

The Effectiveness of the Lingua Franca Core (LFC) in
Improving the Perceived Intelligibility and Perceived
Comprehensibility of Arab Learners
at Post-Secondary Level

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by

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To

Mum and Dad Fatihya and Shahada Zogbor

I can't equal all the love you have given me ...

but surely I can keep trying all my life.

This thesis is for you.

Abstract

The status of English as a lingua franca (ELF) has become an increasingly popular topic in Applied Linguistics. It has been suggested that the native speakers (NSs) and their pronunciation models have become relatively unimportant in international communication. This results in a lively discussion of which pronunciation model to use in classrooms (Dauer, 2005). Jenkins (2000) proposed the Lingua Franca Core (LFC): a list of features which she presumes to be the minimum required to result in intelligible communication among non-native speakers (NNSs) and should form the basis upon which the pronunciation syllabus of learners of English as a Lingua Franca (ELF) should be designed. The purpose of this study is to investigate the effectiveness of a pronunciation syllabus based on the LFC in improving the intelligibility and comprehensibility of Arab learners in comparison to learners of the traditional pronunciation syllabus (based on Received Pronunciation and/or General American). The potential effect of the syllabus was determined by implementing a quasi-experimental approach and semi-structured interviews within which the buzzer-technique was implemented. This research found that learners of the LFC syllabus scored relatively higher in comparison to the learners of the traditional pronunciation syllabus in terms of intelligibility and comprehensibility scores. The difference, however, between both groups remained insignificant. The degrees of intelligibility and comprehensibility were influenced by several factors. The interviewee's knowledge about the phonology of Arabic and exposure to non-native varieties facilitated intelligibility and comprehensibility. Negative attitudes towards certain phonological features, in most instances, did not impede intelligibility and/or comprehensibility. The research also gives support to most of the core features in the LFC except the rhotic /r/, quality of the long vowel /ɜ:/, and word stress in words of more than two syllables. While this research implies the need to modify the LFC pronunciation syllabus based on the Arab learners' phonology, further research is still required to investigate the pronunciation syllabus needs for learners in other contexts.

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List of Abbreviations

CA	Contrastive Analysis
CAH	Contrastive Analysis Hypothesis
CAT	Communication Accommodation Theory
CG	Control Group
EFL	English as a Foreign Language
EFLS(s)	Speaker(s) of English as a Foreign Language
EG	Experimental Group
EIL	English as an International Language
ELF	English as a Lingua Franca
ELT	English Language Teaching (to speakers of other languages).
ESL	English as a Second Language
ESLS (s)	Speaker(s) of English as a Second Language
FA	Foreign Accent
GCC	Gulf Cooperation Council Countries
IL	Interlanguage Hypothesis
L1	First Language
L2	Foreign or Second Language.
LFC	Lingua Franca Core
MSA	Modern Standard Arabic
NNS(s)	Non-Native Speaker(s) (of English)
NS(s)	Native Speaker(s) (of English)
NSA	Non-Standard Arabic
PC	Perceived Comprehensibility
PI	Perceived Intelligibility
RP	Received Pronunciation
SE	Standard English
SLA	Second Language Acquisition

List of Symbols

Phonetic Symbols

Consonant phonemes		Vowel phonemes	
p	Pea	ɪ	Pit
b	Bee	e	Pet
t	Tea	æ	Pat
d	Did	ʌ	Cut
k	Cat	ɒ	Pot
g	Get	ʊ	Put
tʃ	Chain	ə	P <u>o</u> tato
dʒ	Jam		
f	Fall	iː	Key
v	Van	ɑː	Car
θ	Thin	ɔː	Core
ð	This	uː	Coo
s	See	ɜː	Cur
z	Zoo		
ʃ	Shoe	eɪ	Bay
ʒ	Vision	aɪ	Buy
h	Hat	ɔɪ	Boy
m	Man	əʊ	Low
n	Now	aʊ	How
ŋ	Sing	ɪə	Here
l	Led	eə	There
r	Red	ʊə	Moor
j	Yes		
w	Wet		

From: Roach *et al.* (2006)

Diacritics

[ʊ]	Rounded vowel
[ʌ]	Unrounded vowel
[ʊ̃]	Shortened vowel
[.]	Vowel slightly longer than normal duration
[:]	Vowel clearly longer than normal vowel duration
[^h]	Voiceless stop-plosives with fortis aspiration
[=]	Voiceless stop-plosives without fortis aspiration
[̚]	Unreleased stop plosive.
[ɣ]	Velarized consonant (except /l/)
[ɭ]	Velarized /l/
[ɮ]	Syllabic /l/

From: Roach *et al.* (2006)

1 Chapter One: Introduction and Background

The English language has gained a position in the world that no other language has ever had before. There have been other lingua francas in the past and at the present time (for example, Greek, Latin, French and Swahili) (Frath, 2010; Meierkord, 2006). However, it is English that has become global and worldwide across all social classes in most societies (Frath, 2010) and the official language of many educational, technological and business settings (Kachru, 1985, 1986 and 1992; Crystal, 2003; Graddol, 1997 and 2007). According to McArthur (2002), English is used in at least 90 countries (70 of which use English as an official or semi-official language) and 1.4 billion people live in countries where English has traditionally been used. Beneke (1991) estimates that about 80% of verbal exchanges in which English is used as a second or foreign language involve no native speakers (NSs) of English (in Seidlhofer, 2004).

There are two main factors behind the worldwide spread of English. The first is the imperial expansion of the British colonial power by the late nineteenth century; and the second is the technological revolution and the status of the United States as the leading economic, military and scientific power of the twentieth century. Along with these two factors, the phenomenon of ‘globalization’ (where the world is beginning to behave like a single society) required cross-cultural communication generating the need for a language as medium of this interaction. These three overlapping eras of world history started to develop jointly empowering each other; the electronic revolution, for example, generated numerous ‘e-activities’ (like e-mails) which furthered globalization (Svartvik and Leech, 2006). In other words, English benefited from all the opportunities available to it ‘in the right place at the right time’ (Crystal, 2003:120), and successfully became ‘a single world language’ (Svartvik and Leech, 2006:228).

The increase in the use of English globally and the emergence of literature that critically assesses its spread resulted in assigning ‘English’ different names (Erling, 2005; Firth, 1996; Seidlhofer, 2005; McArthur, 2001). Some of these are: world English, English as an international language (EIL), English as a global language and English as a lingua franca (ELF), where all contribute to the phenomenon presented in the term ‘World Englishes’

(Seidlhofer, 2004:210). Smith (1976 and 1983), one of the first to introduce the term 'international English', defines it as the language used by different nations to communicate with one another. Meanwhile, some scholars use 'English as an International Language' (EIL) to refer to the use of English worldwide in communication among non-native speakers of English (NNSs) as well as in communication between NNSs and Native speakers (NSs). However, McKay (2002) still uses EIL to refer strictly to NNS/NNS communication. The term 'English as a lingua franca' (ELF) has been used to refer to communication among NNSs where the NS is not involved (Svartvik and Leech, 2006) while Seidlhofer (2005) and Jenkins (2007) use it to refer to communication in English between speakers with different first languages (L1s) including, possibly, NSs. The inclusion of NSs in ELF communication minimizes the distinction between ELF and EIL, but Seidlhofer (2004) and Jenkins (2007) express preference of ELF over EIL for the idea that ELF is more able than other terms (including EIL) to reflect the nature of interaction in English. What is distinctive about ELF is that, in many (if not most) cases, it is a contact language between interlocutors who share neither a common native tongue nor a common (national) culture. Those interlocutors though have one thing (if not more) in common which is communicating in English and accordingly still evokes similarities between them rather than differences. At the same time, interlocutors are given a space to recall some features of their L1s (which are not shared by their interlocutors), but which remain acceptable (Jenkins, 2000).

There are a number of attempts to conceptualize the spread of English. The oldest was developed by Strevens (1980) showing a map of the world revealing the spread of two main branches: American and British English. Although foreign language speakers are absent in this model, it shows how English speakers are located around the world. McArthur (1987) proposed another model, 'Circle of World Englishes', placing at the centre of his model 'World Standard English' which 'does not exist in an identifiable form at present' (Jenkins, 2003:20). There is also the three concentric circles model proposed by Kachru (1985) and representing the type of spread, the patterns of acquisition and the functional domains in which English is used across cultures and languages. The inner-circle represents the native speakers of English (those from the United States (US), the United Kingdom (UK), Australia, Canada, Ireland and New Zealand). The outer-circle is primarily made up of countries where English has a colonial history and is used as a

second language (such as Malaysia, Singapore and Kenya). The expanding-circle represents the rest of the world where English is used as a foreign language (Figure 1.1). Kachru also distinguishes between speech fellowships with reference to the circles, described as: norm-providing (the inner-circle), norm-developing (the outer-circle) and norm-dependent (the expanding-circle).

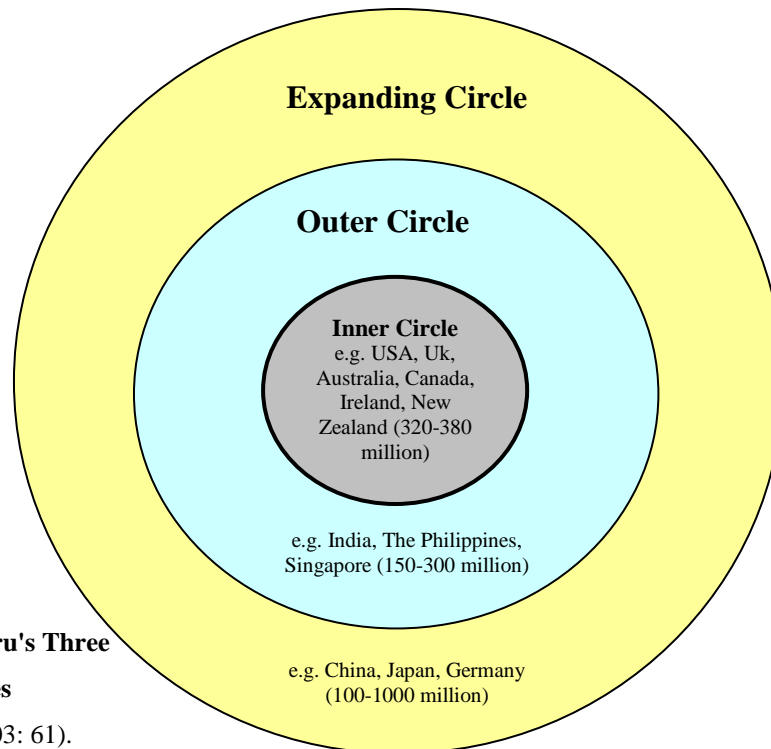


Figure 1.1: Kachru's Three Concentric Circles
(From Crystal 2003: 61).

Similar to Stevens' and McArthur's, Kachru's model also has some weaknesses which were reviewed by some researchers, e.g. Rajadurai (2005) and Jenkins (2003). However, one of the most important weaknesses, according to the interest of this study, is that the term 'inner-circle' implies that the native countries are central and superior, which Graddol (1997) points as a drawback of the model because the world-wide influence of the inner-circle is in fact in decline. The other issue is what Kachru himself in 1985 noted that the categories are not necessarily mutually exclusive and the division between these circles is not rigid as there is often a grey area between them (Brown, 1992; Kachru, 1985). A case in point is the situation of approximately twenty countries (for example Denmark, Ethiopia, Lebanon and Belgium) which are in transition from English as a foreign language (EFL) to English as a second language (ESL) status (Graddol 1997). Additionally, some

English speakers in the outer-circle, e.g. in Singapore, actually use English as their first and only language (Jenkins, 2003), making it stand astride the boundary between the inner and outer-circles. This division became more complex especially after the argument on the ambiguity which the term ‘native speaker’ holds (Medgyes, 1998) and the claim of Higgins (2003) and Yano (2001) that speakers of the outer-circles are native speakers of their own varieties. The complexity of describing the spread of English in Kachru’s model does not only exist across the boundaries of the three circles, but it is also overt within the inner-circle itself. For example, while Canada and Ireland are placed at the heart of Kachru’s circles representing native speaking countries of English, Canada is officially a bilingual country where French is the mother tongue of almost a quarter of the population, and Ireland has Irish Gaelic along with English as an official language. Another example is that the first language for some 40 million Americans is Spanish (not English). Most surprisingly is that the US and the UK, the two countries that seem to have imposed their language worldwide, have never formally declared English as their official language (Svartvik and Leech, 2006).

Some scholars have proposed alternative descriptions of the spread of English in an attempt to improve Kachru’s model and better reflect its sociolinguistic realities. For example, Rampton (1990) suggested the idea of replacing the terms ‘mother tongue’ and ‘native language’ in Kachru’s model with other concepts (for example ‘competence’ or ‘expert speaker’) to represent accomplished users of English. Modiano (1999) developed another model excluding the inner-circle native speakers of English whom he considers inefficient communicators as they are incapable of switching to EIL when the context requires it. They are placed, instead, alongside NNSs who speak internationally incomprehensible and indigenized varieties to speakers of EIL. The third circle of Modiano’s model then comprises those who are not yet proficient in any variety of English. Rajadurai (2005) suggested a different three-circle model where the inner-circle could comprise all users who are proficient in English and able to instinctively employ the language to interact in international and regional varieties to communicate appropriately and this skill concerns equally both NSs and NNSs. Those speakers who lack the skill of switching into using English beyond their regions and use it only for national purposes (whether NSs or NNSs) are placed in the second circle. The third circle (which Rajadurai refers to as the outer-circle) could be made up of learners of English. This model also

allows for those who have mastered EIL to move into the inner circle, and so the inner-circle expands and its size is subject to the increasing number of proficient EIL speakers.

The emerging models suggested by Rampton (1990), Modiano (1999), and Rajadurai (2005), all differ from Kachru in one particular aspect (which this research focused on earlier when presenting the Model of Kachru). It is the notion that the native speaker at the centre of these circles should be replaced by alternative concepts which can compromise both NSs and NNSs based on their ability to use English at both levels; regional and international. However, they all share the phenomenon that the classifications of English speakers into circles and the boundaries between them are as fuzzy as Kachru's.

Svartvik and Leech (2006) introduced another model for world English in a wheel shape (or circles). They represent it three-dimensionally rather than two-dimensionally so it looks like a pyramid. The apex of the pyramid (or the hub of their model which is the smallest circle) is a standard not only in being relatively uniform, but in being prestigious and targeted by learners of English as it aims at achieving intelligibility among speakers across cultural frontiers (with the consideration that there is no single variety of world English that has its own native speakers). Contrastively, the local vernacular has the goal of identity in the sense that it aims at reflecting the speaker's linguistic and cultural background and the community to which the speaker belongs. Far from the hub moving towards the rim of the wheel, a greater amount of variation exists. Contrary to Kachru's model where the UK and the US are placed within the inner-circle, Svartvik and Leech place them around the rim of the wheel, rather than at the hub. This is attributed to the argument that has taken place for long in EIL literature; the gradual vanishing boundaries between the circles and the decline of the NS position as the normative model around the world.

Despite the increasing attempts that describe the worldwide spread of English, and despite the criticism of Kachru's model, his conceptualization is the most influential one to describe speakers of English (Jenkins 2003) and is widely used and referred to in literature (and in this study).

The spread of English in the Gulf Cooperation Council countries (GCC), the context of this study (section 1.1), accompanied its spread everywhere else in the world. The developing economies of the GCC have relied heavily on expatriate labour at all levels to support the spectacular development which has taken place over the last 50 years. In most parts of the GCC expatriates outnumber locals (Ali, 2009; Randall and Samimi, 2010). This situation has had fundamental sociolinguistic implications, one of which is the emergence of English as a lingua franca at all levels of the societies (Al-Issa, 2010) and, arguably, taking over the role of a lingua franca instead of Arabic (Randall and Samimi, 2010). These parts of the GCC countries fall in the 'grey' area of Kachru's three circles and become arguably users of English as a 'second', rather than a 'foreign' language. For example, one of the GCC countries, the United Arab Emirates (UAE), is considered by Graddol (1997), in addition to Lebanon, Somalia and Sudan, as countries in the transition stage from a foreign to a second-language-user country.

While the status of English might rarely be in dispute, what seems to go unnoticed is that through the development of English as an international language (EIL) the 'ownership' of the language has also shifted. It should be de-nationalized (Smith, 1976); many claim that it should no longer be considered as a property of its native speakers as it has grown into a world property (Widdowson, 1994; Kachru, 1986 and 1992; Smith 1976 and 1983; McKay, 2002 and 2003; House, 2003). Smith (1976 and 1983) delineated two more essential characteristics of an international language: speaking English differently from native speakers (NSs) does not mean the speaker is speaking incorrectly; and it is not necessary to appreciate NSs' culture to use English effectively.

The spread of English did not occur without problems. Some authors tried to find a non-conflicting relationship between different varieties of English in Kachru's three circles. While the majority of the world's English users are now to be found in countries where it is a foreign language, and despite the existence of several varieties of English, such as Singaporean English, Indian English and African English which are linguistically equal, they are not considered to be socially equal; they are not given the same value as native speaker varieties. It is arguable that international norms and rules of the language are not set by all these Englishes, nor even negotiated among them; and control over what is

correct and/or incorrect English rests with speakers for whom it is the first language (Seidlhofer, 2004; McKay, 2002; Phan Le Ha 2005).

The conflict on the ownership of English exists within the inner-circle itself. It was not too long ago that Prince Charles said that the American version of the language was 'very corrupting' and that the English version was the 'proper' one. He told the British Council that 'we must act now to ensure that English (English English according to the interpretations of Kachru, 1998) maintains its position as the world language well into the next century' (Chicago Tribune, March 24, 1995: section 1:4; cited in Kachru, 1998). The US Black English vernacular (known as Afro-American English) is considered inferior with low quality, and thus those who speak it are labelled low-level achievers (McArthur, 1998).

Along with the conflicting relationships between English varieties, the literature has discussed three negative impacts for the spread of English. The first is what the term 'linguistic imperialism' (Phillipson, 1992) exemplifies. Galtung (1981) argues that the world can be divided into a dominant centre (the powerful western countries) and the dominated peripheries (the developing countries). Several critics think that English is dominating other languages and cultures, and thus promotes inequalities. These inequalities have been maintained by the UK and the USA through dominating post-colonial countries (like India) and neo-colonial countries (such as countries in Europe), and by spreading the English language with its ideology (Phillipson, 1992). The second effect is that the worldwide spread of English resulted in languages dying out (Jenkins 2003). Graddol (1997), however, dispels this effect suggesting that English is rarely the direct cause of such language loss, and this perception towards English is possibly due to its high profile and strong relationship with social and economic changes in developing countries.

The third influence of the spread of English is relevant to 'linguistic purism'; the manifestation of a desire to preserve the English language from undesirable foreign elements (Thomas 1991). Linguistic purism was mainly concerned with lexicon borrowed from Latin and French (Görlach, 1997), but it also applies at all linguistic levels (Thomas, 1991) and today the concern seems to be that all aspects of language are being affected by NNSs (Bartsch, 1987; cited in Kivistö, 2005). Although some scholars argue that

institutionalized varieties, such as Indian English, should be accepted as standard varieties with their own norms (e.g. Kachru 1986), others argue that people speak local varieties of English, such as Indian English or Nigerian English, only because they have failed to acquire ‘real English’ (Quirk, 1990). In other words, accents at the peripheries (the outer-circle and expanding-circle in Kachru's model) are not given the same value as NSs’. The status of NNS accents in native-speaking countries can be very low, as the pronunciation deviates from NS norms. Many feel that NNS users of English are being discriminated against because of their foreign accents (Phan Le Ha, 2005; Phillipson, 1992; Lippi-Green, 1997).

In relation to the English Language Teaching (ELT) profession, both Quirk (1990) and Honey (1997) emphasize that non-native teachers need native teacher support and should be in constant touch with the native language to guarantee the quality of their English. According to Ali (2009), on a global level, the ELT profession is perhaps the world’s only occupation in which the majority faces discrimination. Some teachers within the profession might profess themselves to be in favour of ELF targets in theory, but they tend to contradict themselves as soon as they start to talk about specific language practices reflecting a tension between this desire and the conscious belief that a native-like English accent is somehow better – a belief that is widely confirmed in literature (Jenkins, 2007). Bamgbose (1998) refers to this as a ‘love-hate relationship’.

Jenkins (2000) points out that non-native English is regarded negatively even by most EFL teachers. In this sense, teachers could be seen as being at least partly responsible for the negative attitudes. A growing number of empirical studies on learners’ attitudes towards NSs and NNSs demonstrates the preference of L2 learners of the former over the latter; for example, Chiba *et al.* (1995), Dalton-Puffer *et al.* (1997), Matsuda (2003a), Fraser (2006) Jenkins (2009) and Timmis (2002). Furthermore, language learners themselves may also have very negative attitudes towards non-native accents, and often consider non-native speech as ‘unsophisticated, ugly or irritating’ (Pihko 1997: 51). Learners are likely to become disheartened by setting themselves the unattainable target of native-like pronunciation (Cook, 1999 and 2002; Derwing and Munro, 2005).

It has been argued that the ELT profession in the GCC has witnessed a similar phenomenon. The influence of aspiring NS models is also evident in the institutions of higher education there which are perpetuating 'linguistic elitism' (Nayar, 1994) by continuing to hire only NS teachers of English, consequently marginalizing an entire group of teachers from NNS countries even though they form the majority of English language teachers in the world (Canagarajah, 1999). NS teachers are hired whether or not they are trained because their 'nativeness' can compensate for their lack of qualifications and experience. In comparison, NNS teachers who are fortunate enough to be trained, because they are not 'native speaker', are not employable at all. The result is that English teachers from the periphery have never filled teaching positions in well-established private schools, colleges and universities in the GCC (Ali, 2009).

There are some efforts to hinder this traditional point of view and consider the global spread of English and its implications in the ELT profession. This includes rethinking the assessment process (Lowenberg, 1992 and 2002; Canagarajah, 2006), the culture of the ELT curriculum (McKay, 2002, 2003 and 2004), grammar (Ranta, 2009; Seidlhofer, 2004; Willis, 1999) and lexicon that are more likely to be used in ELF interaction (Meierkord, 2005), EIL dictionaries (Taylor, 1991), teaching methodology (Lee and Ridley, 1999; Tomlinson, 2006) and pronunciation of EIL (Jenkins, 1998, 2000, 2002, 2005b and 2008).

However, among these contemporary issues, pronunciation is given greater attention for several reasons: firstly, pronunciation with its strong connection with accent speaks immediately to the above conflicting situation and discrimination against NNSs accents; secondly, communication is the ultimate goal behind using any language (Kenworthy, 1987; Ludwig, 1982). Despite the importance of grammar and vocabulary in communication, one might need to hear a word or two before even realizing that the speaker is not speaking the language we were expecting, or several sentences before hitting an unfamiliar lexical item. But pronunciation is immediately salient as sounds are the first verbal impression (Nelson, 2008). Thirdly, the increasing diversity in users and uses of English now requires people who use English to communicate to have a high level of intelligibility (Greenwood, 2002), and the mutual intelligibility of Expanding Circle users of English is a primary concern to ELF researchers (Berns, 2008). For these reasons, this study focuses on the pronunciation of English as a lingua franca

The major research on the intelligibility of ELF pronunciation is by Jenkins in 1998, 2000, 2002, 2005, 2008 and 2009. Jenkins (2000) introduced a list of phonological features which are presumably the minimum required for intelligible communication among NNSs. This is known as the Lingua Franca Core (LFC). The LFC is unique in being the first set of priorities based upon empirical data which addresses the current situation of English as an international language (Walker, 2001). It consists of: most consonant sounds; vowel length (but not quality) distinctions; absence of word-initial and medial consonant deletion; and nuclear stress. For ELF, all the other sounds and most pronunciation features are in the realm of ‘non-core’ as they cause neither unintelligibility nor breakdown in communication among NNSs (Jenkins, 2000 and 2005).

This study investigates the influence of a pronunciation syllabus based on the LFC in improving the perceived intelligibility (PI) and perceived comprehensibility (PC) of Arab learners to listeners from Kachu’s three concentric circles: native speakers (NSs), speakers of English as a second language (ESLs) and speakers of English as a foreign language (EFLs). While this study focuses on the influence of Arab learners’ phonology, some related factors (i.e. influence of familiarity, background, and attitude of listener) will be touched upon.

1.1 Context of the Study

The research is conducted in a higher education institute in a small town in the north-east of the Sultanate of Oman on the border of the United Arab Emirates (UAE) (Figure 1.2). Like the other GCC and Middle East countries, the first language is Arabic.



**Figure 1.2: Context of the Study –
Map of Oman and the UAE**
(From *WorldAtlas*, 2009)

The Omani government recognizes and stresses the important and fundamental role English language is playing worldwide and that it is the language of science and technology and an effective tool for modernization. The Omani government has, therefore, opted for English as its only official foreign language. English in Oman is considered important for tourism, and is widely used in business, particularly in banks, pharmacies, medical clinics, showrooms, general trade stores, restaurants, factories, hotels, insurance agencies and companies (Al-Issa, 2006 and 2007).

