tʃ	dʒ	k	g
m	n	ŋ	l	r	j	w	h

Swan and Smith (2001, p.196)

Similar to long vowels, the current research findings expands the above chart and suggests more shaded sounds which causes articulating difficulties for Saudi EFL learners participated in this study. The sounds are /p/, /f/ and /j/.

Apart from individual phonemes, learners encounter difficulties with consonant clusters positioned at the beginning, middle or at the end of words. Jenkins (2000) states that NNSs try to delete or insert syllables in the middle of consonant clusters and the former threatens the intelligibility; however, no such instances were recorded in this study.

In terms of suprasegmental features of LFC, learners have shown no improvement in the area of nuclear stress. Perhaps, it is due to the influence of L1 as Kharma and Hajjaj (1997) consider Arabic a syllable-timed language as its intonation pattern is quite similar to English, however, Arab learners face difficulties employing English intonation patterns. Though intonation is not a feature of LFC, stressing particular words can be equally difficult for Saudi EFL learners.

4.3. Limitations of the Study

Time constrain is considered a major impediment. A module with six teaching weeks is probably inadequate time for the students to materialize their learning. More time would have given the teacher sufficient room to reflect on the learners' anticipated problems and classroom tasks. In addition, it was challenging to integrate the pronunciation activities based on the LFC contents into the teaching pacing guide provided to the teachers by the administration. The teachers are advised to rigidly follow the hourly pacing guide thus, the activities embedded into the pacing guide do not get due time as the main goal is to finish the given syllabus. Similar to the core curriculum, the New Headway Plus (Special Edition) also put less emphasis on pronunciation which explains the students' failures in overcoming their pronunciation problems.

As pronunciation is not tested in oral exams, it has not been included in the core curriculum. Consequently, students lack intrinsic motivation to learn and improve their pronunciation. Generally, students value tasks directly relevant to their testing and exams. Since, pronunciation was neglected it becomes very hard for the teacher to motivate the learners and develop their taste for pronunciation tasks.

5. CONCLUSION

This action research study has investigated the influence of LFC in improving the intelligibility and comprehensibility of the Saudi EFL learners at pre-intermediate level. Based on the qualitative and quantitative findings of the research, it can be said that students have shown moderate improvement in their post-intervention speeches, however the classroom instructions have positively impacted on their pronunciation to some extent. In relation to the LFC features, no significant improvement on their intelligibility and comprehensibility has been noticed, except a little improvement. Generally, the post-intervention speeches are rated more comprehensible than intelligible as the individual words have facilitated the comprehensibility of certain sentences. The speakers have sounded fluent and confident;

nonetheless, the pronunciation errors related to the LFC features still exist in the learners' speeches. For the evaluators, intelligibility of the learners should be an achievable and substantial goal than native-like accent in EFL context. Based on the findings and evaluators' perceptions, modifications in Jenkins's (2000) LFC are suggested (Appendix D).

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APPENDIX A

Pronunciation targets for teaching EFL or ELF- Modified from Jenkins 2005

#	A	B	C	D
	Aspects of Pronunciation	EFL Targets	Influence on Intelligibility	EFL Targets
1	The Consonantal Inventory	All Sounds	√ but not all	All sounds except /ə/ and /ð/
		RP non-rhotic /r/ GA rhotic /r/	√ but not all	Rhotic /r/ only
		RP intervocalic [t] GA intervocalic [t]	√ but not all	Intervocalic [t] only
2	Phonetic requirements	Rarely specified	√ but not all	Aspiration after /p/, /t/, and /k/ Appropriate vowel length before Fortis/lenis consonants
3	Consonant cluster	All word positions	√ but not all	Word initially, word medially
4	Vowel quantity	Long-short contrast	√	Long-short contrast
5	Vowel quality	Close to RP or GA	×	L2 (consistent) regional qualities
6	Weak forms	Essentials	×	Unhelpful to intelligibility
7	Features of connected speech	All	×	Inconsequential or unhelpful
8	Stress-timed rhythm	Important	×	Does not exist
9	Word stress	Critical	×	Unnecessary/ can reduce flexibility
10	Nuclear (tonic) stress	Important	√	Critical