Kachru (1986:1) contends that ‘knowing English is like possessing the fabled Aladdin’s lamp, which permits one to open, as it were, the linguistic gates of international business, technology, science and travel. In short, English provides ‘linguistic power’. This is obvious in Oman where functional competence in English is a pre-requisite for finding a white-collar job in the public and private sectors (Al-Issa, 2007; Al-Busaidi, 1995; cited in Al-Issa, 2006). English has been considered as a fundamental tool for ‘Omanization’ – a systematic and gradual replacement of foreign skilled labor by nationals. Oman has, hence, embraced English and placed it at the heart of its educational planning (Al-Issa, 2006).

While the population of Oman does not exceed 2.3 million, approximately 20% consists of expatriate skilled labourers, who largely dominate the private sector, and mainly represent countries like India, Pakistan, Bangladesh and the Philippines and use English for interlingual purposes. However, it does not mean that these varieties are solely those with which learners of English in this area will be communicating. According to Al-Issa (2006), ‘the international community’ is dominated today politically and economically by the USA, which makes communication with it unavoidable. Additionally, Oman shares borders through Al-Buraimi, the city where the research was conducted, with the UAE; a country which is arguably described as exemplifying a place in transition from EFL to ESL status (Graddol, 1997), due to its spread and official status in most (if not all) settings in this country, and gradually replacing Arabic as the lingua franca (Randall and Samimi, 2010).

1.2 The Significance of the Study

Some studies started to establish pronunciation syllabuses based on the LFC for learners in such contexts as Walker (2001b) – Spain, Moedjito (2008) – Indonesia, and Nakashima (2006) – Japan. Recently, Walker (2010) included in his book pronunciation syllabuses based on the LFC for learners from 10 different L1s including Arabic. However, none of these syllabuses was tested empirically in an actual classroom setting. Some of the empirical work which this author is aware of are Cole’s (2002) and Osimk’s (2009). Cole tested Jenkins’ claim that vowel quality is a ‘non-core’ sound and used an ethnographic study of NNS interactions from different first-language backgrounds in both classroom and social settings in Japan. He concluded that some learners, depending on their L1, need instruction on specific vowel sounds to raise awareness of them. Osimk used dictation methods in building on the findings of the LFC by testing intelligibility of accented variations of three features in the LFC: aspiration, interdental fricative, and /r/. Osimk found that aspiration and realisations of the interdental fricative conform to Jenkins’ (2000) observations. However, the listeners in Osimk’s study recognized the words which contained a non-rhotic realisation of /r/ more often than those which contained a rhotic

pronunciation of /r/. This does not conform to Jenkins assumption that rhotic pronunciation of /r/ aids intelligibility more than non-rhotic pronunciation,

This research differs significantly from that above in focus and methodology. After designing a syllabus based on the LFC for Arab learners, its influence on improving the intelligibility and comprehensibility of Arabs is tested and the contents of the LFC for Arab learners are revised accordingly. Thus, the research can be a small contribution to the ongoing efforts in the field of ELF as it combines two trends: establishing a pronunciation syllabus based on the LFC for Arab learners similar to that by Walker (2001b and 2010); and revising its contents (similar to the purpose of Cole and Osimk) by implementing the designed syllabus in an actual classroom setting.

The methodology of this study triangulates data using rating scales and semi-structured interviews. Within the semi-structured interviews, the ‘buzzer technique’ is used (Kenworthy, 1987). Exploiting the flexibility of the semi-structured interviews and embedding the buzzer technique could contribute to the study’s overall quality and provide a comprehensive revision of the contents of the LFC for Arab learners.

The study’s design, its experimental nature, and its intervention can be replicated to investigate further issues concerning the LFC: for example, the extent to which the LFC is more or less learnable and teachable than the traditional syllabus and learners’ perceptions towards its implications in classrooms.

Additionally, this study is conducted in an Arab context, where Arabic is the first language of a minimum of 23 countries. Although it is conservative about generalizing its findings, these might still be applicable in the vast area where Arabic is used as an L1.

1.3 Aims and Objectives

This research aimed at:

1. designing a syllabus based on the LFC by implementing contrastive analysis (CA) phonology between the LFC and Modern Standard Arabic (MSA);
2. implementing the designed syllabus at Arab post-secondary level;
3. investigating the influence of the designed syllabus in improving the perceived intelligibility (PI) and perceived comprehensibility (PC) of Arab learners. This would be achieved by comparing their gain score with those studying the traditional pronunciation syllabus (based on Received Pronunciation (PC) and/or General American (GA); and
4. developing an index of the unintelligible words and incomprehensible utterances of Arab learners and revising the contents of the designed syllabus accordingly.

1.4 Definition of Terms

Intelligibility is the ability of the listener to recognize individual words or utterances (Smith and Nelson, 1985).

Comprehensibility is the listener's ability to understand the meanings of words or utterances in their given context (Smith and Nelson, 1985).

English as a Lingua Franca (ELF) refers to communication in English between speakers with different first languages including, possibly, NSs (Jenkins, 2007; Siedlhofer, 2005).

English as an International Language (EIL) is used by some scholars as a blanket term for all uses of English involving NNSs worldwide and whether interaction is with NNSs or NSs (Jenkins, 2007). It is also the most frequent alternative to 'ELF' (Modiano, 2009; Jenkins, 2007).

Lingua Franca core (LFC) is the list of phonological features which are presumably the minimum required to result in intelligible communication among NNSs. These features should be the basis upon which the pronunciation syllabus of ELF learners is designed (Jenkins, 2000 and 2005).

Accent refers to a speaker's particular way of pronouncing words that often associates the speaker with those speaking the same native language and sharing similar sociolinguistic backgrounds (Crystal, 1997). Lippi-Green (1997:P. 42) identifies accent as 'loose bundles of prosodic and segmental features distributed over geographic and/or social space'. For Lippi-Green, both prosodic and segmental features widely serve to distinguish one variety of a language from another.

Foreign Accent (FA) Perception of a foreign accent derives from differences in pronunciation of a language by native and non-native speakers (Flege, 1981). It refers to the pronunciation of a language that shows deviation from native norms. (Puerto *et al.* 2005).

Received Pronunciation (RP) RP has been for centuries the accent of British English usually chosen for the purposes of description and teaching, in spite of the fact that it is only spoken by a small minority of the population (Roach, 2009a). It is frequently recommended as the most suitable form of British English for broadcasting and as the model for both first and second language instruction (Macaulay, 1988).

General American (GA) is a cover term used for the group of accents in the United States that do not bear the marked regional characteristics of either the East (more precisely Eastern New England and New York City) or the South (mainly ranging from Virginia, the Carolinas and Georgia to Louisiana and Texas) (Giegerich, 1992). Along with RP above, GA is argued to be the variety used in the ELT curriculum, and its accent is the variety which has long been taught to foreign learners of English (Dauer, 2005).

1.5 Summary: Organization of Thesis

The study is divided into six chapters. Chapter 2, considers the conceptual and theoretical framework of this project by reviewing critically relevant theoretical and empirical literature and by developing its conceptual and theoretical framework. Chapter 3 contemplates the methodology and the research design and methods of analysis.

Attention should be paid to Chapters 4 and 5 where the data are presented and discussed. Findings are not presented in the chronological order of collection. In the methodology chapter the reader will observe that the sequence of collecting data was rating-scale followed by semi-structured interviews, where the latter is divided into two stages: the buzzer techniques and qualitative questions. However, the findings and discussion will be as follow: Chapter 4 presents the findings of the quantitative study (or the rating scale) and the findings of the qualitative study (or the interviews). It also discusses these data and analyses them in depth. But the buzzer technique is excluded from this chapter. Its findings and discussion will be presented separately in Chapter 5.

One reason for this is that the findings of the buzzer technique include specific phonological features. If this study presented findings in the same sequence by which the data was collected, the reader would lose links with the phonology details. For this reason and to render the data and discussion of this study easier to follow, the phonological elements generated from the buzzer technique will be presented and discussed separately in Chapter 5, while Chapter 4 will present the findings of the rating scales and interviews and discuss them.

Finally, Chapter 6 contains the study's conclusions by summarizing the data obtained and its implications. It introduces the project's limitations and suggests further research.

2 Chapter Two: Literature Review

2.1 Introduction

This research investigates the influence of a pronunciation syllabus based on the LFC in improving the intelligibility and comprehensibility of Arab learners at post-secondary level. Accordingly, this chapter reviews the issues relevant to this topic developing its conceptual and theoretical framework. It begins with examining the concepts of intelligibility and comprehensibility. The contents of the LFC and the phonology of Arabic, the learners' L1, are also introduced as both are used in the next chapter in developing the syllabus based on the LFC for Arab learners. This chapter introduces selectively some factors that influence intelligibility and comprehensibility according to their relevance to the present study.

2.2 Concepts of Intelligibility and Comprehensibility

'Intelligibility' is a concept which has been widely appealed to by EIL literature. It has long been acknowledged as an important criterion for any pronunciation model. However, as a technical term, it does not have a precise definition subscribed to by all linguists. There is no universally agreed definition of what constitutes *intelligibility* or ways of measuring it (Derwing and Munro, 2005, 1997; Pickering, 2006).

Kenworthy (1987:13) identifies 'intelligibility' as 'being understood by a listener at a given time in a given situation'. It is viewed the same as 'understandability'. For Kenworthy (1987:13), 'the more words a listener is able to identify accurately when said by a particular speaker, the more intelligible that speaker is'. Furthermore, 'substituting one word for another usually does not get one very far' suggesting that speech can still be understandable when words are substituted or not fully identified.

Catford (1950:8) offers a broader definition for ‘intelligibility’ in relation to successful and ‘effective’ communication within a specific context:

Speech is generally said to be *intelligible* if the hearer ‘understands the words’, i.e. if his response is appropriate to the *linguistic* forms of the utterance: that is to say, if it is in accordance with the semantic habits of the speech-community whose language is being used. An utterance may be *intelligible* in this sense, yet *ineffective* in the sense that the hearer’s response is not what the speaker intended.

Bamgbose (1998:11) also offers a similar broad definition for intelligibility where ‘intelligibility’ is a ‘complex of factors comprising recognizing an expression, knowing its meaning, and knowing what that meaning signifies in the sociocultural context’. Olsson (1978) considers the linguistic message intelligible when it is comprehended by a receiver in the same sense intended by the speaker (in Matsuura *et al.*, 1999).

Smith and Nelson (1985) referred to *intelligibility* as the ability of the listener to recognize individual words or utterances, while *comprehensibility* is the listener’s ability to understand the meaning of the word or utterance in its given context. Munro and Derwing (1995), Derwing and Munro (1997), Derwing *et al.* (2006), and Derwing (2006) offered a separate definition for these two terms: ‘intelligibility’ is the extent to which a speaker’s utterance is actually understood. They emphasized the importance of distinguishing this notion from ‘comprehensibility’, which refers to the listener’s estimation of difficulty or ease of understanding an utterance.

The range of work by Munro and Derwing, and Smith and Nelson elucidate the importance of the distinction between intelligibility and comprehensibility because, to them, being able to do well with one component does not ensure that this will be repeated with others (Derwing, 2006; Munro and Derwing, 1995; Smith and Nelson, 2006; Munro *et al.*, 2006; Smith, 1992). Nelson (2008:302) says that ‘comprehensibility can fail even when the degree of intelligibility between participants is high’. Discrepancies between recognition of words and understanding the message is also supported empirically by Zielinski (2004) who found that listeners who could identify words accurately also puzzled over the whole message (cited in Yang, 2009). Matsuura *et al.* (2009) found that although Japanese

listeners could understand easily the utterances in the varieties of English in their study, they could not transcribe the words correctly.

However, this relationship between intelligibility and comprehensibility sounds more reciprocal in the definitions by Smith and Nelson than that by Munro and Derwing. The latter suggests only a 'one-way' relationship, where the speech might be intelligible despite poor understanding in the sense that speech could be understood with reasonable ease, but not the other way round. In contrast, the definition of Smith and Nelson better justifies the phenomenon where the message of the speech might be understandable despite lack of identifying many words of the speech. The following quotation, where Smith spoke as an invited respondent to a paper given by Nelson in early 1980s, sheds some light on this idea:

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.

(In Nelson, 2008:301)

This study adopts the definition of intelligibility and comprehensibility by Smith and Nelson (1985) for two reasons: firstly, their ability to reflect reciprocal relationship between recognition of words and understanding the utterance (as mentioned previously); and secondly, the distinction between two levels of understanding (within and beyond word boundaries) facilitates analyzing and explaining data in this study. This will become clearer throughout the study and in the two sections below about the processes of listening and speech perceptions.

2.3 Top-Down and Bottom-Up Processing

There are two processes for perceiving speech: *bottom-up* and *top-down* (Brown, 1990). A bottom-up model assumes that we perceive speech by building up an interpretation in a series of separate stages, beginning with the lowest level units (the phonemic segments of words e.g. /b/, /v/, /g/) and gradually working up to the larger units such as the utterance, from which we then derive our interpretation of the speaker's meaning (Anderson and

Lynch, 1988). This contrasts with the top-down processing ‘which uses knowledge and expectancies to guess, predict, or fill in the perceived event or message’ (Pinker, 1994:474).

The discussion of the processing of top-down/bottom-up is relevant to this study in two senses: firstly, the relationship between these processes and context and hearers’ familiarity and background; and secondly, the differences between the approach used by NSs and NNSs in perceiving speech, (as well as the differences among NNSs according to their level of command in English). These will be discussed in this section respectively.

Catford (1950) discusses two types of context in relation to understanding speech: *Linguistic* and *situational*. While the former is limited to the given words or other linguistic forms with which it is associated or surrounded, the latter broadly includes everything else in the situation relevant to the speech-act including: the hearer’s and speaker’s positions and actions at the moment of utterance and their relationship to the speaker and hearer, the hearer’s linguistic and cultural background and experience. Brown (1989a) argues that context might influence the hearer’s tolerance and, accordingly, the possibility of increasing or decreasing intelligibility thresholds.

Moving to another point, the literature demonstrates that NSs perceive speech in ways which are different from those followed by NNSs. According to Brown (1990) and Jenkins (2000), NSs are more able to use a top-down process even with less phonological input. One major reason is their background knowledge of the language. According to Brown (1990), in everyday situations, even if the NSs do not hear everything the other person says, the NSs have a good idea of the sort of things that would have been said, which they construct partly from the phonetic cues that they hear, and partly from their knowledge of what they would have said if they had been speaking. It might also be the stereotypic knowledge of what such a speaker is likely to say in such a situation. Familiar knowledge, which native speakers have been acquiring from infancy, allows them to cope with a much reduced phonetic input. This familiar knowledge has many different names in the literature, for example: background knowledge, mutual knowledge and shared knowledge.

In contrast, foreign students will be particularly reliant on ‘bottom-up’ processing in the early stages of learning the target language. This means that they must be able to listen for the helpful cues in the language as it is used. The reason is that for foreign learners much ‘familiar knowledge’ has to be established from scratch. They have to find out what can safely be imported into the knowledge base in terms of which they construct interpretations in the new language. Depending on their aims and motivations in learning the new language, they will need to develop new sets of ‘familiar knowledge’ if they are to interpret the foreign language in an efficient and automatic manner (Brown, 1990).

While Brown (1990) argues that NNSs of English with high proficiency might both exploit the context and use top-down processes, Jenkins (2000) argues that NNSs, even at relatively high levels of competence, still process speech predominantly using bottom-up strategies. The reason is that for NNS listeners making much use of the context underlying and surrounding the speech they receive at both linguistic and extra linguistic levels is not easy and, accordingly, employing the top-down process can be rarely done the same way they employ the top-down process in their L1s. This could also justify the reasons behind prioritizing segmental over suprasegmental features in the LFC. Segmental features include the consonant and vowel which is a smaller feature to start with in the process of bottom-up than the suprasegmentals like intonation which are more likely the first thing to consider in applying top-down processing. It is the bottom-up processing that is connected with the phonological code and with identifying which phoneme is being used. This is, after all, the raw data of language input – without this there is no linguistic message. The effect of not being able to identify which vowel or which consonant is being used is, obviously, that the listener will be unsure which word is being used unless there is enough contextual information to make this clear. Listeners who are able to use the phonological code competently have a good chance of recognizing most of the words intended by the speaker (Brown, 1990).

2.4 Models of Speech Perception

A number of theories exist to explain how speech is processed focusing on how the sounds of language are heard, interpreted and understood. The study of speech perception is not only closely linked to the field of phonetics (which focuses more narrowly on articulation and acoustics) and phonology (which deals with the systems and structures of speech) but to cognitive psychology (Clark and Yallop, 1995). Research in speech perception seeks to understand how people recognize speech sounds and use this information to understand spoken language. The Motor Theory (Liberman *et al.*, 1967) is one of the oldest and best-known models revised by Liberman and Mattingly (1985). Other theories are: *Analysis by Synthesis* (Stevens and Halle, 1967); *Lexical Access from Spectra model* (LAFS) (Klatt, 1979); and *TRACE* model (Clark and Yallop, 1995).

A more relevant model to this study for speech perception was established by Catford (1950). For Catford (1950), in order to attain intelligibility, where the hearer is able to understand and interpret appropriately the message of the speaker, the speaker must obviously *select* the linguistic forms which are appropriate to the situation including appropriate words, morphological and syntactical devices (including word order), and the appropriate sounds.

Next, the speaker should *execute* the linguistic forms he/she has selected in an appropriate manner; a manner that approximates the norm obtaining in the speech-community within which the speaker is operating. Mispronunciations are failure in execution. Execution is followed by *transmission* of sounds through the physical medium. Some loss of intelligibility normally occurs in telephone conversations owing to defective transmission.

The hearer must correctly *identify* the linguistic forms he hears. This involves that hearer's ability to discriminate between the sounds he/she hears and to associate correctly the heard sounds with his/her private 'mental images' of the sounds. The hearer must correctly associate the sounds of the utterance in question with his own auditory and kinaesthetic images of these sounds. For example, if a hearer cannot distinguish between /o/ and /Λ/ he may 'mishear' *collar* as *colour*. This is a failure in identification.

Finally, the hearer must associate the heard linguistic forms with the appropriate elements in the situation. He must respond to the utterance in accordance with the same semantic habits of members of the speech-community within which he is operating. Failure to do this may be termed a *failure in interpretation*.

The definition of Smith and Nelson (1985) for intelligibility fits into the process above at the stage of identifying words, while comprehensibility falls into interpreting the heard message. The interpretation stage, however, seems to be a further step in Catford's process as it includes understanding of message with an appropriate reaction from the hearer.

Catford summarized the stages at which intelligibility loss may occur as follows:

- a. Speaker's *selection* of linguistic forms.
- b. Speaker's *execution* of linguistic forms.
- c. *Transmission* from speaker to hearer.
- d. Hearer's *identification* of linguistic forms.
- e. Hearer's *interpretation* of linguistic forms.

Figure 2.1 below visualizes Catford's (1950) model of speech perception.

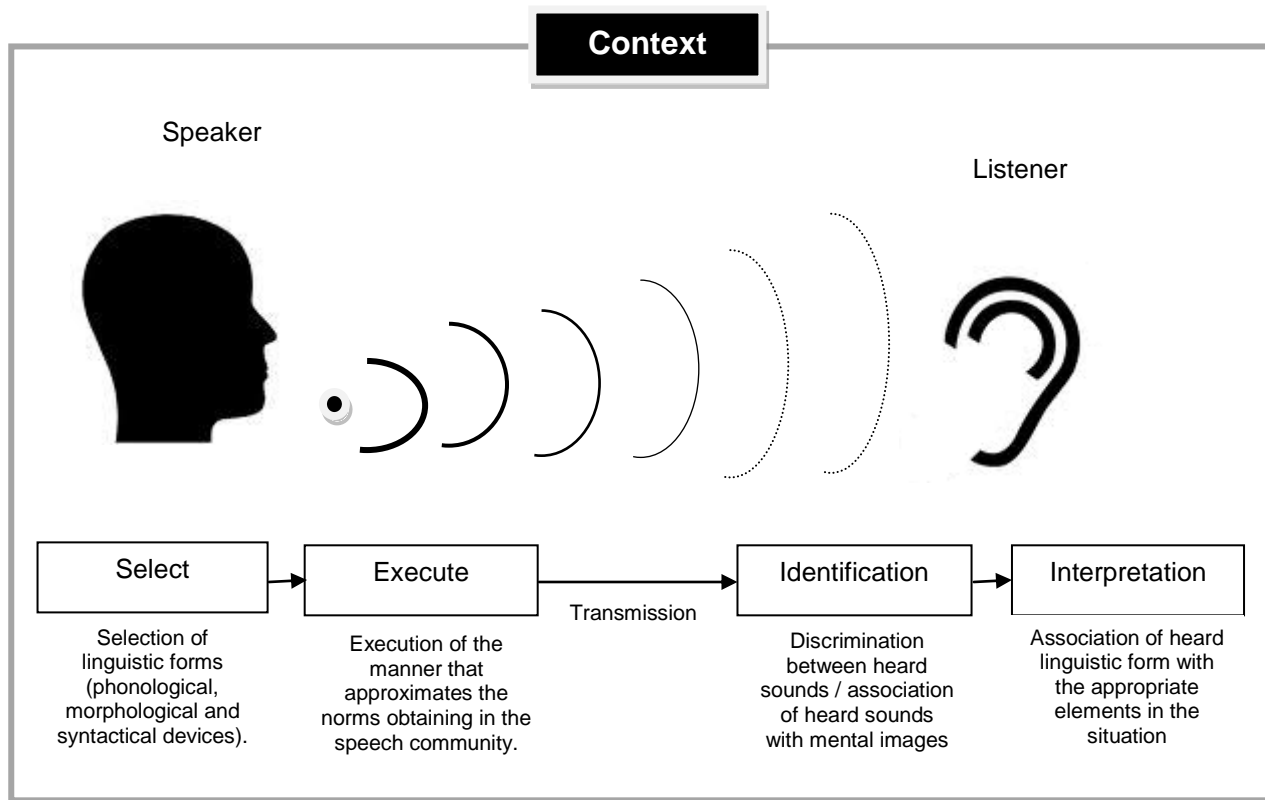


Figure 2.1: Visualizing Catford's model of perceiving intelligibility of speech

Although Catford's (1950) model was not commonly referred to in literature on speech perception, this study adopted this model for three reasons: firstly, the above theories are based purely on acoustic features, while Catford considers the relationship between acoustic features and other factors (i.e. context, lexicon and syntax and linguistic knowledge and background). Secondly, the above theories do not draw clear distinction between two levels of understanding speech, recognition of words, and comprehension of utterance within its context while Catford considers both levels. Although his model uses only the term intelligibility to describe the terminal stage where the linguistic form is interpreted, he still distinguishes between recognition of acoustic features (or identification) which precedes the terminal stage, and processing these acoustic features in relation to factors leading eventually to comprehension of the message within a specific context.

Thirdly, the above theories are more likely to favour the discussion of the top-down processing over the bottom-up processing in explaining recognition of acoustic features (except for LAFS (Klatt, 1979)). However, the bottom-up processing is important to consider in this study because, NNSs (particularly those with limited proficiency of English) are more likely to rely on it (Brown, 1990; Jenkins, 2000). Since NNS performance is the main focus of ELF research, Catford's visualization of speech recognition and understanding better explains the data of this study.

2.5 The Pronunciation of English as a Lingua Franca

Jenkins (2000) introduced a list of phonological features which she presumes to be the minimum required to result in intelligible communication among NNSs. This has become known as the Lingua Franca Core (LFC) (which will be detailed in section 2.6). The study upon which Jenkins based her claim and established the LFC involved two types of evidence: miscommunication data and accommodation data. Both were collected from interactions between advanced levels of NNSs of English from different L1s. The inclusion of phonological features in the LFC is based on their influence on intelligibility that Jenkins found empirically along with considering the learnability and teachability principles. Jenkins in 2000 and throughout her writing about the LFC in 2002, 2005 and 2007 has mentioned that the contents of the LFC are not definitive. There is a need to replicate her study to refine its contents.

The LFC has been conceptualized in literature differently. Sobkowiak (2005) describes it as a 'standard', Llurda (2004) describes it as a 'variety', while others, for example Trudgill (2005), Dauer (2005), Riney *et al.* (2005) and Smit (2005), view it as a 'model'. However, Jenkins' work in 1998, 2000, and 2002 demonstrates that the LFC has been based on NS models (Received Pronunciation (RP) and General American (GA)), but does not indicate that it is a model in its own right. Later in 2007 and 2008, Jenkins made this idea even clearer by discussing a misconception about the LFC demonstrating that the LFC is neither a 'model' nor a 'variety' but the core features upon which the pronunciation syllabus of

ELF learners is designed. This study also refers to the LFC as ‘proposal’ or ‘core’ features of the phonology of ELF as has been asserted by Jenkins.