APPENDIX B

Pronunciation syllabus based on LFC for Arab (Saudi) EFL learners

LFC Contents		Contents of Arabic	LFC based syllabus for Arab (Saudi) learners
<u>The Consonantal inventory</u>	All sounds except /ə/ and /ð/	The following sounds do not exist in Arabic: /p/, /v/, /g/ and /ŋ/, /tʃ/ Velarized [ɮ] is an allophone of alveolar /l/. Phoneme /ŋ/ is replaced by /n/ Phoneme /p/ is replaced by /b/	/dʒ/, /tʃ-ʃ/, /p-b/ /f-v/, /k-g/, /ŋ/, /ʒ/
	Rhotic /r/ only	Trilled /r/ is produced with vibration	Rhotic /r/ only
	Intervocalic [t]	Dental /t/ exists in Arabic	Intervocalic [t]
<u>Phonetic requirements</u>	Aspiration after /p/, /t/, and /k/	[t], and [k] are pronounced with no aspiration. Their allophones are /t/ and /k/	Aspiration after /p/, /t/, and /k/
	Appropriate vowel length before Fortis/lenis consonants	Arab learners tend to confuse short and long vowels	Appropriate vowel length before Fortis/lenis consonants
	Avoiding contracted and short forms	Lower level Arab learners rarely uses contractions	Avoiding contracted and short forms
<u>Consonant clusters</u>	Word initially and word medially	No word initial exists in Arabic Arabic has clusters of only two consonant phonemes.	Word initially, word medially
<u>Vowel quantity</u>	Long and short contrast /ɜ:/ to be preserved	Three long vowels: /u:/, /i:/, /ɑ:/ Three short vowels: /æ/, /ʊ/, /ɪ/ Two diphthongs: /aʊ/, /eɪ/	Long and short contrast /ɜ:/ to be preserved
<u>Vowel quality</u>	L2 (consistent) regional qualities	Arabic vowel quality	Learners' regional quality is accepted
<u>Nuclear (tonic) stress</u>	To convey multiple meanings, contrastive stress is important	Arab students tend to adopt Arabic intonation patterns when they speak English	Nuclear (tonic) stress

Designed with reference to Walker (2010)

APPENDIX C
Pre-intervention Speeches

Student's Name:

Listen to the recorded speeches and tick the relevant box.

1. How would you rate the intelligibility of the speaker in pronouncing individual words?

Very easy
☐

Easy
☐

Average
☐

Difficult
☐

Very difficult
☐

2. How would you rate the comprehensibility of the speaker in longer sentences?

Very easy
☐

Easy
☐

Average
☐

Difficult
☐

Very difficult
☐

Intelligibility: The ability of the listener to recognize individual words or utterances in a speech

Comprehensibility: The ability of the listener to comprehend the meaning of the word or utterance in its given context.

By Smith & Nelson (1985)

APPENDIX D

Pronunciation syllabus based on LFC for Arab (Saudi) EFL learners

LFC Contents		LFC based syllabus for Saudi EFL learners {Previous Version}	LFC based syllabus for Saudi EFL learners {Revised Version}
<u>The Consonantal inventory</u>	All sounds except /ə/ and /ð/	/dʒ/, /tʃ-ʃ/, /p-b/ /f-v/, /k-g/, /ŋ/, /ʒ/	All consonants except /ə/ and /ð/. Especially distinction between /p/ and /b/ at initial position.
	Rhotic /r/ only	Rhotic /r/ only	Arabic trilled /r/
	Intervocalic [t]	Intervocalic [t]	Arabic variant of /t/
<u>Phonetic requirements</u>	Aspiration after /p/, /t/, and /k/	Aspiration after /p/, /t/, and /k/	Aspiration after /p/, /t/, and /k/
	Appropriate vowel length before Fortis/lenis consonants	Appropriate vowel length before Fortis/lenis consonants	Appropriate vowel length before Fortis/lenis consonants
	Avoiding contracted and short forms	Avoiding contracted and short forms	Avoiding contracted and short forms
<u>Consonant clusters</u>	Word initially and word medially	Word initially, word medially	×
<u>Vowel quantity</u>	Long and short contrast /ɜ:/ to be preserved	Long and short contrast /ɜ:/ to be preserved	×
<u>Vowel quality</u>	L2 (consistent) regional qualities	Learners' regional quality is accepted	L2 (consistent) regional qualities
<u>Nuclear (tonic) stress</u>	To convey multiple meanings, contrastive stress is important	Nuclear (tonic) stress	×