In response to Jenkins’ LFC, researchers have become polarized. Some find the LFC a more promising approach (for example: Walker, 2001a, 2001b; Seidlhofer, 2005; and Cook, 2002). Others (for example Trudgill, 1998; Wells, 2005; Sobkowiak, 2005; and Dauer, 2005) argue against it addressing several issues. For example, the LFC was accused of prompting ‘errors’ and making them acceptable; of encouraging diversification in the language which makes the LFC threaten (rather than enhance) intelligibility; and it is inadequate for adoption in classroom teaching. Jenkins (2007), (2008), and (2009) considers these (and other arguments) misconceptions resulted from misinterpreting the LFC and the principle behind it. Walker (2010) refers to them as 'concerns' rather than criticism of the LFC. The argument for and against the LFC are introduced in the next two sections.

2.5.1 Argument against the LFC

The first issue to consider is the argument that the LFC might lead to diversification in language use and, consequently, in unintelligible varieties (Trudgill, 1998; Lee and Ridley, 1999; Yamaguchi, 2002; and Dziubalska-Kołaczyk, 2005; Tarone, 1987). However, Smith (1992), Widdowson (1994) and Jenkins (2000) argue that this is less likely to occur. According to the *language universals theory* (Anderson, 1987; Jakobson, 1941; in Macken and Ferguson, 1987), there is a universality of solutions and/or substitution of sounds used by interlocutors in cases where L2 features do not exist in L1. For example, the dental fricatives /θ/ and /ð/ are commonly substituted in L2 by a limited set of alternatives - /t/ and /d/, /s/ and /z/ or, less commonly, /f/ and /v/ - and, thus, L1 transfer will not impair intelligibility (Jenkins, 2000). In other words, change in pronunciation will remain within a frame where limited substitutions for /θ/ and /ð/ might exist. This is one reason why Jenkins in (2000) and (2002) suggests the importance of exposing learners of the pronunciation of ELF to speakers of English from different L1s (along with NSs) as part of expanding their recognition of the (limited) alternatives used by those speakers for some phonemes as in /θ/ and /ð/.

The second issue concerns the claim of Widdowson (1994) and Smith (1983) about the shifting ownership of English (discussed in Chapter One). Sobkowiak (2005) argues that this position is 'highly emotional, even hysterical' (P. 136) which is more likely to be the result of mixing linguistics and political/ideological matters. The outcome of mixing these matters does not provide ground where new pronunciation standards can be established. For Jenkins (2007) this is a 'curious' claim to make as it neglects the fact that the vast majority of English speakers are NNSs, and this seems to evoke NNS 'self-castigation' for not having a NS accent. Sobkowiak's position also seems to sidestep the LFC boundaries and involves the whole argument about the existence of English as a lingua franca and the influence of this in different aspects of its users' lives.

The third issue concerns a statistical matter. Sobkowiak (2005) stopped at Jenkins' (2000) argument that Received Pronunciation (RP) is not widely spoken among NSs (less than 3 per cent of the British population speak RP in its pure form according to Crystal (1995)) and hence it is not reasonable to keep RP as the only available choice for learners who are not aiming at NS pronunciation. Sobkowiak (2005) argues that the statistics and popularity of a certain variety of English cannot be the criteria used to define pronunciation errors. For Jenkins (2007 and 2008), addressing the LFC through this statistical matter ignores the issue of 'intelligibility'; a core issue in interaction and the criterion upon which the LFC has been developed. And it is this particular criterion, not statistics, which matters in communication worldwide.

The fourth issue to consider requires referring back to an earlier point where Jenkins (2000) and (2007) mentioned that the LFC is not definitive and there is a need for more research to fine-tune its contents to meet the intelligibility requirement for learners in different contexts as their needs for pronunciation instructions will vary based on the difference on their L1s. This would be a response to Sobkowiak (2005) who argues that having arrived at a corpus (referring to the LFC) through empirical work does not mean that the resulted corpus can automatically become part of the teacher's curricula or meet the pronunciation needs of the learners successfully. For Jenkins (2000) and (2007), the LFC is not to be imposed on learners; but is another choice available for those who aim at communicating intelligibly rather than learning NS pronunciation. According to Jenkins (2000) and (2005), learners have the right to establish their own goals, including targeting

NS pronunciation. This point about goals of teaching the pronunciation of ELF will be discussed in section 2.11).

The fifth concerns the issue of attitude where (as revealed in Chapter One) many (if not most) non-native English teachers prefer to have a NS accent, and most learners aspire to a NS pronunciation, in addition to job recruiters who reveal their preference to recruit teachers who have a native or near-native pronunciation of English (Ali, 2009). The dangerous issue connected with attitude does not only reside in how NNSs' varieties of English are perceived, but exceeds this limit by influencing the degree of the perceived intelligibility (PI) and perceived comprehensibility (PC) of the speakers (Eisenstein and Verdi, 1985). This makes 'attitude' one of the crucial challenges which the pronunciation of ELF encounters and has been addressed overtly in Jenkins 2007, 2008, 2009 and Walker 2010.

2.5.2 Argument for the LFC

While the LFC is derived mainly from the EIL debate and the need to aim at intelligibility not NS pronunciation, three more issues have strengthened the argument for the LFC. The first concerns the work of Lenneberg (1967). Lenneberg posits the *critical period*, which occurs around puberty, and represents the biologically determined period of life during which maximal conditions of language acquisition exist. Lenneberg's claim is supported by Scovel's (1969) and Krashen's (1973) research suggesting that native-like pronunciation appears to be biologically conditioned to occur before adulthood. Subsequent to these findings, researchers argue that aiming for native-like pronunciation is an unrealistic burden for both teachers and learners (Cook, 2002; Levis, 2005). Moreover, intelligibility should be the dominant goal of teaching pronunciation (Celce-Murcia *et al.*, 1996; Wells, 2005). The LFC fits this argument as an adequate solution as it does not require learners to acquire native-like models and intelligibility is its main concern. However, not all second-language researchers subscribe to the critical period hypothesis. Some argue against it (Flege, 1981; Marinova-Todd *et al.*, 2000).

Apart from age constraints, there are other factors which still affect the chances available to children and adults to acquire the L2. Jacobs (1988) argues that the environment in which adults typically learn a second language (e.g. the classroom) may not be as rich as that experienced by children acquiring a second language in a more natural, input-rich environment. Ausubel (1964) and Schumann (1975) noted that the disparity between children and adult performance may be explained through a complex interplay of social and psychological factors. Further factors are: amount and type of proper pronunciation instruction, aptitude of learner, attitude and motivation (Celce-Murcia *et al.*, 1996). These studies (about how acquirable native-like pronunciation is) make the importance of the LFC fluctuate.

The second argument is that the LFC is supposed to be better able to promote intelligibility among EIL interlocutors than many NS varieties. Some empirical studies (e.g. Smith and Rafiqzad, 1979; Tauroza and Luk, 1997; and Smith and Nelson, 2006) have revealed that NNSs might be more intelligible to their NNS counterparts than NSs. Munro and Derwing (1995 and 1999) demonstrate that speaking English with a foreign accent (FA) does not impede intelligibility and communication can be remarkably successful when foreign accents are noticeable or even strong. For Matsuura *et al.* (1999) and Rajadurai (2007), studies showing lower intelligibility ratings assigned to NNSs might be attributed to factors other than NNS phonology; for example, tolerance and attitudes towards the speaker. Nevertheless, other studies have found that NSs are easier to understand than NNSs (e.g. Major *et al.*, 2002; Wijngaarden *et al.*, 2002; and Bent and Bradlow, 2003). Overall, these contradictory research findings suggest that what is required from NNSs is not to sound anything like a Canadian, Australian, British or American, but rather to be more intelligible and comprehensible. Additionally, being a NS is not equivalent to being able to communicate successfully.

Intelligibility is not only a concern in NS/NNS or NNS/NNS communication, but communication among NSs themselves. Once Larry Smith started to talk about the ownership of EIL in 1976, he referred to Marckwardt (1958) who suggested that NSs (not only NNSs) who speak different varieties of English may not understand one another and should modify their speech to communicate successfully. Wells (2005), Kubota (2001), and Yamaguchi (2002) demonstrate that even NSs need to modify their English and use

simplified, sometimes ungrammatical speech resulting in a register known as ‘Foreigner Talk’ to enhance their communication (Yamaguchi, 2002). The concept of ‘Foreigner Talk’ and ELF might be perceived as polar opposites of one another because the former comprises simplified and ungrammatical speech while the latter looks at NNSs legitimately with appreciation based on their ability to communicate successfully in an ELF context. The purpose of referring to Foreigner Talk is to show that what is required in ELF communication is to accommodate interlocutors (where modifications of pronunciation and other language aspects are possibly required), but far from the need to sound like NSs.

The third concerns the advantage of the LFC introduced further by Jenkins (2005) and (2007), which allows NNSs the same sociolinguistic rights as those enjoyed by L1 speakers by validating (or legitimating) NNS accents – an idea which directly relates to the debate about the ownership of EIL. The importance of this was suggested by the *Speech Accommodation Theory* (Giles and Smith, 1979), or *Communication Accommodation Theory* (CAT) (Giles and Coupland, 1991; Giles *et al.*, 1991). It holds that people’s speech might change according to its setting, the topic of the discourse, and the type of person involved. The goals of such speech adjustments are: evoking the addressee’s social approval, promoting communicative efficiency between interlocutors, and maintaining a positive social identity (Beebe and Giles, 1984). CAT interprets the way people attune to others during interaction using three strategies: *convergence*, a strategy whereby individuals adopt to each other’s communicative behaviours in terms of a wide range of linguistic-prosodic-nonverbal features; *divergence*, which refers to how speakers accentuate speech and non-verbal differences between themselves and others; and *maintenance*, a type of divergence whereby interactants preserve their speech patterns and other communicative behaviours across situations, in order to maintain their group identity (Giles *et al.*, 1991).

Giles and Smith (1979) suggest that large convergence might result in a negative rather than positive reaction as the listener might attribute this behaviour to the speaker’s projection of him/herself. In this way, Preston (2005) suggests that it is appreciated if the speaker moves a little in the linguistic direction of the listener, but resented if the speaker copies the listener too precisely. Giles and Smith (1979) also discussed the phenomena of ‘overaccommodation’, which occurs when a speaker is considered by the recipient to be

over-adjusting. This often leads to miscommunication despite the speaker's precise intention to produce the opposite effect. It is significant to recall the contribution of the LFC in this matter and its position in teaching accommodation skills and encouraging learners to reflect their identity while communicating in English. More specifically, speakers of English are encouraged to converge on those L2 features which are essential to intelligibility, but are at liberty to maintain those features of their L1 where intelligibility is not affected.

For all of these reasons, it is argued that for most learners, a NS pronunciation is neither necessary nor desirable for international communication. Arguably, most people wish to retain identifiable traces of their national or first language identity when they speak English. For most learners, then, a more appropriate and reasonable goal is to achieve an English pronunciation which is usually understandable in international communication, but retains some (or possibly most) of the non-English accent features (Hewings, 2004).

2.6 Contents of the *Lingua Franca Core (LFC)*

This section introduces briefly the contents of the LFC and the argument provided by Jenkins (2000) behind the inclusion of its features.

2.6.1 Segmental Features

2.6.1.1 Consonant Sounds

The LFC includes all the consonant sounds that exist in the RP/GA syllabus except the dental fricatives /θ/ and /ð/ where substitution of these phonemes does not cause phonological unintelligibility in Jenkins' empirical data.

The RP intervocalic /t/ ([t]) is seen as a core feature rather than a GA one as it has a more reliable relationship with the orthography and widely occurs in many learner varieties, in

indigenous varieties of English (such as African and Caribbean). Additionally, GA intervocalically /t/ might result in confusion as it becomes the voiced flap [ɾ]. Thus the word ‘matter’ is pronounced [ˈmætə] in RP, but [ˈmæɾəɹ] in GA.

The dark [ɫ] is excluded from the LFC as it is problematic for most learners, and many never acquire it. Additionally, its regular substitution with either clear /l/ or /ʊ/ is unproblematic for EIL intelligibility. According to Jenkins (2000), the majority of RP speakers pronounce the pre-consonant dark [ɫ] as /ʊ/ in non-careful speech. The /ʊ/ substitution is found in British varieties and, in addition to the schwa plus clear /l/, is typical of the speech of children.

Jenkins has opted for the GA rhotic variant, the retroflex approximant [ɻ] rather than the RP post-alveolar approximant [ɹ]. She argues that the RP [ɹ] is difficult to pronounce and its pronunciation varies depending on whether the word is in isolation (i.e. ‘four’) or followed by a consonant ‘four books’ or a vowel ‘four eggs’. So the GA [ɻ] is simpler for production, as there is only one version to acquire’ and for reception as it is always realized as the consonant /r/ regardless of which sound follows.

The aspiration [ʰ] following the fortis plosives /p/, /t/, and /k/ in initial position in a stressed syllable is a core feature. Without the help of this puff of air the listener will find it more difficult to identify the sound as voiceless. An unaspirated /p/ may be mistaken for /b/, a /t/ for /d/, and a /k/ for /g/.

2.6.1.2 Vowel Sounds

Jenkins (2000) discusses vowel phonemes in terms of quality and quantity. Vowel quality is concerned with tongue and lip position, and vowel quantity with relative length. While vowel quantity is reasonably stable across varieties of English, vowel quality is not. For example, RP speakers pronounce ‘bus’ as /bʌs/ while speakers of many northern British varieties say /bʊs/.

Jenkins asserts the importance of vowel quantity over quality on intelligibility. For vowel quality, L2 regional (and consistent) qualities will remain intelligible. While this is applicable to all vowel phonemes, Jenkins made an exception in the long vowel /ɜ:/ whose quality and quantity are core features in the LFC. In her data, a Japanese speaker replaced /ɜ:/ by the long vowel /ɑ:/ which reported intelligibility problems. This is also in accord with Schwartz (1980) whose data also revealed intelligibility problems when /ɜ:/ is substituted by /ɑ:/.

Jenkins (2000) also considers that appropriate vowel length before fortis/lenis consonant sounds a core feature in the LFC. That is all long vowel sounds are not as long as each other or short vowel sounds as short as each other (Brown, 1990; Jenkins, 2000). The vowel's precise length depends critically on the nature of its phonetic environment and on whether it is followed by a fortis or lenis consonant. For example, /i:/ is longer in 'seed' than in 'seat'. This is due to the voiceless nature of /s/ and the voiced nature of /v/ (Dalton and Seidlhofer, 1994). The inclusion of appropriate length of vowel phonemes before fortis/lenis serves in two dimensions: intelligibility and ease of articulation.

In addition to long-short contrast, quality of /ɜ:/ and proper length before fortis/lenis consonant sounds, Jenkins also discussed the position of the LFC in relation to diphthongs. The LFC, as mentioned above, has opted for the rhotic variety of /ɹ/. This reduces the diphthong inventory from eight to five as the three centring diphthongs /ɪə/, /eə/, and /ʊə/ are excluded and the schwa was substituted with [ɪ]. Similar to the monophthongs (or pure vowel phonemes) above, it is the length rather than the quality of diphthong that is most salient for intelligibility, a conclusion which was also arrived at by Jenner (1989; cited in Jenkins, 2000) in devising his Common Core discussing features which are shared among (almost) all NSs. Jenkins went even further than Jenner suggesting that intelligibility is not affected with whatever quality is used in ELF setting as long as the quality of a vowel of individual speakers is reasonably consistent. The principle behind that is that if the listener listens to a vowel quality different from the one that he/she recognizes or personally uses, the listener will attune to it if it is pronounced with consistency. For example, in the case of communication between 2 NSs, a speaker of American English (who pronounces 'caught'

and ‘thought’ as /kɑ:t/ and /θɑ:t/ might be initially confused by the way a British English speaker pronounces these words (as /θɔ:t/ and /kɔ:t/). But if the speaker does this consistently, the listener would ‘tune in’ to this difference in vowel quality. The same reaction of accommodation to the vowel quality is also expected to exist in ELF communication.

2.6.1.3 The Consonant Cluster

Clusters are groups of two or more consonant sounds. These might occur at the beginning of individual words (e.g. ‘cluster’), in the middle of words (e.g. ‘cluster’), or at the end of words (e.g. consonants). English allows up to 3 consonant sounds in any position in a word and might have as many as four consonant phonemes (Roach, 2009b). There are two methods used by NNSs to simplify ‘difficult’ syllables (with consonant cluster), deletion and insertion where the former is argued to be more of a threat to intelligibility (Jenkins, 2000). Occasionally, however, addition can be problematic if a vowel is added to a stressed syllable as in the pronunciation of ‘stroke’ as [ˈstrəʊk], or added to the end of the word which is more likely to create a homonym, for example where ‘hard’ is pronounced [ˈhɑ:də] and perceiving ‘mind’ in ‘mind the gap’ as ending with the schwa ‘/maɪndə/’. Since /ə/ is used in English to represent the British non-rhotic /r/ in ‘er’, ‘mind the gap’ is perceived in many cases as ‘minder the gap’.

In the LFC, consonant cluster in initial and medial positions are core features while final consonant cluster is a non-core feature. There is an exception to this and that is when /t/ or /d/ exist either across the word boundary or within the same word. For example, in ‘aspect’, ‘postman’, ‘next-week’ and ‘second-class’, /t/ and /d/ may be represented phonemically in a dictionary transcript which is regularly elided even in relatively careful speech. Jenkins found that the elision of /t/ and /d/ does not seem to affect intelligibility in ELF. Additionally, eliminating /t/ or /d/ in consonant clusters of 3 consonant (where /t/ or /d/ are in the middle) facilitates pronunciation as elision would reduce the number of consonant phonemes from three into a two-consonant cluster which might be easier to pronounce.

2.6.2 Suprasegmental Features

2.6.2.1 Word Stress

Jenkins (2000) found that word stress in the instances where breakdown in communication occurred was always in combination with other phonological errors. For example, ‘hopeless’ revealed intelligibility problems, but along with misplacing the word stress (where it occurs in the second rather than the first syllable), the word-initial /h/ was deleted and the diphthong /əʊ/ was reduced to the short vowel /ɒ/.

For Jenkins (2000), word stress is a non-core feature for two reasons: firstly, its rules are so complex and unteachable. This is an idea which has also been documented by Brown (1990) and used by such authors as Nasr (1963), Zawaydeh *et al.* (2002), Kharma and Hajjaj (1997) and Benrabah (1997) to argue for the difficulty of learning English word stress by L2 learners. Secondly, and most importantly, word stress has a corresponding effect on nuclear stress (or the nucleus) where the most prominent syllable in any group of words is stressed. The speaker chooses to highlight this group of words by means of extra length, loudness and a change in pitch level. The existence of word stress along with nuclear stress increases the number of items that sound stressed and emphasized in the speech. This might influence how noticeable the nucleus is in the speaker’s speech and the listener might not distinguish between dominant words stressed purposefully for their importance in the message and other stressed words. This confusion in the function of word stress across speech is considered by Jenkins (2000) as the most serious deviation that results in unintelligibility.

Further to this, what might make implementing word stress complex is that it is often couched in terms of ‘clarity’ of speech and this might lead to over-carefulness on the part of the learner which is not always the ideal (Brown, 1990). The difference between stressed and unstressed syllables in English lies not only in that stressed syllables are said clearly and carefully, but also in that unstressed syllables are correspondingly indistinct. Failure to produce this difference between stress and unstress (e.g. by the common learner strategy of making every syllable distinct by overcareful pronunciation) results in a

breakdown of the whole stress system. The consequent pronunciation may therefore be harder to understand (Brown, 1989b).

While Jenkins marginalizes the importance of word stress in understanding speech, Brown (1990) emphasizes its importance in word recognition establishing the relationship between word stress and bottom-up processing. For enhancing the bottom-up processing, Brown recommends training learners to pay attention to individual phonemes including the stressed syllable of a word. The reason is that stress is the best and most stable feature of the word's profile and to those words in the stream of speech which are stressed. It is not clear though if Brown's argument about having word stress as the main word's profile is applicable to all word stress regardless of the number of syllables (which might influence the importance of word stress on pronunciation), or whether the listener and speaker are NSs or NNSs (which might influence the listener's expectations about the phonological features of the speaker's speech).

2.6.2.2 Intonation

Jenkins discusses intonation in relation to three main aspects: *pitch movement*, *nuclear stress* and *tone units* (or division of the speech stream into word groups). These are identified and discussed below.

2.6.2.2.1 Pitch Movement

According to Hawkins (1984) and Timková (2001), there is no language in the world which would be regarded as entirely monotonous without change of pitch. This not only conveys linguistic information, but is an important indicator of speaker identity, reflecting factors such as physical state, age, gender, psychological state and sociolinguistic membership. Intonation is also important for intelligibility (Mennen, 2006). Binns and Culling (2007), Laures and Weismer (1999) and Watson and Schlauch (2008) all investigated the effect of a reduction of the fundamental frequency (F0 modulation) on intelligibility of speech. The resulting monotonous speech had a negative influence on intelligibility.

Hawkins (1984) added further properties of intonation saying it is functional, i.e. it is used in a language for particular purposes and is never merely decorative and systematic within any particular language; different speakers use the same patterns for the same purposes.

Jenkins argues that pitch movement is a non-core feature for several reasons: firstly, there is no right or wrong in the placing of prominent syllables. It is subjective and highly dependent on the speaker who chooses according to ‘the special circumstances of the moment’ (Brazil, 1994:37), depending on the context of interaction (Chapman, 2007). Secondly, it has been claimed that intonation has been inappropriately linked with grammar (Levis, 1999a). In some cases, like yes/no questions, NS themselves do not use a single type of intonation. For this reason, Levis (1999b) asserted that intonation of yes/no questions should be an unimportant issue in ELT since it appears to have a minimal role in the success of interaction between speakers with different varieties of English. Thirdly, learners are not likely to acquire an understanding of the English intonation system simply by being exposed to natural speech within the classroom. Prolonged exposure to English (probably beyond classroom settings) is required (Taylor 1993; Celce-Murcia *et al.*, 1996; Brazil *et al.*, 1980).

2.6.2.2.2 *Tone Unit*

According to Roach (2009a), it is usual to divide speech into larger units than syllables. In most cases, division occurs at obvious syntactic boundaries. These divided units are referred to as ‘tone-units’. Brazil (1996:9) identified a tone-unit as the ‘the minimal stretch of speech for which assembly plans are made’ (quoted in Jenkins, 2000:153). This feature concerns the way in which English speakers divide their utterances into smaller meaningful units. Each contains one nuclear syllable. This division is often achieved by pauses at the boundaries or, less commonly, by a change in key (overall pitch level) or rhythm (Roach, 2009a).

The inclusion of tone units in the LFC happens because: firstly, they facilitate explaining another core feature in the LFC which is the ‘nuclear stress’; or the most prominent syllable of the tone-unit (Roach, 2009a); secondly, the interval between word groups helps the

speakers with planning, and supports the listeners by indicating which words they should process together for meaning, and providing them with the time to do so.

2.6.2.2.3 Nuclear Stress

Nuclear stress is typically described as the most prominent syllable in the phrase, usually having the highest pitch. It is marked not only by pitch but by syllable length (Levis, 1999a). Nuclear stress can occur on the last content word in the word group, and this is called ‘unmarked stress’. It can also occur somewhere else in the word group to carry a different meaning from that ‘neutral’ meaning carried in the ‘unmarked’ case, and this is known as ‘contrastive stress’ (Jenkins, 2000).

One reason behind the importance of nuclear stress is the idea of ‘retrievable information’. According to Hawkins (1984), the speaker shows, first, that he/she is treating that nuclear word as the carrier of new, non-retrievable information, and second, that the information of the other, non-emphasized words in the tone group is not ‘new’ but can be ‘retrieved’ from the context. This non-retrievable information given by the nuclear word, can be either contrastive or non-contrastive (simply ‘new’). Although this basic distinction between given and new information has become quite widespread in textbooks, a belief that speakers can accent any word depending on what they want to say is commonly reflected in rules given to students and implied by exercises in textbooks (Grant, 2000; Levis, 1999a).

There is no right or wrong in the placing of prominent syllables; the speaker chooses according to ‘the special circumstances of the moment’ (Brazil 1994:37) depending on the context of interaction (Chapman, 2007). The decision as to whether some information is retrievable or not has to be made on the basis of what the speaker thinks the addressee can take for granted from the situation (Hawkins, 1984). It also carries the most salient part of the speaker’s message, and thus the part on which he/she wishes to focus the listener’s attention. This means that deviations in the placement of the nucleus have the potential to affect the listener’s ability to process entire chunks of the speaker’s message (Jenkins, 2000). Along with its importance in intelligibility, Jenkins (2000) argues that both unmarked and contrastive are simple enough for learners to master, can easily be integrated

receptively and productively into classroom work, and operate at a more conscious level than the other aspects of the intonation system (for example pitch movement). For these reasons, the nuclear stress is considered a core feature in the LFC.

2.6.2.3 Weak Forms and Features of Connected Speech

Spoken English is full of reduced forms, for example, *wanna*, *hafta*, *kuz*, and *kinda*, for ‘want to’, ‘have to’, ‘because’, and ‘kind of’, respectively (Rosa, 2002). In languages, this type of variation from written to spoken texts ‘results from a simple *law of economy*, whereby the organs of speech, instead of taking a new position for each sound, tend to draw sounds together in order to save time and energy’ (Clarey and Dixon, 1963:3). With English, this process of assimilation is combined with contractions, elision and reduction to produce the connected speech commonly referred to as ‘reduced forms’ (Brown and Hilferty, 1989). Naturally occurring English conversation, whether formal or informal, fast or slow, is full of these reduced forms. This creates a serious challenge for L2 students who have little or no exposure to reduced forms other than their own L1s (Rosa, 2002).

Jenkins provided two reasons behind the exclusion of weak forms from the LFC. The first is that weak forms are unteachable. That is in teaching weak forms classroom practice will focus on a feature whose quality is precisely the result of speakers not focusing on it (Brazil, 1994; Jenkins, 2000). This pedagogic focus may then, paradoxically, impede the later acquisition of weak forms in learning outside the classroom through exposure to L1 speech, and may explain why few fluent bilinguals ever productively acquire weak forms other than the articles in their vernacular English (Jenkins, 2000).

The second is the negative influence of weak forms on intelligibility. Weak forms hold potential problems of ‘recoverability’ where NNSs interlocutors are unable ‘to work backward from the surface form through a derivation to obtain the unique underlying representation’ (Weinberger, 1987:404). NSs also decrease their use of weak forms in situations where they are taking extra care to be understood (Weinberger, 1987). Similarly, both Deterding (2006) and Avery and Ehrlich (1992) argue that the relative absence of reduced vowel sounds does not seem to cause any misunderstanding and weak forms are unnecessary for L2 learners.

2.6.2.4 Rhythm

Another suprasegmental feature that is excluded from the LFC is ‘rhythm’ which is often used in describing music or speech to mean a regular beat or pulse (Marks, 1999). Discussion of rhythm in language distinguishes two fundamental types: *syllable-timed*, in which all syllables are of approximately equal length, and *stress-timed*, in which there are approximately equal intervals of time between stressed syllables (Roach, 2009a). It is said to be the stress-time rhythm of English which causes speakers to employ the features of connected speech (Jenkins, 2000).

One reason behind the exclusion of the stress-timing rhythm from the LFC is that the distinction between stress-timing and syllabus-timing sounds a false dichotomy (Crystal, 1996; Dauer, 1983; in Dalton and Seidlhofer, 1994). Although it is widely accepted that English is a stress-timed language, some argue that English is not truly a stressed-time language (Rosa, 2002; in Marks, 1999). According to Roach (1982), individuals could exhibit different rhythms depending on context. Hawkins (1984:178) explains:

There are many factors which can disrupt the potential rhythm of a sentence, and we find very often that sentences are not spoken rhythmically at all – the rhythm may be only potential, or latent. For example, the speaker may pause at one or more points in the utterance; he may be interrupted; he may make false starts, repeat a word, or in rapid speech, slur a number of words together, etc.

For all these factors, ‘assuming that a sentence is spoken rhythmically, we are referring to an ideal realization from which ‘performance’ factors are absent’ (Hawkins, 1984:178). This also makes the stress-timing have an unclear influence on intelligibility; which is one reason behind considering it a non-core feature. Another reason concerns the unteachability of English rhythm. Hawkins (1984) indicates that since in a syllable-timed language the speaker gives an approximately equal amount of time to each syllable, whether the syllable is stressed or unstressed, this produces a characteristically even and ‘staccato’ rhythm. Languages which sound ‘syllable-timing’ are more widespread in the world’s languages than ‘stress-timing’. For example, Crystal (1996) talks about Standard Filipino English, Hawaiian English, and Indian English as samples of syllable-timed

rhythm languages. This wide spread of languages which might sound syllable-timing might also suggest that the stress-timed rhythm of English will be a feature that is difficult to acquire by a wide range of NNSs.

It is important to clarify that describing NNSs' Englishes as 'staccato' or 'heavy' sounds biased against the mainstream ELF and the increasing argument that NNSs are legitimate users of English. Disregarding this argument is far from the intention of this research, and describing NNS pronunciation with words like 'staccato' or 'irritating' does not reflect the position of this research. However, these (and similar words) are used in this study to report on how some NNS Englishes are perceived as described in literature. This establishes the ground for exploring the attitude towards some NNS varieties of English and possibly its influence on the perceived intelligibility and comprehensibility of the speaker, which would facilitate reporting on the findings and discussion of this study.

2.7 Segmental-Suprasegmental Debate

It is argued by some researchers that suprasegmentals have a more serious effect on intelligibility than segmental errors (Anderson-Hsieh *et al.*, 1994; Celce-Murcia, *et al.*, 1996). In contrast, there are still some researchers, for example Van Els and De Bot (1987), who stress the importance of segmentals.

According to Jenkins (2000), the LFC represents an almost complete reversal of current phonological orthodoxy that segmental errors have a rather less serious effect on intelligibility than suprasegmental errors. That is the LFC seems to draw attention to the influence of segmental over suprasegmental features. However, Nakashima (2006) might seem to some researchers to reduce this movement arguing that most of the segmental errors in Jenkins' data (in the case of Japanese participants of her study) are attributed to suprasegmental causes, particularly lack of using weak forms. Nakashima argues that if Japanese learners could produce weak forms, the mistakes in their speech samples might be fewer.

This is not to say that this study subscribes to Nakashima's analysis. The reason for referring to Nakashima's study is that it draws on the idea that although in the first place a speaker might sound as mispronouncing segmental features, the core problem might not be attributed to the inability of the speaker to pronounce that specific vowel or consonant. However, the reason could actually be attributed to suprasegmental features in the same word where the mispronunciation of segmental feature exists. This position might explain a pronunciation phenomenon which has long been considered a pronunciation problem for learners whose L1 is Arabic. This is the pronunciation of /r/ particularly in words of more than two syllables. For example, in the word 'comfortable', primary stress occurs at the first syllable /'kʌm-f(ə)-tə-b(ə)l/. If the syllables of this word are equally stressed, or if stress is misplaced and occurs on the second syllabus (where /r/ occurs), the Arabic trilled /r/ would not be reduced. Accordingly, learners would be unable to produce the required rhotic /r/ which is a core feature in the LFC. This is due to the amount of air placed at the syllable where /r/ occurs. So pronouncing the Arabic trilled /r/ might sound a consonant problem whereas the problem might be misplacing word stress.

Additionally, Anderson-Hsieh (1995:17) emphasizes: 'not only that very few studies have actually investigated the relative roles of the segmental and suprasegmentals in intelligibility, but also that the few that have been conducted have been 'suggestive' rather than strongly conclusive of the greater influence of suprasegmentals'. In other words, it is not obvious yet which specific features have a stronger influence than other features or are crucial for intelligibility. Possibly, it is these features which are core features in the LFC, specifically nuclear stress.

So far, this chapter has introduced the contents of the LFC and the segmental-suprasegmental debate. The next sections will turn to learners' L1, which is Arabic. The inclusion of this is important as Jenkins (2000, 2005 and 2007) argues that learners can retain some features of their phonology without impeding intelligibility. The phonology of Arab learners' L1 will be also used to establish the pronunciation syllabus based on the LFC. Accordingly, the following will review briefly the background of Arab learners' L1 and then the phonology of Arabic.

2.8 Classical / Modern Standard Arabic and its Dialects

Arabic is a semitic language having a grammatical system similar to Assyrian, Aramaic, Hebrew and Ethiopian (Swan and Smith, 2001). Arabic is used in approximately 23 countries and in each country there are two main varieties: Modern Standard Arabic (MSA) and Non-Standard Arabic (NSA) (Mahmoud, 2000). MSA is a simplified version of Classical Standard Arabic (CSA), the language of the Koran - the holy book of Islam, and it is taught in schools throughout general education in the Arab-speaking world and used in the mass media in all Arab countries and for all communications of an official nature (Mahmoud, 2000; Swan and Smith 2001; Yorkey, 1974). Thus, most speakers of Arabic are familiar with standard dialect due to education and wide usage (Avery and Ehrlick, 1992).

NSA is the common language of everyday use and differs in these countries significantly in pronunciation, as well as in common lexical items and structure to the extent that Yorkey (1974) and Swan and Smith (2001) consider the differences among NSAs more marked than differences between UK, US and Australian English. Yorkey (1974) also claims that among Arab countries, Arabs use English as the mutually most convenient mode of communication. However, it is not clear in Yorkey's claim whether English is used for communication among Arabs or non-Arabs in the Arab countries. In the GCC countries, the context of this study, in Oman for example, at least 20% of the total population are non-Arab expatriates from countries like Pakistan, Philippines and Bangladesh (Al-Issa, 2006). This estimation of the non-Arabs expatriates is even larger in the UAE considering its multicultural diversity, which is evident in some parts of the country as in Dubai (Ali, 2009). Supposedly, English is the preferred medium of communication among these non-Arab expatriates in these regions as it is the common language shared by them, but this does not mean that it functions equally among the Arabs. This might explain why Holmes (2001) contradicts Yorkey (1974) suggesting that it is the MSA that functions as a lingua franca among the Arabs across the Arab countries. At linguistic level, Brame (1970) argues that the differences between Arabic varieties seem to be exaggerated as these differences occur in vocabulary and syntax more than phonology. The relevance of Yorkey's (1974) argument (about the variation in Arabic dialects, possibly in phonology) evokes a considerable issue in the teaching and learning of the

pronunciation of ELF. That is the diffusion of Arabic might entail similar diversity in learners' L1 background. This, accordingly, raises the issue of which of these varieties are Arab learners more likely to be inflected by in learning English. This issue is introduced and discussed in the next section.

2.9 The Acquisition of Second Language Pronunciation and Heterogeneity of Arab Learners' Phonology

There are at least six overlapping theories or hypotheses of second-language phonological acquisition which have been discussed in literature: *Contrastive Analysis Hypothesis* (CAH), *Language Universals*, *Interlanguage Analysis* (IL), *Error Analysis and Avoidance*, *Markedness Theory*, and *Information Processing Theory*.

Section 2.5.2 of this study discussed briefly two theories which were used when the LFC was introduced. Language universal was used to argue against the idea that the LFC might result in unintelligible speakers due to the diversification of their L1s. The study also introduced the critical period hypothesis which in the field of SLA accompanied the interlanguage hypothesis (IL) (Selinker, 1972) and refers to a unique linguistic system formed by L2 learners. This system is distinct from both L1 and L2 (Eckman, 1987). Interlanguage phonology is influenced by a number of factors, one of which is the learner's age (Major, 1987) and the fossilization of IL phonology in adult L2 learners (Tarone, 1987). Along with critical-period hypothesis, this thesis introduced Jenkins' argument to shift goals from aiming at NS pronunciation to intelligibility. This section will focus on the contrastive analysis hypothesis (CAH) and its relevance to the phonology of learners L1.

The *Contrastive Analysis Hypothesis* (CAH) (Lado, 1957; cited in Celce-Murcia *et al.*, 1996) holds that second language (L2) phonology is filtered through the learner's first language, and while L1-L2 similarity equates with simplicity in L2 acquisition, L1-L2 difference equates with difficulty. However, some literature demonstrates that similar sounds are not necessarily more acquirable than dissimilar sounds (Eckman *et al.*, 2003; Flege and Hillenbrand, 1987). This theory has also been challenged on the basis of its

inability to predict the degree of difficulty learners would experience with a given item and on the basis of conflicting evidence from error analysis in interlanguage research (Celce-Murcia *et al.*, 1996).

Wardhaugh (1970) differentiates between two types of contrastive analysis: the strong version, where the CAH is regarded as the ultimate prediction of all learning problems; and the weak form, which is a more valid version of CAH and holds that the CAH could explain the cause of many, but far from all, systematic language-learning errors and learning difficulties. Today most researchers in the field, while minimizing the role that L1 transfer plays in other areas of language acquisition, would agree that transfer is valid in acquiring L2 pronunciation. More specifically, this transfer (or cross-linguistic influence which used to be referred to negatively as ‘interference’ (Jenkins, 2006)) is a significant factor in accounting for foreign accents (FA) (Celce-Murcia, *et al.*, 1996).

The CAH and the diversity in Arabic varieties evoke the issue of from where Arab learners might transfer in learning English: MSA or NSA. In response, researchers became polarized. Mahmoud (2000) and Sharwood-Smith (1979) suggest the possibility of reliance on MSA rather than NSA. The reason is that both MSA and English are learned explicitly in a formal classroom situation while NSA is acquired naturally and informally having no conscious knowledge of its structure and how it works. In this way, even if the learners are more familiar with NSA than with MSA, it is still possible that they transfer from MSA in an attempt to use their explicit knowledge in Arabic with learning English. Nasr (1963) discusses the influence of teaching MSA on Arab learners’ abilities to recognize and acquire English phonemes. He argues that when Arab learners master some MSA phonemes (for example /θ/ and /ð/ which exist in MSA but not in some NSAs like Egyptian, Syrian and Lebanese Arabic) learners will have no difficulty with /θ/ and /ð/ in English. However, Yorkey (1974) did not find this to be true as learners’ awareness of these sounds remains a matter of conscious choice and consequently does not transfer to English easily.

Although this study realizes Yorkey’s argument that the pronunciation of /θ/ and /ð/ might act at the conscious level and be a matter of choice, it also considers three issues. Firstly, this is not the case with all Arabic dialects as /θ/ and /ð/ also exist in some colloquial

dialects, for example, most GCC, Iraqi, and some Mediterranean varieties (e.g. Jordanian and Palestinian varieties). Secondly, all Arabs are expected to receive 'intensive' instruction in MSA. This might not always result in mastering all MSA phonemes but learners would have achieved half way towards the Arabic /θ/ and /ð/, which would be sufficient to make the English /θ/ and /ð/ easier to acquire. It is important as well to notice that both /θ/ and /ð/ are non-core LFC phonemes but this discussion is also applicable to core sounds like /ʒ/ and /tʃ/. Thirdly, there are some phonemes which are shared by English and some Arabic dialects (like /g/ in some Egyptian and Omani dialects) which do not exist in MSA.

Overall, what seems to matter is not how different learners' NSA is from MSA nor where learners transfer from in learning the LFC (NSA or MSA). It is whether these differences are core or non-core features in the LFC. For example, in Egyptian dialect, which to my knowledge is widely used to reveal how significant the difference is between its phonology and the phonology of MSA, the sounds which exist in MSA but not in Egyptian dialect are:

1. The voiced dental alveolar (emphatic)¹ fricative [ðˤ] (presented in Arabic by the letter: ط)
2. The voiceless uvular stop consonant /q/ (presented in Arabic by the letter ق) (i.e. /qæləm/ or 'pen').
3. The voiceless inter-dental fricative /θ/ (i.e. 'three' in English and /θæləθæ/ in Arabic which also means 'three').
4. The voiced inter-dental fricative /ð/ (i.e. 'the' in English and 'ðækɪ' in Arabic which means 'clever').
5. The voiced post-alveolar fricative /ʒ/ (i.e. 'television' in English and /ʒəmeɪl/ in Arabic which means 'beautiful').

Among the above sounds, the first and second phonemes ([ðˤ] and /q/) exist neither in the LFC nor in RP or GA. The third and fourth phonemes (/θ/ and /ð/) are non-core features and substituting them with other phonemes (for example /s/ and /z/) is acceptable as this substitution has proved empirically (according to Jenkins 2000) that it does not cause

¹ Emphaticness is a distinctive feature in Semitic language (i.e. Arabic and Hebrew) (Laufer and Baer, 1988). Emphatics are pronounced with the back of the tongue approaching the pharynx (Dalattre, 1971; cited in Al-Tamimi *et al.*, 2009).

breakdown in communication. So it is only the last phoneme, /ʒ/, which Egyptian learners are expected to find difficult and will need more instructions in order to produce.

While this research involves MSA in contrastive analysis (CA) with the LFC, it makes no claim that Arab learners necessarily transfer from MSA rather than NSA in learning English pronunciation. The diffusion of Arabic does not only seem to generate the differences in phonology among its variations, but it also incorporates ‘equivalence’ among them. It is important to mention that contrastive analysis (CA) is a matter of ‘association’. According to Walker (2001a:5), in this ‘association’, ‘we link the pronunciation feature we are aiming at with an equivalent or near equivalent feature in the student’s own language, or in related languages, dialects or accents’. The fricative sounds /θ/ and /ð/ mentioned above, which are non-core features in the LFC, might be easier to introduce to Egyptian learners of English (who would realize them due to possible exposure to other Arabic varieties whose speakers use these two sounds, i.e. Kaleeji dialect), than to other English learners with another L1 (who do not realize them as they neither have them in their own L1, nor are they exposed to other variation of their L1 where these phonemes or their equivalence are used).

For this reason, while using MSA in the CA with English, this study does not intend to disregard the influence of the learners’ NSA variety (and/or the other varieties which the learner might recognize); it rather supports the positive influence of the learners’ phonological background, being the learners’ own NSA, or other NSA varieties which the learner might have encountered.

Having established this background, the study could next introduce the phonology of MSA.

2.10 The Phonology of Modern Standard Arabic (MSA)

This section reviews the phonology of MSA based on its similarities to and differences from the phonology of English.

2.10.1 Segmental Features

2.10.1.1 Vowel Phonemes

Vowel phonemes in English are classified into twelve monophthongs (or pure vowel phonemes) - (/æ/, /a:/, /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). The number of vowel sounds in English is uncertain and this might be attributed to two reasons: the difference in the varieties of English, and the diversity in the linguists' analysis of a single variety. This affects the number of triphthongs, for example /aɪə/ and /aʊə/ are considered by some linguists as single vowel sounds and considered by some others as a sequence of two vowel sounds; a diphthong followed by /ə/ (Deterding, 2004). Arabic, however, has no triphthongs, has only two diphthongs (/aɪ/, /aʊ/) and six monophthongs (3 short vowel sounds: /ɪ/, /ʊ/, /æ/ and 3 long vowel sounds: /u:/, /i:/, /a:/). In Arabic, different dialects use other sounds, mainly allophones of those listed above (Kharma and Hajjaj, 1997; Swan and Smith 2001).

The following chart includes the English vowel sounds (except the three triphthongs /ɔɪə/, /eɪə/ and /əʊə/). Shaded phonemes have equivalents or near equivalents in Arabic and are therefore expected to be perceived and articulated without great difficulty. Unshaded phonemes may be a source of difficulty (Swan and Smith, 2001).

ɪ	ɪ	e	æ	eɪ	aɪ	ɔɪ
ɑ:	ɒ	ɔ:	ʊ	aʊ	əʊ	ɪə
u:	ʌ	ɜ:	ə	eə	ʊə	aɪə aʊə

Swan and Smith (2001:196)

One of the most difficult areas is the use of schwa (/ə/). The schwa substitutes several vowel sounds when they are unstressed. The vowel in the *function words* (like *does*, *the*, *for*, and *to*), is reduced into a schwa in connected speech – (am /əm/ - does /dəz/ - for /fə/ - to /tə/). Such a reduction of the vowel is not a distinct feature of Arabic. Arab tradition insists on very distinct articulation of every letter of the alphabet. This is the reason why when Arab learners listen to NS they get the impression that those speakers ‘eat up half the sounds of the language’, as the saying goes (Kharma and Hajjaj, 1997:16).

2.10.1.2 Consonant Phonemes

English has 24 consonant sounds while Arabic has 28 (Kharma and Hajjaj, 1997). The chart below includes English consonant sounds. Shaded phonemes have equivalents or near equivalents in Arabic and should therefore be perceived and articulated without great difficulty. Unshaded phonemes may cause problems (Swan and Smith 2001).

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 (2001:197)

Similar to English, Arabic has the velarized (or pharyngealized) /l/ ([ɫ]) as an allophone to the voiced alveo-dental approximant consonant /l/. This involves moving the tongue body and root from their neutral vocal tract position towards the position for the vowel phonemes [ʊ] and [ɒ]. In Arabic, the so-called ‘emphatic’ consonant sounds like /l/, are either velarized or pharyngealized (Clark *et al.*, 2007).

2.10.1.3 Consonant Clusters

Consonant sequences in Arabic and English differ greatly. Arabic has no sequence of more than two consonant phonemes whereas English has as many as four consonant phonemes with no vowel intervening between them, e.g. /ɪk'skleɪm / (exclaim) and /teksts/ (texts). It is quite unusual for languages to have consonant cluster of this type. Indeed the syllable structure of many languages e.g. Japanese is predominantly consonant-vowel (CV). The result of this is that many learners from different L1s find the pronunciation of English consonant clusters difficult and employ two broad strategies: vowel insertion or consonant deletion (Jenkins, 2000; Walker, 2010). Arabs are more likely to use addition than deletion (Kharma and Hajjaj, 1997), In connected speech the sequence may be even longer; one word may end with a consonant sequence and the next word may begin with another. Thus longer sequences like /bænskkləʊzd/ (bank closed) might exist.

2.10.2 Suprasegmental Features:

2.10.2.1 Intonation

English and Arabic intonation patterns are quite similar. This, however, does not mean that Arab learners have no difficulties using English patterns. Intonation implies not only the attitude of the speaker but also the grammatical structures, although Jenkins (2000) was careful at this point and argued that intonation is connected with grammar while they are two different systems. These grammatical structures are not the same in the two languages. For example, '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). Furthermore, there are more primary contours in Arabic than in English utterances. This causes, according to the deficit non-ELF approach, the 'staccato beat' of Arabs speaking English.

Additionally, Arab learners are often unaware of the attitudinal role of intonation in speech, but even this attitude was argued to vary according to individuals (Jenkins 2000).

There are various patterns of intonation showing various meanings depending on the intention of the speaker (e.g.: polite and friendly, asking to repeat, detached and reserved, reassuring). This is why Arabs may sound abrupt and commanding when speaking English (Kharma and Hajjaj, 1997).

2.10.2.2 Word Stress (lexical stress)

Being a universal phenomenon, stress in all languages tends to be accompanied by some lengthening of the stressed syllables and reduction in the duration of unstressed ones. But different languages exploit this tendency differently. In Arabic, syllables are not lengthened as much as in English. Moreover, Arabic unstressed syllables do not undergo the same drastic weakening in their vowel quality which is characterized in English by the use of the schwa (Benrabah, 1997). The differences between word stress in English and many of the other L1s (including Arabic) is introduced below:

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 (Jenkins, 2000:40).

Because of the difference between word stress in English and many other languages, Jenkins (2000) suggests that even on occasions where NNSs place word stress correctly, it may not be perceived as such, especially by NS listeners and possibly NNSs who are accustomed to word stress in English. The reason is that those listeners will be expecting the acoustic cues of length and weakness in addition to that of pitch change

Similar to English, Arabic has three levels of stress: a primary, a secondary, and a weak stress. It was claimed that unlike English, Arabic stress patterns are far more predictable (Nasr, 1963, Zawaydeh *et al.*, 2002; Kharma and Hajjaj, 1997; Benrabah, 1997). However, this idea could be challenged by looking at both 'lists' of roles of where to place word stress in Arabic and English. Like native English speakers, native Arabic speakers place

word stress unconsciously. So being ‘predictable’ or not is not among the issues which native Arabic speakers consider when pronouncing Arabic words and placing the stress appropriately (or consistently according to their dialect). A quick look at the list of rules to place word stress appropriately in Arabic suggested by the writers (who claim that word stress in Arabic is predictable) would suggest that any learner of Arabic as a second language would consider word stress of Arabic as ‘unpredictable’ as English. In this way, predictability of word stress in English and/or Arabic might not be what makes word stress in English problematic to Arabs.

2.10.2.3 Sentence Stress, Weak Forms and Rhythm

The degree of rhythm varies among Arabic dialects. As indicated above, most researchers widely agree that Arabic is a stress-timed language. However, Kharma and Hajjaj (1997) claim that it is a syllabus-timed language. Few of these studies indicate which Arabic varieties are being described. Hamdi *et al.* (2004) investigated speech rhythms in different Arabic dialects that have been constantly described as ‘stress-timed’ compared with other languages belonging to different rhythm categories including Western Arabic (i.e. Moroccan, Algerian and Tunisian) and Eastern Arabic (Egyptian, Jordanian and Syrian). Their experiment revealed that despite their rhythmic differences, all Arabic varieties still cluster around stress-timed languages. This research considers the fact that Arabic is (arguably) classified as a stress-timed language as found by Hamdi *et al.* (2004) and subscribed to by most researchers (for example Avery and Ehrlich, 1992; Zawaydeh *et al.*, 2002; and De Jong and Zawaydeh, 2002) with the realization that it cannot be truly stress-timed. As mentioned earlier, the stress-timing and syllable-timing exist in a continuum and the distinction between them is a false dichotomy (Crystal, 1996).

Although both Arabic and English are (arguably) stress-timed languages, primary stresses occur more frequently in Arabic than in English, and unstressed syllables are pronounced more clearly in Arabic, with neutral vowel sounds, and not ‘swallowed’ as in English (Swan and Smith, 2001; Crystal, 1996; Avery and Ehrlich, 1992; Zawaydeh *et al.*, 2002). Arabs speaking English ‘will often avoid contracted forms and elisions’ and eventually they sound as having , ‘a rather heavy staccato rhythm’ (Avery and Ehrlich, 1992:199). In English there is a greater reduction in duration between stressed and unstressed syllables

than in Arabic (Van Summers 1987; De Jong and Zawaydeh, 2002; De Jong and Zawaydeh, 1999).

2.11 Goals of Teaching Pronunciation

Jenkins (1998, 2002 and 2005) drew on the distinction between users of EFL, who learn English to facilitate communication with NSs, and users of EIL/ELF, who learn English for international communication rather than for communication with its NSs. Literature increasingly argues for the need to shift from aiming at native-like pronunciation to intelligibility (Celce-Murcia *et al.*, 1996; Kenworthy, 1987; Pica, 1994) since, with the spread of English, the EIL target community is not solely NSs but an international community (Jenkins, 2005; Walker 20001; Borwn (1989a). Like Jenkins, Smith and Nelson (2008), Smith (1992), Taylor (1991), and Munro and Derwing (1995 and 1999), all argued that it is unnecessary for every user of English to be intelligible to every other user rather to those with whom he/she is likely to communicate in English (with the consideration made by Jenkins that this shift does not suggest giving up aiming at NSs pronunciation at least by some learners).

Part of this distinction between teaching EFL and ELF involves the differences in the contents of the two pronunciation syllabuses used in teaching EFL and ELF/EIL. Table 2.1 includes the inventory of phonemes which are traditionally included in teaching the RP and/or GA pronunciation, while the column on the right hand includes the features of the LFC. However, distinction between teaching EFL and ELF does not reside at this and it has an echo on the overall practice in classroom teaching. EFL is still seen by the majority of SLA researchers and teachers as dependent on NS norms and this could explain why the inner-circle has been described as ‘norm-providing’ while the expanding circle is ‘norm-dependent’ (Chapter One) which is due to this deficit perspective about the conformity to an NS (Jenkins, 2006).

Table 2.1: Targets of the EFL pronunciation syllabus and the EIL pronunciation syllabus

		EFL targets	ELF/EIL targets
1	The consonant inventory	All sounds	All sounds except /θ/ and /ð/
		RP non-rhotic /r/	Rhotic /r/ only
		GA rhotic /r/	
		RP intervocalic [t] GA intervocalic [t]	Intervocalic [t] only
2	Phonetic requirements	Rarely specified	Aspiration after /p/, /t/, and /k/. Appropriate vowel length before fortis/lenis consonant phonemes.
3	Consonant cluster	All word positions	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. Plus /ɜː/.
6	Weak forms	Essential	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

(From Jenkins, 2005:149)

One of those differences is that from the EFL perspective (like any Modern Foreign Language), forms in English which do not commensurate with NS norms are considered ‘errors’ while these are considered ‘variations’ from the perspective of ELF. An example of this is in the case of the transfer of linguistic elements from one language into another. For example, a sentence begins in one language, then makes use of words or grammatical features belonging to another, a phenomenon which is referred to as ‘code-mixing’ (Crystal, 1997). This is considered in EFL as primarily the result of gaps in the learner’s knowledge of NS forms, while it is an acceptable (even a positive rather than a negative) phenomenon from the ELF perspective. That is this phenomenon helps the L2 speaker project his/her identity and communicate interactively rather than exemplifying a gap in knowledge.

ELF has also been mistakenly connected with ‘interlanguage continuum’ (Selinker, 1972) (the system which L2 learners develops, bordered by L1 at one extreme and L2 at the other). EFL has traditionally been positioned along with a continuum based on how close their accomplishment is in English to NSs. However, from ELF perspectives, positioning ELF learners at any point of this continuum is biased against them as ELF learners’ use of English is subject to different criteria from those subscribed to by EFL learners; NS pronunciation is neither the aim of L2 learners nor necessary in the ELF context. Accordingly, placing ELF learners' level in English along this continuum might faultily reflect failure to acquire L2 and suggest a gap between their level in English and NSs’ (which is not their ultimate goal).

The differences between ELF and EFL which were discussed briefly above are laid out in Figure 2.2. This figure also indicates that the actual outcome of ELF and EFL may possibly be the same forms reached by different routes, despite the differences in EFL and ELF perspectives. In summary, Jenkins (2006) argues for the need to provide alternative perspective for the current mainstream SLA that could consider ELF learners legitimate users of ELF rather than failed learners of EFL, and harmonize between ELF users’ needs and the nature of ELF context.

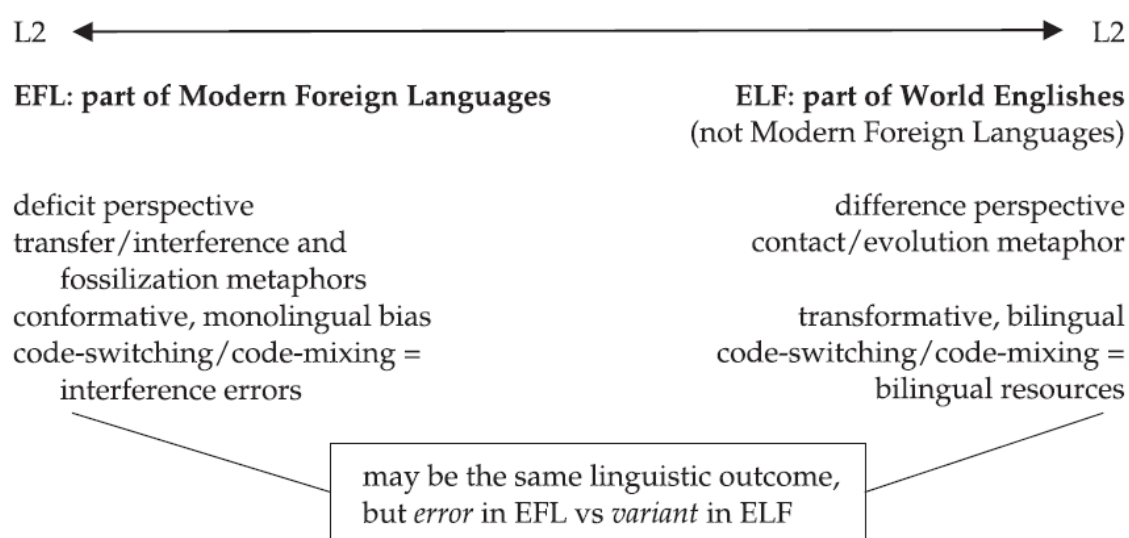


Figure 2.2: EFL contrasted with ELF (from Jenkins, 2006:140)

Although this research supports the necessity to shift the mainstream SLA perspective in accordance with the ELF position and the needs of its learners, it is also conservative about the idea of offering ELF and EFL as two different choices. Trudgill (2005), Wells (2005) and Sobkowiak (2005) argue that it is not realistic to ask for a choice between EFL and ELF/EIL, and question how teachers and learners can predict which particular students are going to be ELF and not EFL users in the future. Polish learners, for example, according to Wells and Sobkowiak, will need to be both speakers of EFL and EIL. The phenomenon of globalization where the globe is communicating and interacting as one place (as introduced in Chapter One) makes the decision of the scope of whom a person might communicate with become unpredictable. Living within the inner-circle might not be even a convincing reason to aim at NS pronunciation. A study by Al-Issa (2006) shows that most students who are sent abroad by the Omani government for post-graduate studies go to the inner-circle countries. It is unwise to assume that those learners could have been given the chance to choose between becoming a learner of ELF or EFL. It is equally difficult to assume that a learner would have predicted that he/she will live in the inner-circles (where chances of communication with NSs might be expected) and would have accordingly planned to aim at NS pronunciation at earlier stages in their education when they started to learn English. This type of prediction (along with being impossible to some extent) does not sound to be helpful in the decision to be a learner of EFL or ELF. For Kirkpatrick (2007), it is not necessarily true that learning a native-speaker model will help learners who plan to study in the UK, the USA, or Australia, because these host countries are likely to have a mixed multicultural population who speak 'localised' versions of their own varieties of English.

Additionally, if theoretically being intelligible to the target community (whether NS or NNS) requires different demands, learners will prefer to be EFL users. According to Jenkins, this means to learn for the purpose of communicating with NSs. The fact that NNSs dramatically outnumber NSs and most communication settings are possibly among NNSs might not be sufficient to motivate NNSs to learn ELF instead of EFL; the power of the inner circle, as demonstrated in the works of Matsuda (2003), Al-Issa (2006) and Pennycook (1994), makes communication with NSs unavoidable, and the idea of being unable to communicate with them becomes a concern, even if this communication is not definitely decided when to occur in the future of the NNS. Trudgill (2005) sounded

reasonable when he drew on one example of this unavoidable contact which is electronic and televisional media.

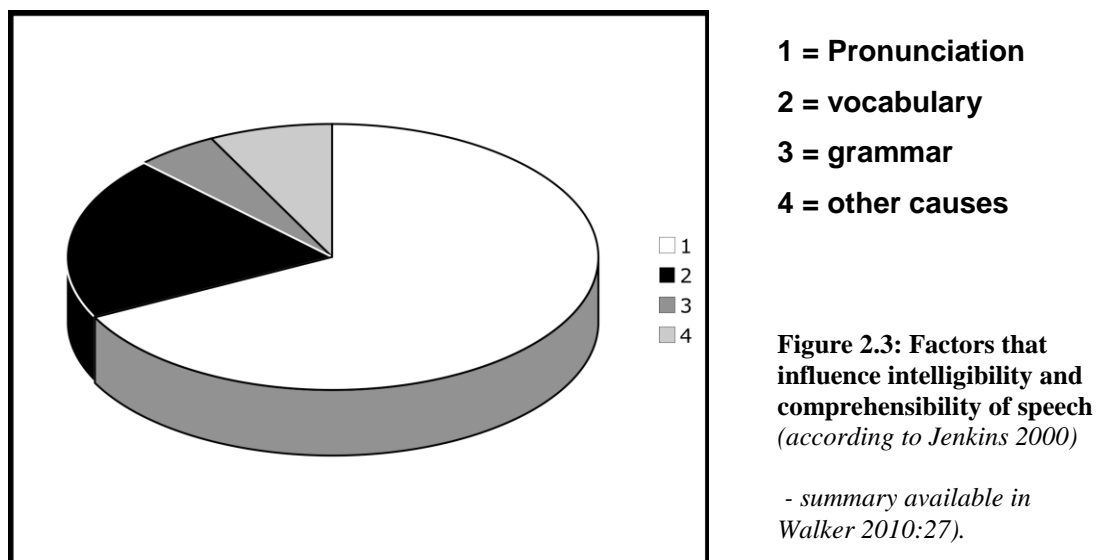
Where there are still learners who aim at native-like pronunciation, for any reason which might be their own wish and interest, it is important to rethink which NS pronunciation features are sufficient to sound like NSs once acquired and, accordingly, introduce to learners. Gut (2007) investigated which acoustic features distinguish non-native from native. Despite the wide range of significant differences between the acoustic features of NS and NNS speech, only limited features correlated with native-speaker rating of the degree of FA. These were the general durational properties such as articulation rate and mean length of syllables. Vowel reduction, consonant cluster reduction and pitch range did not seem to influence the accent ratings given by NS judges (Gut, 2007).

It is worth mentioning again that Jenkins (2006) shows that learners of both EFL and ELF are more likely to arrive at the same outcomes and the same forms despite the substantial differences between EFL and ELF perspectives (Figure 2.2). Therefore, the reason behind offering learners two different options (EFL and ELF) is not proven to be satisfactory, neither for those who aim at NS pronunciation, nor for the ELF learners who are expected (according to Jenkins' 2006 argument) to be able to predict the scope of their future communication in English. For all these reasons, the choice between learning EFL or ELF based on the expectation of current and future communication opportunities does not seem to be reasonable.

2.12 Factors Influencing Perceived Intelligibility and Perceived Comprehensibility

Literature has provided several factors that influence perceived intelligibility and comprehensibility of speech. For example: technical issues (Catford, 1950); lack of face-to-face communication (Munhall, *et al.*, 2004; Bernstein *et al.*, 2000); NNS listeners' level of proficiency of English (Smith and Nelson, 2006); frequency of using NNS listeners English (Meador *et al.*, 2000); and mastering accommodation skills (Giles and Smith, 1979).

In Jenkins's data (2000), from a total of 40 instances of communication breakdown, 27 were attributable to pronunciation, eight to lexis, two to grammar, and three to other causes (Figure 2.3)



This section discusses the factors that are most relevant to this work. These are: syntax, lexicon, listeners' attitude towards speakers' accent, and familiarity of listeners with Arab speakers' phonology and accent.

2.12.1 Lexicon and Syntax

Along with phonology, syntax and lexicon also influence intelligibility and/or comprehensibility (1980; Kenworthy, 1987; 1982; Munro and Derwing, 1995; Trudgill, 2005; Fayer and Krasinski, 1987). According to Catford (1950), phonology, syntax and lexicon belong to the speaker's selection and execution of speech; the early stages of producing speech, suggesting their inseparable and interrelated influence on understanding speech (Varonis and Gass, 1982a; Llorca, 1995). Izumi *et al.* (2007) reveal the importance of vocabulary over grammar in NNS/NNS communication as, to them, one might be able to speak using just a few grammar rules and still be understood, but without using appropriate vocabulary, communication can hardly be successful. The chart above about the influence of different factors on intelligibility established by Walker (2010) and based

on Jenkins' findings might be helpful in revealing the superiority of pronunciation on the intelligibility of speech.

Seidlhofer (2003 and 2004) compiled the Vienna-Oxford International Corpus of English (VOICE); a corpus of largely face-to-face interaction among fairly fluent speakers from a wide range of L1 backgrounds. Its overall objective was to provide an empirical description of ELF and discover what salient common features of ELF use (if any, notwithstanding all the diversity) emerge. Seidlhofer's research found that being unfamiliar with certain vocabulary items can cause problems, particularly when speakers lack paraphrasing skills (Seidlhofer, 2004).

According to Budanitsky and Hirst (2006), when discussing the relationship between the concepts of two different words, it is necessary to distinguish clearly among the following three terms: semantic *relatedness*, semantic *similarity*, and semantic *distance*. For Resnik (1995), *cars* and *gasoline* would seem to be more closely related than *cars* and *bicycles*, but the latter pair is certainly more similar.

Moving to the influence of grammar, Seidlhofer (2004) summarizes some grammatical aspects which appear generally unproblematic to communicative success. These include:

- 'Dropping' the third person present tense –s
- 'Confusing' the relative pronouns *who* and *which*.
- 'Omitting' the definite and indefinite articles where they are obligatory in NS English and insertion where they do not occur in NS English.
- 'Failing' to use 'correct' form of question tag questions (e.g., isn't it? Instead of 'shouldn't they'?)
- Inserting 'redundant' prepositions (as in '*we have to study about ...*').
- 'Overusing' certain verbs of high semantic generality (such as *do*, *have*, *make put* and *take*).
- 'Replacing' infinitive constructions with that-clauses (as in *I want that ...*).
- 'Overdoing' explicitness (e.g. *black colour* rather than just *black*).

2.12.2 Listeners' Attitude

Numerous studies have provided compelling evidence that a negative attitude towards language variation has a negative influence in intelligibility and/or comprehensibility (Jenkins, 2007; Smith and Nelson, 2008 and 2006; Rajadurai, 2007; Scales *et al.*, 2006; Pickering, 2006).

Eisenstein and Verdi (1985) focused on the influence of attitude towards ethnic groups on intelligibility. They found that Black English was the least intelligible of the three English varieties in their study (Standard English, New Yorkese, and Black English) despite the fact that population in their study had considerable contact with Black English speakers and expected understanding to be easy.

Another study by Wolff (1959; in Jenkins, 2007) found that although the languages spoken by two communities in the Niger Delta, the Nembe and the Kalabari, were linguistically similar, the Nembe group who were economically poor and politically powerless, said they could understand the speech of the Kalabari. However, the politically powerful Kalabari claimed to find the Nembe's speech unintelligible. Similarly, Giles and Powesland (1975) and Ryan and Carranza (1975) found that some accents or language groups are rated more favourably than others regarding status or position in the social scale.

The influence of attitude on intelligibility/comprehensibility was also investigated through the concept of 'irritation'. For Fayer and Krasinski (1987), irritation is seen as consisting of two components: *distraction* and *annoyance*. Distraction diverts attention from the message. Annoyance is a negative, subjective reaction to the form. Ludwig (1982:275) explained the relationship between irritation and comprehensibility focusing on the differences in level of proficiency between listeners and speakers:

In most situations the competence of native speakers allows them to focus on the meaning of a message, paying scant attention to form [...] where comprehensibility and irritation are intricately linked. While a given error type may be more or less likely to cause irritation, this same error type may not invariably interfere with

comprehensibility in equal measure. But in general, higher comprehensibility implies lower irritation.

For Ludwig (1982), errors in the message may affect comprehensibility by making the listener irritated or by drawing attention from the contents of the message. According to Kenworthy (1987), self-corrections, hesitations and degree of confidence, and grammatical restructurings can all influence comprehensibility.

Two controversial issues are connected to the influence of attitude on intelligibility and/or comprehensibility. Firstly, attitude does not necessarily act at the subconscious level. Although prejudice might penetrate listeners' assessments of accented utterances, Munro *et al.* (2006) suggest that participants can choose to downgrade or ignore speaker's accent in evaluating his/her comprehensibility. For them, when listeners constrain their subjective attitudes towards accented utterances, they are able to rate speakers' comprehensibility on a dispassionate, if not objective, basis.

Secondly, NNSs are not necessarily more tolerant towards NNS varieties than NSs. Fayer and Krasinski (1987) found that Spanish listeners were less tolerant toward non-native speech than English listeners. This is also similar to the attitude of NS listeners towards Vietnamese in the study by Ingram and Nguyen (1997) who also found that Arab and Japanese listeners reported significantly greater difficulty understanding the utterances of Vietnamese speakers than did the NS.

The influence of attitude on perceived intelligibility (PI) and/or perceived comprehensibility (PC) can be discussed through *ethnolinguistic identity theory* which was introduced by Giles and Johnson (1981 and 1987), but has its root in earlier research on *social identity theory* (Tajfel, 1982; Tajfel and Turner, 1979). Tajfel's theory holds the idea that individuals categorize the social world and, hence, perceive themselves as members of various groups. Such knowledge of ourselves as group members is defined as our social identity, and it has meaning only in social comparison with other relevant groups which may result in either positive or negative self-concept. It is assumed that one strives to achieve a positive identity (or positive 'psychological distinctiveness') by seeking dimensions that make our own social group favourably distinct from outgroups (Tajfel,

1982; Tajfel and Turner, 1979). Thus, individuals of the ingroup may attempt to make themselves favourably distinct on dimensions such as language by achieving 'psycholinguistic distinctiveness' (or the accentuation of the ethnic speech and non-verbal markers such as vocabulary, slang, and gesture) (Giles *et al.*, 1977; Giles and Coupland, 1991). According to the ethnolinguistic identity theory, when the comparison with the outgroup results in positive perception, speakers accentuate their linguistic specification. However, when the comparison with the outgroup results in negative perception, the members of the minority group tend to identify with the powerful majority group when in contact with them and attenuate the linguistic distinctiveness of their group (Giles and Johnson, 1981 and 1987).

Within ethnolinguistic identity theory, Giles *et al.* (1977) and Giles and Johnson (1981 and 1987) proposed a construct called *ethnolinguistic vitality* that can either increase or decrease the level of a person's sense of ethnic belongingness and, accordingly, the desire to accentuate or attenuate his/her ethnolinguistic identity. Giles *et al.* (1977) suggested that ethnic groups could be compared in terms of 'ethnolinguistic vitality' towards which three main groups of factors contribute:

- a. status (economics, political, and linguistic prestige);
- b. demographics (absolute numbers, geographical concentration, and birthrate); and
- c. institutional support (recognition of the group and its language in media, education, and government).

The literature provides evidence of how the ethnolinguistic vitality is relevant to the inner, outer and expanding circles. However, it is not the purpose of this study to start this argument but to focus on one side of it which is the economic, political, and linguistic prestige of the inner-circle and its influence on both NNS/NNS and NS/NNS communication. This powerful status of the inner-circle is documented in the work of Phillipson (1992) and exemplifies a typical feature of 'linguistic imperialism'. It also merged the 'gatekeeping' issues (Jenkins, 2005), marginalized the demographic power of the NNSs and impeded the fight for the recognition of ELF (Jenkins, 2007).

An NS group member with such vitality is more likely to accentuate the ethnolinguistic distinctiveness of his/her group. For this reason, if convergence involves moving away from group members towards NNS interlocutors, NSs might prefer to diverge from, rather than converge with, his/her NNS interlocutor in an attempt to accentuate the power of his/her ethnic group. In this sense, Kroch (1978:18) suggested that:

Dominant social groups tend to mark themselves off symbolically as distinct from the groups they dominate and to interpret their symbols of distinctiveness as evidence of superior moral and intellectual qualities (quoted in Chambers, 2003:274-275).

According to Chambers (2003), speech is a tool, perhaps a weapon, with which the higher class can maintain the gap between itself and the rest of society (the rest of English speakers in the case of EIL). It is worth considering whether Chambers' argument above is applicable in the case of speakers of the inner-circle communicating with other speakers of English.

2.12.3 Familiarity and Background

It is generally agreed that the greater the active involvement a listener has with an individual or with a variety of English, the greater the likelihood that he/she will find that person or variety intelligible (Smith and Nelson, 1985). This involvement might exist in several forms, for example, shared awareness of the language system (how the language works); context (what has been said before - over time or unique to one interaction); the topic of discourse (Gass and Varonis, 1984; Smith, 1992); cultural events; shared awareness of very local events / circumstances (Brown, 1990; Cauldwell and Allan, 1999 in Chapman, 2007); and exposure to certain individual(s) or varieties (Smith and Nelson, 1985).

2.12.3.1 Expectations of Listeners

Catford (1950) explained the importance of the expectations of listener to lower the intelligibility threshold arguing that identification of sounds depends on the hearer's ability to associate the heard sounds with his/her own 'mental images' or residual traces of these sounds. These traces are *auditory* (that is, the result of previous hearings of the sounds), and *kinaesthetic* (that is, traces left of the muscular and tactile sensations which the subject has experienced on past occasions when he himself pronounced the sounds).

According to Pickering (2006) and Smith and Nelson (1985), a listener who expects to understand a speaker will be more likely to find that speaker more comprehensible than one who does not. Rubin (1994) tested how listeners' expectations about speakers' accents can be related to success or failure in comprehending their speech. In his study, subjects listened to a recorded mini-lecture by an American NS with little regional accent. In one group, the subjects listened to the lecture with a photo of an Asian supposedly delivering the lecture, while the other group was shown a photo of a Caucasian lecturing. The group with the Asian photo rated the speaker as having a heavier FA and scored lower on a task measuring recall of the lecture than the latter group, despite the fact that the speech the two groups heard was identical.

2.12.3.2 Foreign Accent (FA)

Munro and Derwing (1995 and 1999) demonstrated that FA does not impede intelligibility and communication can be remarkably successful when foreign accents are noticeable or even strong. Opposing the findings of Munro and Derwing, Rubin and Smith (1990) found that foreign-accented speakers were perceived less intelligible, less competent, and even less attractive than native speakers.

Familiarity with how certain accents sound is argued to lower the intelligibility and/or comprehensibility threshold. Ingram and Nguyen (1997) found that the Arab and Japanese listeners reported significantly greater difficulty understanding the utterances of Vietnamese speakers than did the native English and the other L2 listener groups. In their

study, accent influenced intelligibility because the listeners experienced difficulty in understanding utterances that differed from the sound patterns to which they were accustomed or had learned. This finding is similar to those by Jenkins (2000), Rogerson-Revell (2007) and Gumperz (1982). However, it is also argued that exposure to certain accents and general familiarity of how they sound is not sufficient to decrease the threshold of understanding speech, but linguistic knowledge is required. According to Yang (2009), without an adequate contrastive analysis of the L1 and L2 sound systems, adults often fail to effectively improve their L2 listening comprehension and speaking skills. Scales *et al.* (2006) found that their 11 Taiwanese listeners had the highest accuracy rate in identifying the Taiwan English accent from American, British and Mexican accents, but did not find it easiest to understand; rather, they found the American accent, which they had received instruction in, easiest to comprehend. Flege (1988) discovered that non-native judges' ability to recognise FA appears to increase proportionally with command and experience with the foreign language (FL). This gap between identification of accent and understanding has an echo in ELT setting (Schmidt, 1992); it is argued that exposing learners to different varieties has a minor effect in mutual intelligibility, unless they are accompanied by knowledge of the accented English sound patterns in question (Yang, 2009).

Frequent exposure to certain accents was also argued to facilitate intelligibility (Gass and Varonis, 1984; Rajadurai, 2007; Smith, 1992; Taylor, 1991; Giles and Smith, 1979; Jenkins, 2000; AMEP, 2002; Smith and Nelson, 2006, Catford, 1950; Tauroza and Luk, 1997). According to Matsuura *et al.* (1999), exposure to a certain variety has at least a positive psychological effect on the listeners, which could lead to less inhibition, bias toward and more tolerance of different varieties of English. The reason why familiarity has a positive influence on comprehensibility is that it is likely that familiarity with any variety of spoken English – either regional or personal, can make English learners more confident in listening to that variety of English, and can consequently make them feel they understand more than they can actually transcribe. Matsuura *et al.* (1999) suggested that familiarity may enable students, even with limited proficiency, to think they understand fairly well. It may enable them to feel more confident and less inhibited in encountering and talking to native speakers. In this way the influence of frequent exposure to English varieties does not develop familiarity with how these varieties sound or even their phonological features, but has a psychological impact on L2 speakers which could reduce the threshold of understanding speech.

There are two issues to consider about the influence of familiarity with accents on intelligibility and/or comprehensibility. The first is the argument of Brown (1989a) that intelligibility is not always reciprocal; if speaker A can understand speaker B easily, it does not necessarily follow that speaker A's speech is equally easy for speaker B to understand.

The second is the influence of attitude on intelligibility and/or comprehensibility which might be overtaking the influence of familiarity. A negative attitude toward the speaker of a particular variety of English will tend to decrease intelligibility in spite of the listener's frequent exposure to that variety (Fayer and Krasinski, 1987). As mentioned earlier in the study by Eisenstein and Verdi (1985), Black English was the least intelligible of the three dialects in their study (Standard English, New Yorkese, and Black English) despite the fact that this population had considerable contact with Black English speakers. Thus, developing a tolerant attitude, familiarity and accommodation skills are argued to enhance NSs' as much as NNSs' skills to communicate intelligibly and comprehensibly (Taylor, 1991; Kubota, 2001; Smith, 1983 and 1992; Rajadurai, 2007; Smith and Nelson, 1985; Bamgbose, 1998).

2.13 Conclusion

This chapter has critically analysed the relevant literature on the intelligibility of a syllabus based on the LFC while keeping the focus on Arab learners. It is evident from the literature that scholars do not agree on the definition of intelligibility and comprehensibility. However, there is a tendency to consider these two terms as different concepts where one does not necessarily lead to the other. This research subscribes to the definition of intelligibility and comprehensibility by Smith and Nelson (1985) which considers that these two concepts are layers of perceiving speech, where intelligibility is limited to understanding speech in terms of recognizing words, while a more advanced stage is comprehending words and understanding their meaning within context.

Of the different theories that exist to explain how speech is perceived, this study focuses on Catford's (1950) conceptualization of speech perception. There is almost a total consensus that intelligibility and comprehensibility are influenced by a wide range of factors, which in themselves vary in definition and the underpinning notion under investigation. This chapter also introduced the phonology of LFC and MSA, Arab learners' L1. Before introducing the MSA phonology, this chapter discussed the reasons for considering MSA rather than other varieties of Arabic in L1 transfer.

This chapter specified the factors and their meaning which are most relevant to this work and help explain the data of this study. Along with the major linguistic factors (prioritizing phonology and considering lexicon and syntax), familiarity is discussed in terms of amount of exposure, of listeners' background and general knowledge of how the accent of the Arab speakers of English sound. Attitude is also discussed focusing on the inseparable influence of attitude on other factors, specifically familiarity.

3 Chapter Three: Methodology

3.1 Introduction

This chapter explains the design of the present study. After introducing the research questions, it addresses respectively the philosophical assumptions and research paradigms, the context of the study and sampling. It introduces broadly the mixed-method design and then details the quantitative and qualitative studies separately. Although there is a separate section in this chapter concerning the quality of both quantitative and qualitative research, these sections are more a summary than separate titles standing alone. This is because quality of research was sought at every step in the design and, accordingly, was explained within the discussion of the design. This chapter also explains how this study enhanced its ethicality.

3.2 Research Questions

The study investigates the impact of a pronunciation syllabus based on the LFC in improving the perceived intelligibility (PI) and perceived comprehensibility (PC) of Arab learners at post-secondary level to listeners who come from three different types of Kachru's circles: the inner, outer and expanding circle countries. This study was designed to address the following research questions:

Question 1:

Is there any significant difference between the perceived intelligibility and perceived comprehensibility of learners following the syllabus based on the LFC and learners of the RP/GA syllabus?

Question 2:

Is there any significant difference among the 3 groups (NSs, ESLs and EFLs) in scoring the intelligibility and comprehensibility of the LFC learners and learners of the RP/GA pronunciation syllabus?

3.3 Null Hypothesis:

Hypothesis 1: There is no significant difference in the gain scores of the LFC learners and learners of the RP/GA pronunciation syllabus in terms of intelligibility and comprehensibility.

Hypothesis 2: There is no significant difference among the 3 groups (NSs, ESLs, and EFLs) in scoring the intelligibility and comprehensibility of the LFC learners and learners of the RP/GA pronunciation syllabus.

3.4 The Philosophical Assumptions of the Research:

3.4.1 Epistemology and Ontology in Researching (Applied) Social Sciences

‘Social science’ studies social behaviour in a scientific way. Its aim is to build an explanatory theory about people and their behaviour (Punch, 2005; Bryman, 1988). The field of ‘education’ is classified as ‘applied social science’ (Punch, 2005), and along with basic social science (such as Psychology and Sociology), is focused on human behaviour.

Research is carried out in order to discover something that is not already known about. Two questions are connected with researching (applied) social sciences. The first is: ‘What kind of things really exist in the world?’, a question which belongs to a branch of philosophy known as ‘ontology’. Ontology is concerned with whether social entities should be considered objective entities or temporary social constructions. These positions are referred to respectively as *objectivism* and *constructionism* (Bryman and Teevan, 2005).

The second is: ‘How it is possible to gain knowledge of the world?’ which is the main interest of ‘epistemology’. It is concerned with evaluating claims about how the world can be known to us, and it is an examination of the means of obtaining knowledge of the social

world (Hughes and Sharrock, 1997). This difference occurs in the techniques of collecting and analyzing data (or ‘methods’) and on ‘methodology’ which broadly refers to the critical analysis of the planning process of the research project (Blaikie, 2009).

There are different ways to classify epistemology positions where each looks at possible ways to gain knowledge differently (Marsh and Furlong, 2002). This will be discussed next.

3.4.2 Research Paradigms

The term ‘paradigm’ refers to the set of assumptions and beliefs about the social world and what constitutes proper techniques and topics for inquiry (Burgess *et al.*, 2006). According to Punch (2005), there are six paradigms used in social sciences: *Positivism*, *Post-Positivism*, *Interpretivism*, *Critical/Constructivist (Feminist)*, *Post-Modernism* and *Realism*. This section will focus on the paradigms of ‘positivism’ and ‘interpretivism’ as they are most relevant to the present study and have provoked long-standing controversies between quantitative and qualitative approaches.

Most people attribute the word ‘positivism’ to Auguste Comte (1798-1857) (Crotty, 1998). This view of the world deals with assumed certainties and ‘reliable facts’, which leaves less room for doubt. Most positivists believe that research should take the form of testing hypotheses against empirical data (Bryman, 1988). A researcher should be as objective and alienated as possible toward the research objects so as to faithfully obtain and find out the reality of the objects. Positivist research usually employs ‘quantitative’ statistical methods (Bryman, 1988).

Positivism is criticized as it implies that certain conclusions of research are unthinkable, and scientific investigation is not ‘open’. Furthermore, referring back to the nature of social science, unlike natural structures, it does not exist independently of people’s views of what they are doing in the activity. People are reflective; they reflect on what they are doing and often change their actions in response to these reflections (Bryman, 1988).

In contrast to positivism, *interpretivism* attempts to understand and explore human and social reality. Interpretivism argues that there are no absolutes, but that all phenomena can be studied in different ways. This is because people and situations differ, and realities are not abstract objects but depend on the intersubjectivity between people (Crotty, 1998). The major criticism of the interpretivist tradition comes from positivists. To positivists, the interpretist tradition merely offers opinions or subjective judgements about the world. As such, there is no basis for judging the validity of their knowledge claims. To many positivists, this means that such research is akin to fiction, whereas positivists aspire to a science of society (Marsh and Furlong, 2002).

This research investigates the perceived intelligibility (PI) and perceived comprehensibility (PC) of learners of the syllabus based on the LFC in comparison with learners of traditional pronunciation syllabus (based on RP/GA). It is documented in literature how deeply rooted and far-reaching are the factors involved in PI and PC. Some of these are: familiarity of listeners with the speaker's variety (Rajadurai, 2007; Taylor, 1991); attitude of listeners towards the speaker (Smith and Nelson, 1985); and listeners' background in using English (whether NSs or NNSs) (Jenkins, 2002; Smith and Rafiqzad, 1979). So far, intelligibility and comprehensibility seem to reflect an interpretivist tradition as they differ among individuals. However, to investigate PI and PC, these have to be interpreted into a measurable and comparable form (mostly by using numbers). This places investigation of intelligibility and comprehensibility in this research in a positivist (along with the interpretivist) position, underpinning the necessity of (mixing) both tools in collecting data.

Mixed-methodology research was viewed as untenable because certain paradigms and methods could not 'fit' together legitimately (Hanson *et al.*, 2005). Qualitative and quantitative research belong to two separate paradigms underpinning different philosophical assumptions (Brannen, 2005). Both approaches carry epistemological positions, implying a commitment to particular versions of the world and understanding of that world. Although there is considerable overlap between the positions (Marsh and Furlong, 2002), it is widely believed that a researcher cannot hold two different positions at the same time or within the same research project (Read and Marsh, 2002; Bryman, 2001).

For this reason, if a research uses both quantitative and qualitative methods it must ensure that this is done in a way that does not compromise the researcher's basic ontological and epistemological position. (Read and Marsh 2002). Although many research procedures or methods have been typically linked to certain paradigms, this linkage between paradigm and methods was countered by Reichardt and Cook (1979; cited in Hanson *et al.*, 2005), Howe (1992), and Johnson and Onwuegbuzie (2004). They reduced the strength of the interpretivist/positivist dichotomy arguing that different philosophical paradigms and methods were compatible and complementary. Accordingly, this linkage is neither sacrosanct nor necessary.

In this research, both the quantitative and qualitative data function in harmony complementarily to triangulate data so both could contribute to answering the required research questions.

3.5 Research Design

The term 'research design' is used by Miller (1991) and Blaikie (2009) to refer to (all) issues involved in planning a research project. Punch (2005) and Denzin and Lincoln (1994) provide more details about what the process of 'planning' involves:

- a) the strategy (qualitative, quantitative or combined approach);
- b) the framework (the set of broad ideas and principles taken from relevant fields of enquiry) (Reichel and Ramey, 1987; cited in Smyth, 2004);
- c) sampling; and
- d) methods of data collection (tools or techniques) (Scott and Morrison, 2005).

Bryman (2001) further explains that the decision to adopt a particular design is determined on the basis of its aims.

3.6 Context of the study

The research was conducted in a higher education institute in a small town in north-east Oman on the border of the UAE. The first language of people in this country is Arabic. As in other Arab countries, Oman uses two main varieties of Arabic: NSA (the local variety) and MSA (Mahmoud, 2000). MSA is taught throughout general education in Oman and the UAE as well as in the Arab-speaking world (Mahmoud 2000). Arab students start learning MSA in elementary school at the age of six until the age of 18, the end of secondary school, along with other subjects, for example Mathematics, Science and Islamic Studies. According to the National Report of the Sultanate of Oman in 1996, throughout these education stages, Arabic is the official language for teaching all subjects. Some private schools use English for teaching some subjects (for example, Science and Mathematics).

In the institute where the study was conducted, learners undertake a placement test once they join the college. According to their achievement in the test, learners are classified into two levels of English: pre-intermediate and elementary. In each level, learners are taught the four skills (Listening, Speaking, Reading and Writing). Each of these courses is taught three hours weekly. These courses are part of the University Foundation Programme (UFP), whose purpose is to enhance students' language proficiency to pursue academic specializations in subjects which are taught in English.

3.7 Sampling

A *sample* is the group of participants whom the researcher actually examines in an empirical investigation (Punch, 2005). The most common sampling strategies are *probability* (or *random*) sampling and *non-probability* sampling (Scott and Morrison, 2005). In random selection, each element in a population has an equal probability of being chosen. In quantitative research, the strength of the conclusion stems from the degree to which the particular sample 'represents' the larger *population*, the group of people whom

the study is about (Punch, 2005; Dörnyei, 2007). However, in quasi-experimental design, subjects are not randomly assigned to the groups as the purpose is not to ensure representativeness, but to ensure control of extraneous variables (Shadish and Luellen, 2006; Creswell, 1994 and 2005; Punch, 2005).

In contrast, in qualitative inquiry the main goal of sampling is to find individuals who can provide rich insights into the phenomenon under investigation (Dörnyei, 2007). Consequently, qualitative research uses some sort of ‘purposeful’ or ‘purposive’ sampling which is done in a deliberate way, with some purpose or focus in mind (Punch, 2005).

There are two groups of participants. The first is the learners who are taught the two syllabuses; the syllabus based on the LFC, and that based on RP/GA. The second is the judges who evaluated the intelligibility and comprehensibility of the Arab learners. Both groups of participants can be classified as ‘purposeful’ or ‘purposive’ sampling (Dörnyei, 2007).

Sampling needs to address three issues: the sample size, the criteria upon which the sample is chosen, and the claims that can be made for its representativeness (Punch, 2005; Dörnyei, 2007). The sampling of the present study is discussed below based on these three issues.

3.7.1 Arab Learners

The pronunciation syllabuses were carried out through Speaking and Listening courses. According to Hewings (2004) pronunciation is an important aspect of the Speaking and Listening. Involving the Listening course, in addition to the Speaking, is due to the crucial role of listening in enabling comprehension in real life situations outside the classroom. Listening also helps the learner become aware that substantial variations in pronunciation are possible while still retaining a high level of intelligibility (Derwing, 2006; Pennington, 1996; Brown, 1992; Kenworthy, 1987).

It was decided to involve pre-intermediate learners rather than elementary learners for two reasons: firstly, pre-intermediate students have the potential to produce speeches spontaneously of their own choice to be recorded for the research purpose, an ability which elementary students might lack. Secondly, the listening textbook adopted at the former level (which is 'Listen Here' by Clare West, 1999) involves more pronunciation elements than the one used for the elementary level. So, teaching both Listening and Speaking (6 hours weekly for 16 weeks) gives sufficient exposure to the intervention of the thesis which contributes to the overall quality of the research.

The pre-intermediate learners were randomly distributed into two groups; one experimental and one control group. The learners were aged 18 to 20. Initially there were 25-30 learners in each group. After seeking the *informed consent* of those learners (Scott and Morrison, 2005), and giving them the right to withdraw at any point of the research, the study was carried eventually with 25 students in each group. A list of the Arab learners is provided in Appendix E, and 4 speech samples of both groups are included in the CD-ROM attached. According to Cohen *et al.* (2007:101), 'there is no clear-cut answer, for the correct sample size depends on the purpose of the study and the nature of the population under scrutiny'. The present study does not claim to generalize its findings on a wider range of ELT context, but its findings might be transferable to other Arab contexts which the purposeful sampling mentioned here represents.

Using an experimental design requires that there are no differences in the dependent variable between the two groups before the start of the experiment. Independent sample t-tests were conducted to measure the intelligibility and comprehensibility of the two groups. The results indicated that there is no significant difference between them, showing a level of significance for PI $P=0.8$ and for PC $P=0.95$ (where in both cases $P>0.05$) showing that both groups come from the same population.

3.7.2 Listeners

The second group of participants is the listeners (judges) who evaluated the intelligibility and comprehensibility of the speakers (learners). The judges were 75 volunteer English speakers who live in the United Kingdom and come from Kachru's (1985) three concentric circles: the *inner* (21), *outer* (24), and *expanding* circles (30). The NS judges come from the UK, USA, Australia and Canada. The ESL come from India, Pakistan, Malaysia, Nigeria, Uganda and Malawi. EFL speakers come from Turkey, Cyprus, Pakistan, Korea, China, Japan, Taiwan, Spain, Germany, Austria, Iran, Croatia, Russia and Kazakhstan.

However, the division between these circles is not rigid and there is often a grey area between them (Brown, 1992; Kachru, 1985). Classification of the judges among these circles was made by the judges themselves according to their response to the factual data (appendix A). There were two cases which the NS participants brought to the attention of the researcher. They reported that they were born in the UK, one of them to Pakistani parents and the other to Somali parents. Since birth, both use English along with the language of their parents (Urdu and Swahili). Some Pakistanis could not decide whether they are ESL or EFL users, which might be due to the controversial position of English in different parts of Pakistan (Raza, 2008). More clarification from the researcher to the judges about the difference between ESL and EFL was required.

Some researchers have restrictions over choosing listeners. Kenworthy (1987) suggested that English teachers should be excluded from this task as they are more likely trained to listen to English learners and sound more able to judge the intelligibility and comprehensibility of speech. Similarly, Catford (1950) believed that language teachers who have had long experience in dealing with foreigners' errors often have exceptionally low thresholds of intelligibility. However, other studies proved that trained listeners are the best to comment on the phonological features of speech. Flege (1984) has shown that linguistically experienced listeners are more reliable than inexperienced judges in estimating L2 Learners' speech intelligibility. Untrained listeners are influenced by non-phonetic variables and more likely to rely on factors other than phonology when assessing intelligibility (Munro and Derwing, 1995; Puerto *et al.*, 2005), for example, grammatical accuracy (Varonis and Gass, 1982b) or fluency (Anderson-Hsieh and Koehler, 1988).

3.8 Mixed-Method Design

Research that combines quantitative and qualitative methods of data collection within a single research project is referred to as ‘mixed method research’ (Dörnyei, 2007; Gay *et al.*, 2006). This combination might have strengths and weaknesses (Dörnyei, 2007). Firstly, by combining methods the advantages may be enhanced and the disadvantages minimized (Burgess *et al.*, 2006). Secondly, this may increase the validity of research because using a variety of methods means that one method serves as a check on another, which is at the heart of the notion of *triangulation* (Read and Marsh, 2007). Thirdly, it provides multi-level analysis of complex issues by providing better understanding of complex phenomena which converge numeric trends from quantitative data and specific details from qualitative data (Dörnyei, 2007).

One major weakness could be that qualitative and quantitative research belong to two separate paradigms, which places mixed-method research at risk (Brannen, 2005; Bryman, 2001). Since the present study uses both quantitative and qualitative methods it ensures that this is done in a way that does not compromise the researcher’s basic ontological and epistemological position (Read and Marsh 2002). This study is aware of the contribution of both quantitative and qualitative techniques in investigating the issue in question and its impact in interpreting findings guided by increasing validity through triangulating and complementing findings.

Creswell (1994) provides three models of combined design: the *two-phase design* approach; the *dominant-less dominant design*; and the *mixed-methodology design*. For the researcher to decide which of these applies best to her/his thesis, Creswell (2005) suggests considering the following features: *sequence* of data collection; methods of *data analysis*, and *priority* of data (or the type of data which form the larger part of the dissertation). Mixing methods in this study falls into a two-phase design approach (Brannen, 2005). Although the quantitative study requires more effort in terms of design (especially on issues connected with quality), qualitative study requires longer to come into its current form. Eventually, both quantitative and qualitative studies equally validate and complement each other’s findings.

Referring to the issue of conflicts in paradigms, having the two-phase model has the advantage that the two paradigms (interpretivism and positivism) are clearly separate which presumably does not put the research at risk and enables the study to present thoroughly the paradigm assumptions behind each phase (Creswell, 1994).

Within each approach (quantitative and qualitative) there are certain methods or techniques (Scott and Morrison, 2005). The next sections will detail these tools. The quantitative section will explain the quasi-experimental approach of the present study and its instrument in collecting data quantitatively. This is followed by the discussion of the qualitative study where data was also triangulated by semi-structured interviews involving the 'buzzer technique'.

Figure 3.1 below is developed to indicate the design of the present study.

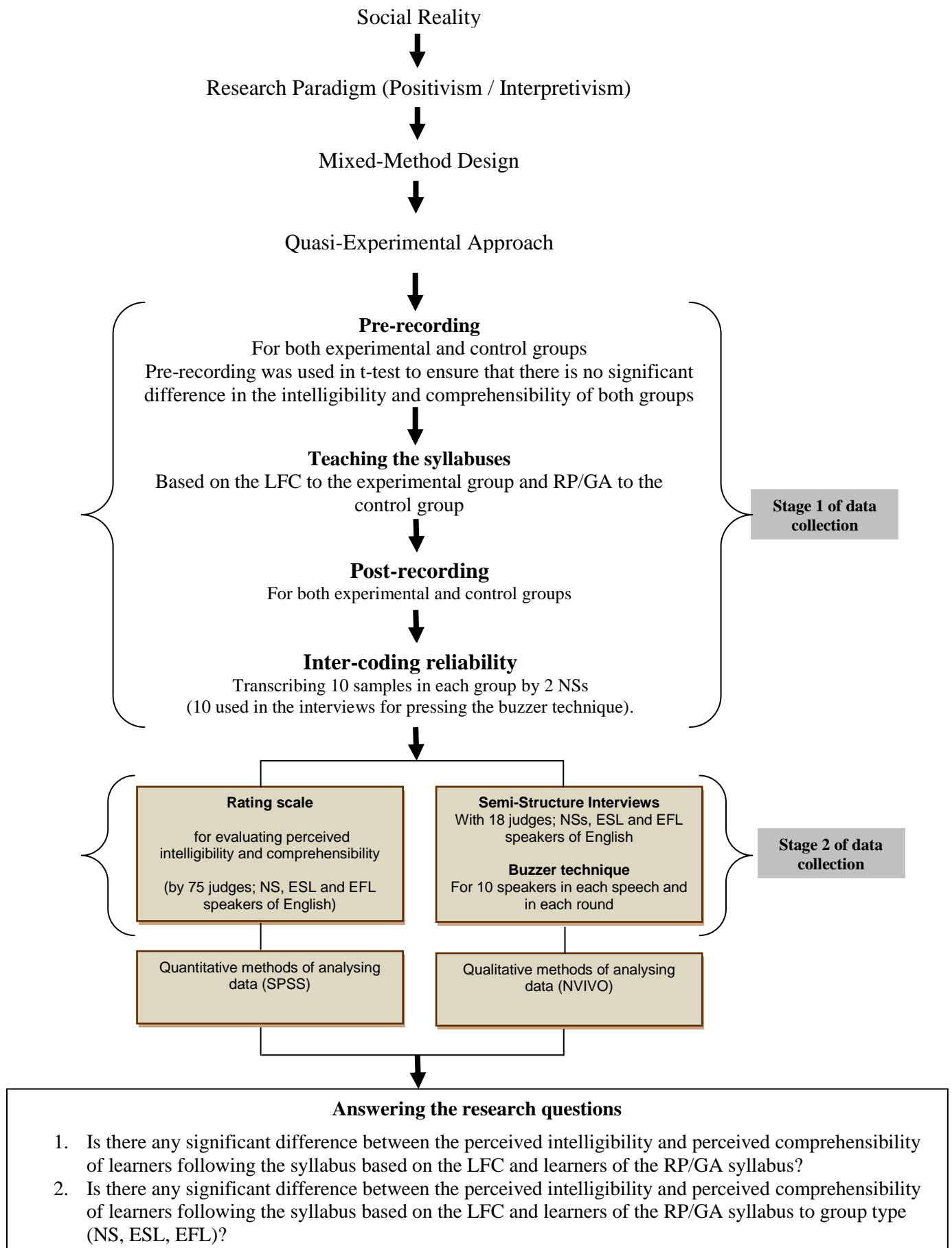


Figure 3.1: Design of the present study

3.9 Quantitative Study

3.9.1 Quasi-Experimental Design

Investigating the influence of a pronunciation syllabus based on the LFC on Arab learners' PI and PC suggests a 'cause-and-effect' relationship between the intelligibility/comprehensibility of learners and the LFC. This cause-and-effect relationship is the core feature of the 'quasi-experimental approach' (Campbell and Stanley, 1963; Cook and Campbell, 1979).

According to Shadish *et al.*, (2002:7), 'experiments are well-suited to studying causal relationships'; and 'no other scientific method regularly matches the characteristics of causal relationship so well'. The basic idea of the experiment in social science research is that two comparison groups are set up. The researcher then takes action with *the experimental group (EG)* (or *treatment group*). Then different action is taken, or none at all, with the other group (the *control group - CG*). The two groups are compared on some outcome (i.e. the *dependent variable*). Any difference found in the outcome variable between groups is assumed to be caused by the different treatments imposed (or *independent variable*) (Punch, 2005). The components of the present quasi-experiment are:

- *variables: independent variables* (the syllabus based on the LFC) and *dependent variables* (intelligibility and comprehensibility).
- *experimental / treatment group* (learners of the pronunciation syllabus based on the LFC) and *control group* (learners of the traditional syllabus based on RP/GA); and
- *research instruments: the intervention* (the pronunciation syllabus based on the LFC) and the *measurement tool* (the intelligibility and comprehensibility test).

In order to neutralize the effect of the variable of gender on the dependent variables, female students only were involved in this study. Both experimental and control groups were taught by the same teacher, the researcher who was assisted by a NS colleague in

teaching the control group. The same textbook was used with both groups over the same time period (6 hours weekly for 16 weeks). The groups were recorded twice before and after exposure to any of the syllabuses.

3.9.2 Recordings of Students

One important parameter in recording learners is the type of speech material (Svirsky *et al.*, 1999). Kenworthy (1987) identifies two types of speech: reading aloud and spontaneous speech. Studies have shown the tendency for learners to make more pronunciation errors when reading aloud than when speaking spontaneously. However, there are also problems with spontaneous speech as the lack of control over the topic and vocabulary can influence PI and/or PC. At least with a reading-aloud task roughly equivalent stretches of speech are being judged. The present study follows Kenworthy's suggestion to enhance the advantage of both types of speech and minimize their disadvantages. This implies using spontaneous speech where the samples are on the same topic but not identical. The reason is that if the speeches are identical, a higher degree of intelligibility of later speakers might be attributed to practice (Kenworthy, 1987).

Students of both groups talked spontaneously about one of the following topics of their choice:

- Introducing themselves/ their friends
- Describing pictures
- Holidays and weekends
- Daily routine
- Food / eating out
- Living in student hostels and/or with family
- Staying healthy

The reason behind giving the learners the chance to talk about a topic of their choice is the chance to (possibly) reduce the amount of hesitation that might occur while speaking. According to Kenworthy (1987), self-corrections, hesitations, and grammatical restructurings are among the things which are more likely to influence intelligibility and chances of being understood negatively.

Duration of speeches ranged from 30 to 45 seconds. Speeches were digitally recorded on a Compaq computer and filtered at 44 KHz in an audio sample size of 16 bit. Cool-Edit Software was used to filter sounds and reduce noise in the background when necessary.

3.9.3 Analysis of Speech Samples

By the completion of the post-intervention recordings, 10 speeches in both groups in every round (40 speeches in total) were selected according to how many LFC features were reflected in the selected samples in the EG, and RP/GA in the case of the CG. These were chosen involving an NS colleague. The list of the LFC and EFL phonology stated by Jenkins (2005) was used as a reference (section 2.11).

The 40 speeches were also subject to intercoding (or interrater) reliability; the widely used term for the extent to which independent coders evaluate a characteristic of a message or artefact and reach the same conclusion (Lombard *et al.*, 2003). The speeches were transcribed on a broad phonetic transcription in the sense that no allophonic variation or diacritics are indicated (IPA, 2010). Narrow phonetic transcription was occasionally used when necessary to reflect on some phonetic details (for example, aspiration [^h] and velarized /l/ ([ɫ]) which are relevant to the discussion of the LFC and this study. This process involved the researcher as well as 2 NSs (one British and one American) and required playing the speeches frequently so that all the necessary phonological details could be tailed. Speech samples were also checked for vocabulary and grammar mistakes (A sample of speech transcription is provided in Appendix B).

Transcribing consonant and vowel phonemes was mostly straightforward, and indicating word stress and consonant cluster was direct too. However, describing rhythm and intonation was more controversial. In describing rhythm, Laver's (1994) suggestion was helpful in that major factors affecting auditory impression of rhythm are: segmental sonority, syllabic weight, and lexical stress (in Crystal, 1996). Describing weak and strong forms along with word stress in sentences thus assisted in describing rhythm of speech.

Linguists have never agreed on a system for intonation, and the systems proposed differ markedly. One reason behind this could be that any difference of pitch pattern, however small, may be interpretable as a difference in meaning (Hawkins, 1984). Listeners often cannot agree on what they hear regarding intonation patterns and it is not always possible, even for practised ears, to transcribe intonation and there is sometimes room for doubt (Brazil, 1994).

Hawkins (1984) introduces a variety of methods for recording intonational patterns in writing. It is beyond the scope of this chapter to discuss them, but the researcher decided to use the 'linear' method (Fries, 1940), which involves drawing a line around the sentence to show relative pitch heights (Appendix B). The linear method was criticized as it is only a descriptive record of pronunciation, and offers no analysis of the patterns, nor shows which parts of speech are meaningful (Hawkins, 1984).

In this research, the 'linear' method was suitable for its simplicity and sufficiency to provide the level of speech details required. It is meant to be 'descriptive' focusing on the speakers' speech, but not how the utterance should have been produced ideally in relation to the grammatical meaning and attitude of speaker (Hawkins, 1984). Accordingly, it requires intercoders to indicate high and low pitch only rather than several levels of intonation (Levis, 1999a). This simplicity of the 'linear' method could be the reason behind finding consistency in describing the intonation of the speeches by the intercoders, which contributed to the overall reliability of the intercoding process.

3.9.4 Research Instruments

3.9.4.1 Measurement Tool: Intelligibility and Comprehensibility Test

As indicated earlier, the definition of intelligibility and comprehensibility varies across studies, and measuring them also varies according to how the researchers define them. There is no universally accepted means of assessment (Munro and Derwing, 1995; Munro *et al.*, 2006). According to Kenworthy (1987) and Samar and Metz (1988), measuring speech intelligibility has generally relied on two types of task: *rating scales* and *write-down procedures*. In the first type of task, listeners make explicit judgments about the talker's (overall) speech intelligibility by assigning numerical values to samples of speech (Derwing and Munro, 1995; 1997 and 1999), whereas in the second type, listeners write down in standard orthography what each speaker says. The number of words correctly transcribed by listeners is an index of speaker intelligibility (Bent and Bradlow, 2003; Derwing and Munro, 1997; Munro *et al.*, 2006). The writing-down task is time-consuming and labour-intensive and therefore expensive. In contrast, rating-scale tasks are relatively 'quick' and easy' (Metz *et al.*, 1980; cited in Svirsky *et al.*, 1999; Samar and Metz, 1988), and are also as dependable and reliable as write-down procedures (Kenworthy, 1987).

Other methods are the partial dictation test used by Matsuura *et al* (1999) in which there were only ten blanks to be completed. The number of words transcribed was fairly limited. Other approaches contain listening comprehension questions (Anderson-Hsieh and Koehler, 1988), cloze tests (Smith and Rafiqzad, 1979), picture selections in responses to speech stimuli (Smith and Bisazza, 1982), and recounting summaries (Perlmutter, 1989).

Another less common method of assessing intelligibility, 'pressing the buzzer technique' (Kenworthy, 1987), involves listening to a speech and pressing a buzzer or switch when listeners do not understand something. This is not always an adequate technique for when a listener does not understand something, he/she may wait and try to collect clues about the word which was not recognized (Kenworthy, 1987). In cases where several listeners are listening to the same speech, the researcher will be unclear about who has pressed the buzzer.

Among all the previous techniques, the present study used two of the methods above: the rating scale, and the buzzer technique. The latter technique was integrated within the semi-structured interviews and will be detailed in section 3.10.1. Using these techniques subscribes to the definition of intelligibility and comprehensibility by Smith and Nelson (1985) where *intelligibility* is the ability of the listener to recognize individual words or utterances. Accordingly, the question based on this definition is:

To what degree did you recognize every single word in this speech?

Very easy	Quite easy	Average (50%)	With difficulty	With great difficulty
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

While *comprehensibility* is the listener's ability to understand the meaning of the word or utterance in its given context, the question based on this is:

How easy is this speaker to understand?

Very easy	Quite easy	Average (50%)	With difficulty	With great difficulty
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.9.4.2 Piloting the Measurement Tool

There are four approaches to determining the reliability of the 5-point Likert questions: *test-retest reliability*, *alternative form reliability*, *split-half reliability*, and *Kuder-Richardson reliability* (Man, 1985; Bell, 1999). The most relevant of these for this study, the alternative form technique, involves giving alternative forms of the test (or different samples of speech) to the same participants on the same occasion, and then computing the correlation between the scores obtained by the participants.

The two questions in measuring intelligibility and comprehensibility were piloted. The speakers for the pilot study were three Arab women. Each of them was recorded twice while speaking spontaneously about the following topics: the first topic was introducing herself and talking about her study; the second topic was a brief description of her country.

Each speech lasted up to two minutes. Eight British native speakers listened to the six speeches. They were asked to respond to the above 5-point Likert questions at the end of each speech. The reason behind including NS listeners only in the pilot study is to neutralize the effect of the variables that might have existed in case other types of listeners were involved. Some of these variables, as discussed in the literature, could have been the background and level of proficiency. For the same reasons, Arab speakers rather than speakers from different backgrounds were only included in the recordings of the pilot study.

For the pilot results to be reliable, the responses of the listeners should show high correlation between the two speech samples of each speaker. This would suggest the replication of the same response to the speeches which also leads to the conclusion that the questions developed and considered for investigating the perceived intelligibility (PI) and perceived comprehensibility (PC) are valid and test the two issues which this research aims at; these are recognition of words and comprehension of utterance. For this purpose SPSS software was used and the correlation between the reliability for the first and the second recordings for the three speakers showed high level of reliability. Level of significant for PI was 0.922, where correlation is significant at the 0.01 level. Similarly, the level of reliability for PC is (0.922) where correlation is also significant at the 0.01 level (Appendix C).

3.9.4.3 Devising the Rating Scale Procedure

The 75 listeners met in groups of between 3 and 10 judges. The whole procedure with each group lasted up to 3 hours. Fayer and Krasinski (1987) observed that listeners' judgements of a speakers' intelligibility are influenced by the intelligibility of the previous speaker. For this reason, judges listened to the 100 speeches randomly for both the experimental and control groups (25 speeches in each group and in each round). The researcher stopped the machine at the end of every speech and the judges were given between 40 and 60 seconds to respond to the two 5-point Likert scale questions before continuing. Since 20 minutes is the maximum desirable time for responding to such tasks (Kenworthy, 1987), judges had a

break of 10 minutes after every 20 minutes of evaluating the speeches. Refreshments were provided and souvenirs given to the volunteer judges at the end.

3.9.4.4 The Intervention

3.9.4.4.1 Pronunciation syllabus based on the LFC for Arab learners

According to James (1980), contrastive analysis (CA) describes the phonology of L1 and L2 on the assumption that significant differences between them will constitute a major problem for the language learner, and that these should therefore be a focal point for pronunciation teaching. In discussing the value of CA in language teaching, Fries (1945:9) said:

The most efficient materials are those that are based upon a scientific description of the language to be learned, carefully compared with a parallel description of the native language of the learner.

CA has traditionally been described as the list of L2 features which are more likely to cause difficulties for learners of a specific L1 and, accordingly, requires considerable concentration in classroom teaching (Walker, 2001a).

The phonology of MSA was broadly filtered against the inventory of the LFC. To work out the contents of this list for Arab learners, the suggestions of Brown (1992) in implementing CA were used. These are:

- listing the phonemes of L1. That is, list the phonemes of the learners' L1 (MSA), for example in tabular form in consonant and vowel charts;
- listing the phonemes of L2 (the LFC);
- stating the allophones of each phoneme of L1 and L2. That is, list the non-distinctive phonetic segments of each language; and
- stating the distributional restrictions on the L1 and L2 allophones and phonemes.

The left-hand column of Table 3.1 represents the inventory of the core sounds of the LFC (Jenkins, 2000). This excludes non-core features, for example, ‘word stress’, ‘stress-timed rhythm’ and weak forms’. The central column represents the phonemes of the MSA based on Al-Jarf (2003), Newman (2002), Swan and Smith (2001), Watson (2002), Avery and Ehrlich (1992), Kharma and Hajjaj (1997) and Kenworthy (1987). The right-hand column is the result of the CA between the first two columns, and supposedly includes the contents of the pronunciation syllabus for Arab learners. As a result, the features that should be included are those phonemes which exist in the LFC but not in MSA, in addition to those shared in both Arabic and the LFC.

Table 3.1: Contents of the pronunciation syllabus for Arab learners based on the LFC

Contents of the LFC	Contents of MSA	Contents of syllabus based on the CA between the LFC and MSA
The consonant inventory		
All sounds except /θ/ , /ð/ and dark (or velarized) /ɫ/ (as in 'little')	The following do not exist in MSA: /p/, /v/, /dʒ/, /g/ and /ŋ/.	
	[p] exists as an allophone to /b/ before voiceless consonant phonemes (e.g.: /katabt/)	/p/, /v/, /dʒ/, /g/ and /ŋ/.
	[ŋ] is an allophone to /n/	
	/l/ is alveolar. Velarized [ɫ] is an allophone of /l/.	
Rhotic /r/ rather than the other varieties of /r/.	Trilled /r/ (produced by vibrations between the articulator and the <u>place of articulation</u>)	Rhotic /r/
Intervocalic [t]	Dental /t/	Intervocalic [t]
Phonetic requirements		
Aspiration after /p/, /t/, and /k/.	Aspirated [t], and [k] are allophones of /t/ and /k/.	Aspiration after /p/, /t/, and /k/.
Shortening of vowel sounds before fortis and maintenance of length before lenis consonant phonemes. i.e. /i:/ is shorter in 'seat' than in 'seed'	-	Appropriate vowel length before fortis and lenis
Avoiding contracted and short forms.	Arabs tend to avoid contracted and short forms and elisions and read with a rather heavy staccato rhythm	Avoiding contracted and short forms.
Consonant cluster		
Word initially, word medially	Arabic has no clusters of more than two consonant phonemes. Cluster does not exist in word-initial position.	Word initially and medially.
Vowel sounds		
Long-short contrast /ɜ:/ to be preserved	3 short vowel phonemes: /ɪ/, /ʊ/, /æ/ 3 long vowel phonemes: /u:/, /i:/, /a:/ 2 diphthongs: /eɪ /, /aʊ/	Long-short contrast - /ɜ:/
Vowel quality		
L2 (consistent) regional qualities.	-	Learners' regional quality is accepted.
Nuclear stress		
Appropriate use of contrastive stress to signal meaning	-	Nuclear (tonic) stress.

This syllabus was checked by two experts in the field of teaching pronunciation to Arab and European speakers of English.

Implementing a syllabus based on the LFC does not simply include the inventory of phonemes mentioned above, but involves the ‘methodology’ and the overall practice in the classroom (Lee and Ridley, 1999; Tomlinson, 2006; Walker, 2001b). This practice is detailed in the next sections.

3.9.4.4.2 Integrating the LFC syllabus with the textbook

There are two issues to consider in integrating the above inventory in the textbook. Firstly, teaching and learning pronunciation distinguishes between two levels of learning, receptive (listening) and productive (speaking) skills (Hewings, 2004). Secondly, to overcome the problem of the shortage of the materials of English as a Lingua Franca (ELF), the same NS-based textbook can be used in the classroom with modifications on its pronunciation exercises according to their relevance to the LFC (Jenkins, 2000; Walker, 2001b; Brown, 1992; Pennington, 1996; Kenworthy, 1987). Those features which are classified as non-core are dealt with at the receptive level only in the sense that they are introduced to learners through listening exercises, but learners are not encouraged to produce them. In contrast, learners were encouraged to produce the core features, and work on these will be reinforced and involve error correction.

The textbook used in teaching the experimental group (EG) and control group (CG) is ‘Listen Here’ by Clare West (1999). The pronunciation elements of this textbook are listed in Table 3.2 which indicates whether these exercises should be taught only at receptive or at both receptive and productive levels.

Table 3.2: List of pronunciation exercises in ‘Listen Here’ (West, 1999).

Unit	Features	Receptive level	Productive level
2	Word stress	√	x
6	Short vowel phonemes /ɒ/, /ʌ/, /e/, /æ/	√	√ Learners’ L1 regional varieties are acceptable)
11	Consonant Phonemes /tʃ/, /ʃ/, /θ/, /ð/, /s/	√ Only /θ/, /ð/	√ Only /tʃ/, /ʃ/ and /s/
14	Short/long vowel phonemes	√	√
16	Consonant /h/	√	√
18	Intonation and sentence stress	√	Intonation x Sentence stress √
19	Rising and falling intonation	√	x
20	Word stress	√	x
25	Word ending /-s/ & /-ed/	√	√
26	Consonant minimal pairs (including core features)	√	√

3.9.4.4.3 Improving learner awareness of the landscape of English

Derwing (2006) demonstrated that focusing on production exercises is not the only effective means of improving pronunciation since perception activities can also help learners to improve their pronunciation. In this study, classroom time has initially been carefully devoted to discussing students’ perceptions and attitudes towards ELT pronunciation. The importance of this practice was emphasized by Brown (1992) and Kenworthy (1987). The researcher arranged a seminar for the EG. Its purpose was to widen learners’ recognition of NNSs’ varieties, improve their tolerance toward these varieties (and to their own), and shift their attention from NS pronunciation towards speech intelligibility and comprehensibility.

3.9.4.4.4 Exposure to a wide range of NNS varieties of English

NNSs of several varieties from Kachru’s (1985) concentric circles (the *outer* and *expanding* circles) were recorded. These were introduced in the ELF pronunciation classroom along with the course CD, which is NS-based. These recordings were not simply

replications of the scripts already performed by the native speakers of 'Listen Here'. The speakers were given the same topics in the textbook but asked to reproduce them in their own way. This required the speakers to modify the vocabulary and grammar of their speech. The significance of this is that ELF communication is not only a matter of pronunciation, but grammar (Willis, 1999; cited in Timmis, 2002) and lexis (Meierkord, 2005). Furthermore, samples of communication among NNSs included in Kirkpatrick (2007) were selectively introduced as some samples were beyond the learners' levels of English.

Exposure to several NNS varieties, despite being helpful in implementing the LFC, were handled carefully even when introduced only at receptive level. These varieties included non-core features which we do not encourage learners to acquire. While receptive skill is intended to help learners to improve their listening ability, and develop discrimination skills, Hewings (2004) demonstrated that this provides a foundation for pronunciation improvement in their own speech. Considering this, the researcher showed control over the classroom input by bringing to learners' attention the differences between the non-core phonemes used by the NNS sample and the core features we are aiming at.

The researcher was expecting the features of the NNS varieties introduced in class to influence, if at all possible, more segmental than suprasegmental features. In the case of suprasegmental features, particularly pitch movement, Celce-Murcia *et al.* (1996) and Brazil *et al.* (1980) raised the question of whether learners are likely to acquire an understanding of the English intonation system simply by being exposed to natural speech. They argue that exposure is insignificant to help learners acquire features, but should be accompanied with instructions and extensive practice in recognizing and producing pitch movement. Since intonation is not a LFC concern, classroom practice concentrated on the negative influence of segmentals more than suprasegmentals.

3.9.4.4.5 Assessment and error correction

Learner errors in the EG were not reviewed according to how different their pronunciation is from the NSs' but to the LFC. For example, a learner was corrected when 'live' was pronounced as /li:v/ instead of /lɪv/, but it was accepted when the vowel in 'go' was pronounced with a different quality (rather like a shorter /ɔ:/). In contrast, the CG errors were checked against the RP/GA syllabus.

Considering the recommendations of Kenworthy (1987) about continuous assessment, the pre-recordings were a two-edged sword. While they were administered for methodological purpose and for measuring the differences between the gain-score in intelligibility and comprehensibility for the two groups, they also served a practical purpose in classroom teaching. Learners' phonology and mistakes formed the basis upon which (individual) error correction was carried out.

The differences between the Arabic dialects and the idea of whether Arab learners transfer from their own MSA dialects also influence the teaching process and classroom performance. For example, consonant clusters do not exist in the initial position in Arabic. Arab learners tend to insert vowel sounds to break up English clusters. The position of the inserted vowel sounds will vary depending on the learner's Arabic dialect. For example, an Egyptian might pronounce 'floor' as /fɪloor/ and 'slide' as /sɪlaid/ while an Iraqi might pronounce them respectively as /ɪfloor/ and /ɪslaid/ (Avery and Ehrlick, 1992).

3.9.4.4.6 Pronunciation exercises

The exercises used in the ELF classroom are very similar to those normally used in teaching the pronunciation elements of the traditional syllabus based on RP and/or GA. Samples of this material are provided by Hewings (2004), Avery and Ehrlich (1992), Baker (2006) and Celce-Murcia *et al.* (1996). The basic difference is that these exercises have been rethought, filtered and carefully chosen according to their relevance to the LFC. Pronunciation exercises that encourage and reinforce core features were used in both EG

and CG classrooms, while those which encourage non-core features were avoided in the EG and introduced to CG only. Samples of these exercises are provided in Appendix D.

Similarities between the LFC and learners' L1 were made clear to learners as this might increase their level of self-confidence towards what they are able to do, and lead them to value positively their L1 knowledge (Walker, 2001b).

The teaching material was also checked by the head of the department to improve and optimize the teaching and learning of the required features. To optimize the effectiveness of teaching the two different syllabuses to both groups, for the control group a pronunciation textbook, (Headway – Pre-Intermediate Pronunciation, an NS-based pronunciation textbook by Bowler and Parminter, 1992) was adopted in addition to the course textbook. The researcher was also assisted by an NS colleague in teaching selected control group classes on suprasegmental topics; word-stress, intonation and rhythm.

3.9.5 Analysis of Quantitative Study

The quantitative data obtained from Likert scale questions was analyzed using the Statistical Package for Social Science (SPSS). *Mixed between-within subjects analysis of variance* (ANOVA) was used to investigate the impact of the intervention on learners' intelligibility and comprehensibility within the same group and between the two groups (Pallant, 2007).

One-way ANOVA was conducted to tell whether there were significant differences in the mean scores on the dependent variables (the intelligibility and comprehensibility) across the three listener groups; NSs, ESLs, and EFLs.

The research also used 'post-hoc tests' that are built into the SPSS One-way ANOVA (Morgan *et al.*, 2004). Post-hoc multiple comparison, also known as *a-posterior* (Pallant 2007) or follow-up tests (Morgan *et al.*, 2004) was used in conducting a whole set of comparisons and exploring the difference between each group (NS, ESL and EFL) in perceiving intelligibility and comprehensibility. According to Pallant (2007), SPSS with

post-hoc analysis consists of two steps: first, an overall F ratio is calculated that tells whether there are any significant differences among the groups in the design. If the overall F ratio is significant (indicating that there are differences among the groups), the researcher then went on and performed additional tests to identify where these differences occurred; i.e: do EFL and ESL differ in their degree of perceiving speaker's intelligibility and comprehensibility.

There are a number of different post-hoc tests. Tukey assumes equal variances for two groups. Other tests (such as Dunnett's C) do not (Pallant, 2007). Since Levene's Test of Equality indicates that we have not violated the homogeneity of variances assumption ($P=0.59 > 0.05$), the former type of post-hoc was used in this study.

T-test was used to ensure there was no significant difference in the level of intelligibility and comprehensibility of the two groups at the pre-intervention round before exposure to any of the syllabus. There are two types of t-test: *paired sample t-tests* (of *repeated measure*) are used to find out the changes in scores at two different times for the same group each time; and *independent sample t-tests* which are used to compare the scores of two different independent groups at the same time (Pallant, 2007). The latter type of t-test was used in this study.

Differences that might occur between the intelligibility and comprehensibility of the experimental and the control group by the three groups of listeners was judged using statistical significance and effect size (Eta-squared). While statistical significant measures rule out a probability that the observed differences occur by chance, the effect size offers some indication of practical meaningfulness (Morgan *et al.*, 2004). It has been suggested that for ANOVA, an effect size of 0.1 represents a small effect size; 0.25, a medium effect; and 0.4, a large effect (Cohen, 1988). Although quantitative data were analyzed using SPSS, Eta-squared was calculated manually as SPSS does not calculate the Eta-squared. The researcher decided to use Eta-squared because of its clear value index. In the present study, Eta-squared for ANOVA is calculated using the following formula: $\text{Eta-squared} = \text{Sum of squares between groups} / \text{Total sum of squares}$ (Pallant, 2007).

Using the above *parametric techniques* (ANOVA and t-test) for analysis requires the data to meet the following assumptions: *interval scale*, *independent samples*, *homogeneity of variance*, and *normal distribution* (Pallant, 2007; Opie, 2004). Although this research might not fulfill the latter assumption, it adopts the parametric techniques mentioned above instead of using *non-parametric techniques* which do not require normal distribution criteria for several reasons: firstly, one type of ANOVA (the Mixed between-within subjects analysis of variance) which is important in answering the research questions does not have non-parametric alternatives (Pallant, 2007).

Secondly, the research has to consider the *pragmatic rationale* which influences its feasibility (Brannen, 2005). Feasibility of this research might have been negatively influenced if the number of samples was increased to represent the wider population. For example, the more speakers there are, the more speeches will be recorded. This is more demanding for both the researcher and the listeners who judged the PI and PC of all the speeches. Furthermore, for administrative reasons, involving more learners in the study was not an option available to the researcher in the institute where the research was conducted.

Thirdly, while the normal distribution assumption is essential in generalizing findings to the whole population, this research does not aim at or claim to generalize findings but its findings might be transferable to non-Gulf Arabic speakers. Additionally, generalization should not necessarily be the objective of all research projects (Denzin, 1983)

For these reasons, this research subscribes to Pallant's (2007) suggestion that the researcher can still use parametric techniques even when not all parametric assumptions are fulfilled, but has to provide the rationale behind this position, and this is what this section has attempted to do.

3.9.6 Validity, Reliability and Generalization

Campbell and Stanley (1963) specified two sources of threat to validity: *threats to internal* and *external validity*. The former is considered to be the most severe threat to the validity of experimental design, and the basic minimum without which any experiment is uninterpretable (Creswell, 2005). It is ‘the degree to which observed differences on the dependent variable are a direct result of manipulation of the independent variable, not some other variable’ (Gay, *et al.*, 2006:237).

Among the list of what are considered the sources of threats to internal validity by Gay *et al.* (2006) and Cook and Campbell (1979), three are relevant to the sources of threats of internal validity in this work: firstly, the *intervention*, where validity is enhanced by careful contrast between the phonology of MSA and the LFC and it was not simply the inventory of the core sounds of the LFC, but the methodology of teaching and the overall practice in the classroom (Lee and Ridley, 1999; Tomlinson, 2006). Its validity was also enhanced by the checking of the designed syllabus by a specialist in the field. The level of intelligibility and comprehensibility of both groups was measured before exposure to any of the syllabuses to ensure that any outcome in PI and PC was caused by the intervention. To have more control over the input of both groups, the teaching material was frequently checked by the head of the Department and the researcher was assisted by a NS colleague in teaching suprasegmental lessons.

Secondly, the *measurement tools* with ‘testing’ nature could be valid if they measure what they are supposed to measure (Dörnyei, 2007). In other words, ‘validity’, tells whether an item measures or describes what it is supposed to measure or describe (Bell, 1999). Validity of the measurement tool was enhanced at early stages by reading through the definitions of intelligibility and comprehensibility and ending up with the adoption of the definition of Smith and Nelson (1985) (Introduction and Literature Review). The researcher also made the difference between these two terms clear to judges prior to the rating scale procedure. Another concept relevant to the measurement tool is ‘reliability’, ‘the extent to which a test or procedure produces similar results under constant conditions

on all occasions' (Bell, 1999:103). Although there are some studies that demonstrate that the rating-scale is as reliable as the write-down task (Kenworthy, 1987; Metz *et al.*, 1980; cited in Svirsky *et al.*, 1999; Samar and Metz, 1988), validity is specific to a particular situation and is not automatically transferable to others (Lynch, 2003; Bachman, 2004). Accordingly, the 5-point Likert scale was piloted showing high reliability in scoring PI and PC.

Thirdly, *sampling* was carefully selected for both learners and judges. For learners, the researcher considered their level of English and their ability to speak spontaneously during recording and carefully reviewed their textbook to maximize possibilities of carrying out the syllabuses with external supplementary material. The intercoding process involved two NSs to validate results of the coding process.

Duration of implementing the LFC and RP/GA syllabuses might be insufficient to acquire the features of the LFC (by experimental group) or RP (by control group), and could be another threat to validity. The research completely recognizes that acquisition of pronunciation is an accumulative process (Fraser, 1999), and tested the PI and PC of both groups considering what they had achieved by the completion of the course, and expecting different results when both syllabuses are implemented for a longer period. Some studies have used similar limited time to test improvement in pronunciation; for example, Van Weeren and Theunissen (1987) and El-Ebyary (2005). In both studies, along with the present research, the factor of 'timing' is a 'limitation' rather than a threat to validity.

Relevant to designing and implementing the intervention is the work of Walker (2010) in 'Teaching the Pronunciation of English as a Lingua Franca'. Walker introduces samples of the pronunciation syllabuses for speakers of different L1s based on CA with the LFC. He also explains how the resulting syllabuses could be carried out, including types of material to be used in classroom teaching, and assessing learning errors. However, Walker's work was not available when this research was designed and data was collected. This study got recent access to Walker (2010), and by comparing the syllabus for Arab learners included in Walker (2010) and the one designed and developed in this study, it was found that the two syllabuses are very similar. The only difference between them is that Walker's syllabus was established for Arab learners in general and includes the two consonant

phonemes /ʒ/ and /tʃ/. These two phonemes were excluded from the syllabus established in this study as the Arabic variety of the learners involved in this research has an equivalent (or near equivalent) phonemes to /ʒ/ and /tʃ/.

The second threat is to *external validity* which concerns how far the study's findings can be generalized, or transferred to other settings (Punch, 2005). Generalizability is one of the main reasons why quantitative researchers are so particular about the issue of sampling and generating representative samples (Bryman and Teevan, 2005).

Denzin (1983) demonstrated that generalization should not necessarily be the objective of all research projects. The intention of a study might not be to generalize but rather to understand the case in its complexity and context. Firestone (1993; cited in Punch, 2005) pointed out there are three levels of generalization: generalization from sample to population, analytic or theory-connected generalization, and case-to-case transfer. Furthermore, Stake (1995) distinguishes between scientific generalization, arrived at by experimentation and induction, and naturalistic generalization, where general understandings are furthered by case studies and experience in individual events. This research is conservative, but not worried, about the limited opportunity available to generalize. It does not aim at generalizing, but investigates the influence of the LFC in improving the PI and PC of Arab learners with their very specific L1 phonology. This might make the findings applicable within (but not beyond) the Arab context.

3.10 Qualitative Study

3.10.1 Semi-Structured Interviews / Pressing the Buzzer Technique

Kvale (1996) sets the several forms of interview along a series of continua considering the openness of their purpose, their degree of structure, whether they seek description or interpretation, or whether they are largely cognitive-focused or emotion-focused. Accordingly, there are different types of interviews: *single* or *multiple sessions*, *structured*, *unstructured*, and *semi-structured* (Dörnyei, 2007). The semi-structured interview was used in this research for two reasons: firstly, its 'adaptability' gives more opportunity to

investigate information in depth as it provides access to a person's thinking (Bell 1999, Cohen *et al.*, 2007, Mason, 2002). Secondly, its 'flexibility' helps to refer back to re-word any question or clear any misunderstanding (Brenner *et al.*, 1985).

These features of semi-structured interviews helped in incorporating the 'buzzer technique' into the framework of an interview rather than being a buzzer as a separate section following the interviews. In this technique, the researcher plays a sample of speech and the listeners press a buzzer to stop the speech when they do not understand something. The words they stop at are regarded as an index of speaker intelligibility (Kenworthy, 1987). This technique is less time-consuming than the writing procedure. However, it is not always an adequate technique for two reasons: the first is that in cases where several listeners are listening to the same speech, the researcher will be unclear about who has pressed the buzzer (Kenworthy, 1987). However, since this technique is integrated in the present study within the semi-structured (one-to-one) interviews, the disadvantage of identifying which listener stopped the recorder is irrelevant.

The second is that when a listener encounters a problem understanding the speaker's utterance, he/she might not press the buzzer but let the unrecognized utterance 'pass' on the (common-sense) assumption that it will become clear through the clues which the listener might collect as the talk progresses (Kenworthy, 1987). This is referred to as the 'let it pass' strategy which is commonly-deployed in (but not restricted to) lingua franca interaction (Firth, 1996). The listener might also not press the buzzer due to another reasons rather than the 'let it pass' strategy. For Brown (1989a), a listener may understand a speaker as having said something different from what he/she intended. This may cause greater confusion than instances where the 'let it pass' strategy was implemented as in the case introduced by Brown (1989a) the listener is often unaware that a breakdown in understanding has occurred. In other words, the buzzer technique might undergo inaccuracy in developing the required record for the unrecognized elements of the speech. Since the buzzer technique was incorporated within the (flexible) semi-structured interviews, it became possible to overcome (or to some extent reduce) this drawback in the efficiency of the buzzer technique to contribute successfully to the overall quality of the research. Details of this procedure are provided in section 3.10.3.

3.10.2 Piloting Semi-Structured Interviews / Buzzer Technique

Semi-structured interviews were piloted with 3 judges: two Indians and one American. Initially the judges were involved in the rating scale procedure listening to 20 speeches (10 speeches for each group in the post-intervention round).

The piloting revealed the appropriateness of integrating the buzzer technique within the semi-structured interviews and its sufficiency to enhance the trustworthiness of the findings and reduce the uncertainty of interpreting the quantitative data. Through the piloting, the interviewees had the choice over where to stop and when was the right moment to report to the interviewer the instances where the unrecognized words occurred. Some of them tended to stop the buzzer at the end of the utterance rather than at the end of the unrecognized words. They then explained to the interviewer where the gap (or the unrecognizable word in the heard utterance) exists. They could also provide the interviewer with a more comprehensive overview of the influence of understanding the meaning of the utterance on facilitating recognition of words. This was analyzed at the end of this study by looking at the relationship between recognition of words within the utterance and understanding its meaning.

3.10.3 Devising the Interview / Buzzer Technique

18 of the 75 judges were involved in semi-structured interviews: 6-NSs, 5-ESLSs and 7-EFLSs (Appendix F). Because the interviews involved the buzzer technique, where the interviewees were listening and responding to the speeches, they were conducted in classrooms provided with computers and a large set of speakers. Each interview lasted from two to three hours.

The overall purpose of the interviews was twofold: firstly, to triangulate the responses of the rating scale; and secondly to explore what factors impacted on the PI and PC of the three groups, NS, ESLS and EFLS, particularly where LFC features were mispronounced and the listener did not press the buzzer, presumably, suggesting that the listener understood the utterance. There were two sets of resources which were depended on during

the interview to achieve these purposes. The first set was the 10 selected speeches from each group in each round and used as part of the buzzer technique. The second was the semi-structured questions which varied according to the interviewees' responses to the buzzer technique and focused on the following principles:

1. Repeating the utterance where the listeners did not press the buzzer even though a core feature that had been mispronounced.
2. Seeking comments about cases where items were pronounced appropriately (including features of the LFC) but still unintelligible to the listeners and how they were perceived.
3. Seeking reasons behind discrepancies in responding to rating intelligibility and comprehensibility. For example, cases where speech was intelligible but not necessarily equally comprehensible (or the opposite).

These points might not be sufficient enough to reveal the influence of some very important factors on PI and PC mentioned in Chapter Two (for example, attitude towards accent). For this reason, interviewees were given the chance to reflect on their attitude towards the speakers' accents and report on their perceptions towards the speeches.

The interview schedule is provided in Appendix G. The order of the questions in this schedule was not followed rigidly, and there were some questions that arose in certain interviews but not necessarily in others. The development of the discussion in the interviews depended on the responses of each interviewee and the instances where he/she stopped the buzzer.

3.10.4 Analysis of Qualitative Study

All interviews were transcribed by the researcher. Since transcripts differ in their precision depending on their intended use and the skill and effort of the researcher (Rubin and Rubin, 2005), the researcher puts into transcription the level of the detail required in interpretation and its relevance to the research questions. So transcriptions did not include the little details which Psathas (1995) and Poland (2002) discussed such as stalling words or any interruptions such as when an interviewee answered the phone. It focused on phonological comments from the interviewees which the research was interested in.

The responses of the semi-structured interviews were 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, 2001:274).

A software package called N-Vivo was used for analysing the qualitative data (Graham, 2002; Patricia, 2007). The researcher started with *identifying*, *clarifying* and *coding* themes and concepts (Rubin and Rubin, 2005). Not everything in the interviews was coded, only the items relevant to the research questions (Cohen *et al.*, 2000).

Many codes and themes were developed initially while the researcher was listening to the interviewees (Miles and Huberman, 1994). A more comprehensive and focused analysis was launched after the data had been collected. The researcher started looking closely at the phonological features of the unintelligible/incomprehensible utterances and divided them into their phonological categories: segmentals (i.e: consonant phonemes, vowel phonemes, word stress) and suprasegmentals (intonation, sentence stress). The explanation given by the judges about sources of unintelligibility/incomprehensibility were also classified into:

- familiarity with the heard variety;
- background and expectations;
- attitude; and
- the attitude of the speaker (i.e: self-confidence and hesitation).

These themes were borrowed from literature after examining published research in this field by Jenkins (2000 and 2007), Rajadurai (2007), Trudgill (2005), Smith (1992) Taylor (1991) and Smith and Nelson (1985). More important than these themes are those which emerged from the interviews (Rubin and Rubin 2005, Cohen *et al.*, 2000) and were mainly gathered from the following resources:

- Questions the researcher asked, especially when there were discrepancies in responses where speech was highly intelligible but not equally comprehensible (or the opposite);
- Themes interviewees frequently mentioned; and
- Situations, and examples mentioned by interviewees.

3.10.5 Quality in Qualitative Research

As mentioned earlier, reliability requires that identical results would be obtained if the study were replicated (Bell, 1999). However, in qualitative inquiry, ‘truth’ is relative and ‘facts’ depend upon individual perceptions. Replication is not something that is easy to achieve in qualitative research where any conclusion is ultimately jointly shaped by the participants’ personal accounts and the researchers’ subjective interpretations. Accordingly, many qualitative researchers deny the relevance of ‘validity’ and ‘reliability’ as defined in quantitative terms (Dörnyei, 2007).

Lincoln and Guba (1985) introduced equivalent concepts that apply to qualitative research. For example, ‘trustworthiness’ is equivalent to ‘internal validity’; ‘transferability’ of the results to other contexts is equivalent to ‘external validity’; and ‘dependability’ is equivalent to the ‘consistency’ of the findings (or ‘reliability’). Although this taxonomy has been widely accepted by qualitative scholars, it has also been criticized (Morrow, 2005; cited in Dörnyei, 2007).

Possible ways of testing the trustworthiness and dependability of qualitative research are: careful piloting (Cohen *et al.*, 2007); predicting responses based on previous readings in literature and involving participants in checking the written report (Bloor, 1978). Furthermore, Silverman (2006) suggested that *highly structured interviews* (where all interviewees are approached using questions that are in the same format, wording, and sequence) is one way to control quality in qualitative research. However, rewording questions does not always undermine reliability (Oppenheim, 1992; Cohen *et al.*, 2007). Structured interviews with identical wordings and formatting might guarantee that the same question was ‘asked’ to all interviewees, but rewording the questions is more likely to guarantee that the same question is ‘understood’ identically by all participants. Nevertheless, responses resulting from comprehending a question in an interview are more trustworthy than those resulted from asking the same (identical) question. Semi-structured interviews might hold several causes of bias that should be considered. Some of these include *leading questions* and *acquiescence* (or the tendency to say ‘yes’ regardless of what the interviewee think) (Oppenheim, 1992; Breakwell, 2000).

3.11 Ethical Dimensions of the Research

Ethical issues can occur at any stage of a research project (Creswell, 2003; Cohen *et al.*, 2007). The four ethical considerations that must be considered are: *informed consent*, *privacy*, *anonymity* and *confidentiality* (Neuman, 2006).

In the present study, initially, acceptance was received from the Chairman of the Institute, the Dean, the Head of the English Department, and the students themselves. Next, information about participants was regarded as confidential. Furthermore, learners were given the right to withdraw at any time so that the individual was not coerced into participation (Gregory, 2003).

The procedure of collecting data was made clear to individuals (including the modifications taking place in classroom teaching and recording speeches twice before and at the end of the course), so they could reasonably know what to expect (Creswell, 2003). While analyzing data, the anonymity of individuals was protected (by using false names). This applied to all participants: speakers of both groups (experimental and control group), listeners involved in the rating scale and interviews, and individuals who were recorded and whose speeches were used in classroom teaching for LFC learners as samples of NNSs varieties.

In writing and disseminating the research, participants could find that some words misrepresented them. Although this did not exist in this research, as far as the researcher knows, she considered the long debate in literature about who the NS is (Davies, 1991; Medgyes, 1998), and expected some ESLs (such as Indians and Singaporeans) to review themselves (controversially) as NS of their own varieties of English. This idea was argued theoretically by Higgins (2003), and was found empirically in Indian English teacher interviewees by Ali (2009). Accordingly, the researcher was conservative about placing the judges in NS/NNS categories while communicating with them so as not to sound biased against them.

3.12 Conclusion

This chapter has discussed the methodological issues involved in this study which has used a mixed-method design to investigate the influence of the LFC syllabus in improving the PI and PC of Arab learners to three types of groups: NSs, ESLs, and EFLs. In the quantitative study, quasi-experiments were used, and semi-structured interviews (including the buzzer technique) were used in the qualitative study. The procedure of conducting this research is summarized in the following steps:

- Designing the pronunciation syllabus based on the LFC
- Pre-recording for learners' speech.
- Teaching the syllabuses (based on the LFC and RP/GA)
- Post-recording of learners' speech.
- Selectively intercoding 10 speakers from each group in each round.
- Judging the intelligibility and comprehensibility of learners by three groups of people, NS/ESL/EFL, quantitatively using a 5-point Likert scale.
- Running semi-structured interviews (and the buzzer technique).

Not all the above steps occurred in sequence. Some were parallel; for example, rating scale of all speeches while simultaneously checking intercoding reliability.

This chapter has also explained how the quality of the research and its ethicality were enhanced.

The next two chapters will introduce the findings of this design. Chapter Four will discuss the quantitative and qualitative studies. The findings of the buzzer technique will be discussed in Chapter 5.

4 Chapter Four: Quantitative and Qualitative Study: Findings and Discussion

4.1 Introduction

This chapter introduces the quantitative and qualitative findings of the study (except the findings of the buzzer technique which will be introduced in Chapter Five). This chapter is divided into three broad sections. The first section answers the research questions: *Is there any significant difference between the intelligibility and comprehensibility of learners following the syllabus based on the LFC and learners of the RP/GA syllabus? And, is there any significant difference among the 3 groups (NSs, ESLs and EFLs) in scoring the intelligibility and comprehensibility of the experimental and control groups?* Central to these questions is the analysis of the results of pre- and post-intervention ratings to detect any differences between the two groups, the experimental (EG) and the control group (CG) which might be attributed to the pronunciation syllabuses used for the two groups. It is important to remember that *intelligibility* in this study refers to the ability of the listener to recognize individual words or utterances, while *comprehensibility* is the listener's ability to understand the meaning of the word or utterance in its given context (Smith and Nelson, 1985). These two concepts were investigated using a 5-point Likert scale for both intelligibility and comprehensibility, where responses varied from 'very easy' to 'with great difficulty'.

The second section includes a qualitative examination of the research questions above by means of semi-structured interviews with 18 of the 75 judges who responded to the rating scale. 6 of these 18 judges are NSs, 5 are ESLs and 7 are EFLs. Their overall purpose was to triangulate the responses of the rating scales and explore the factors that impacted on perceiving the speakers' intelligibility and comprehensibility.

The third section discusses the qualitative and quantitative findings and explains them in the light of the relevant empirical and theoretical literature introduced in Chapter 2 of this study.

4.2 Findings of the Quantitative Study

4.2.1 Research question 1:

Is there any significant difference between the intelligibility and comprehensibility of learners following the syllabus based on the LFC and learners of the RP/GA syllabus?

To examine the differences between the experimental and the control group in intelligibility and comprehensibility in pre- and post-intervention rounds, repeated mixed ANOVA was used. The analysis will indicate whether:

1. there is a change in the level of intelligibility and comprehensibility of statistics scores over time (main effect for time);
2. the two interventions (RP/LFC syllabus) can be compared in terms of their effectiveness in improving the intelligibility and comprehensibility of the learners (main effect for group); and
3. the change in the intelligibility and comprehensibility of the statistic scores over time is different for the two groups (interaction effect).

4.2.1.1 Intelligibility Scale

The differences between the intelligibility of the experimental and control groups in the pre-intervention and post-intervention rounds are summarized in the following table:

Table 4.1: Means of intelligibility for experimental and control groups at pre-intervention and post-intervention round

Scale	Group	Mean Score		F			Sign		
		Pre- Intervention Round	Post- Intervention Round	P Round	P Group	Interact ion	P Round	P group	Interaction
Intelligibility	Experimental Group	4.02	4.24	17.35	0.48	4.93	0.000 ***	0.48 *	.028 **
	Control Group	4.02	4.09						
	Total	4.02	4.17						

*insignificant difference **significant at 0.05 level *** significant at 0.001 level

Differences between rounds (main effect for time)

There is a statistically significant difference between the results of the pre-intervention and post-intervention round in the value of intelligibility for the two groups; the EG and CG, where $F = 17.35$, $\text{sign}=0,000 < 0,001$, Partial Eta-squared = 0.104, effect size is small (Eta-squared = 0.12). The mean score of both groups is 4.02, the experimental group rose to 4.24 in the post-intervention round while the mean of the control group rose to 4.09.

Differences between groups (main effect for group)

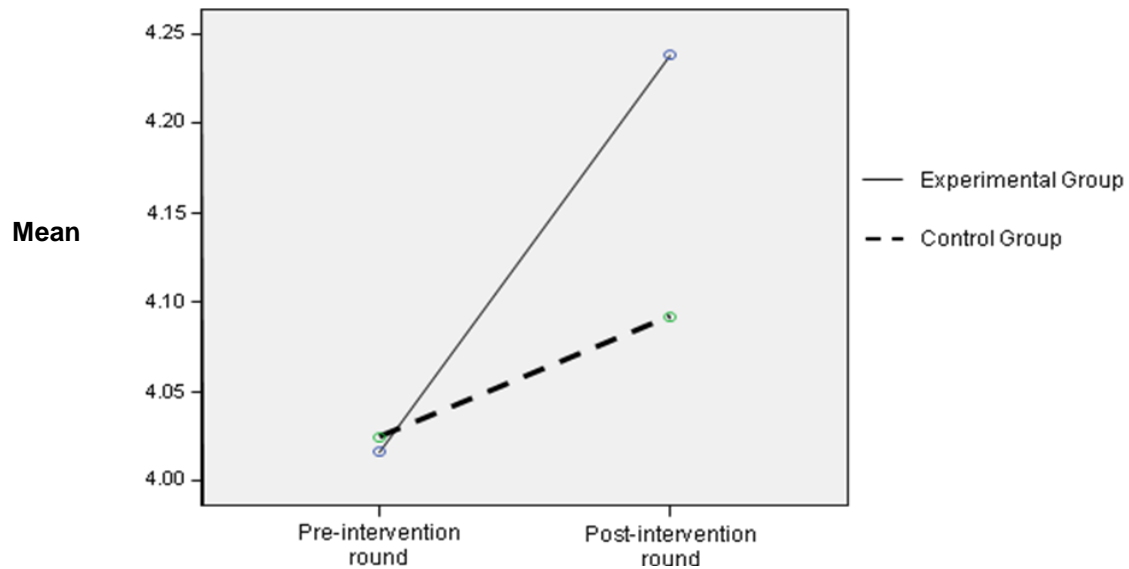
Table 4.1 shows there is no statistically significant difference between the intelligibility of the group who studied the pronunciation syllabus based on the LFC and the other group who studies the traditional syllabus based on RP/GA with $F (0.48)$, $\text{sign}=0.48$ $P > 0.05$ and Partial Eta-squared = 0.032. Effect size was small (Eta-squared = 0.00). Despite the improvement in the intelligibility of both groups in the second round, the experimental group scored relatively higher than the control group in the post-intervention round (Figure 4.1).

Interaction between groups and rounds (interaction effect)

The data revealed statistically significant interaction effects of group by round. $\text{Sig}=0.028 < 0.05$, $F=4.93$. The effect size of the interaction was small with the Eta-squared = 0.03. The experimental group's mean score in intelligibility increased in the post-intervention round in comparison with the pre-intervention round. Similarly the mean score of the control

group rose as a result of the experimental condition, but this increase is relatively lower than the increase that had been achieved by the experimental group (Figure 4.1).

Figure 4.1: Intelligibility scale: interaction between group and round



4.2.1.2 Comprehensibility Scale

The data about the influence of the intervention on the comprehensibility of both groups is summarized in Table 4.2.

Table 4.2: Means of comprehensibility for experimental and control groups at pre-intervention and post-intervention rounds

Scale	Group	Mean Score		F			Sign		
		Pre-Intervention Round	Post-Intervention Round	P Round	P Group	Interaction	P Round	P group	Interaction
Comprehensibility	Experimental Group	3.72	3.98	33.98	1.76	6.59	0.000***	0.19*	0.01**
	Control Group	3.68	3.78						
	Total	3.69	3.88						

*insignificant difference

**significant at 0.05 level

*** significant at 0.001 level

Differences between rounds (main effect for time)

There is a statistically significant difference between the results of the pre-intervention and post-intervention round in the value of comprehensibility for the two groups; the EG and CG, where $F=33.98$, $P = 0,000<0,001$, Partial Eta-squared = 0.185. Effect size was small (Eta-squared = 0.23). Table 4.2 above shows the mean score of the comprehensibility of both groups rose from 3.69 to 3.88 in the post-intervention round.

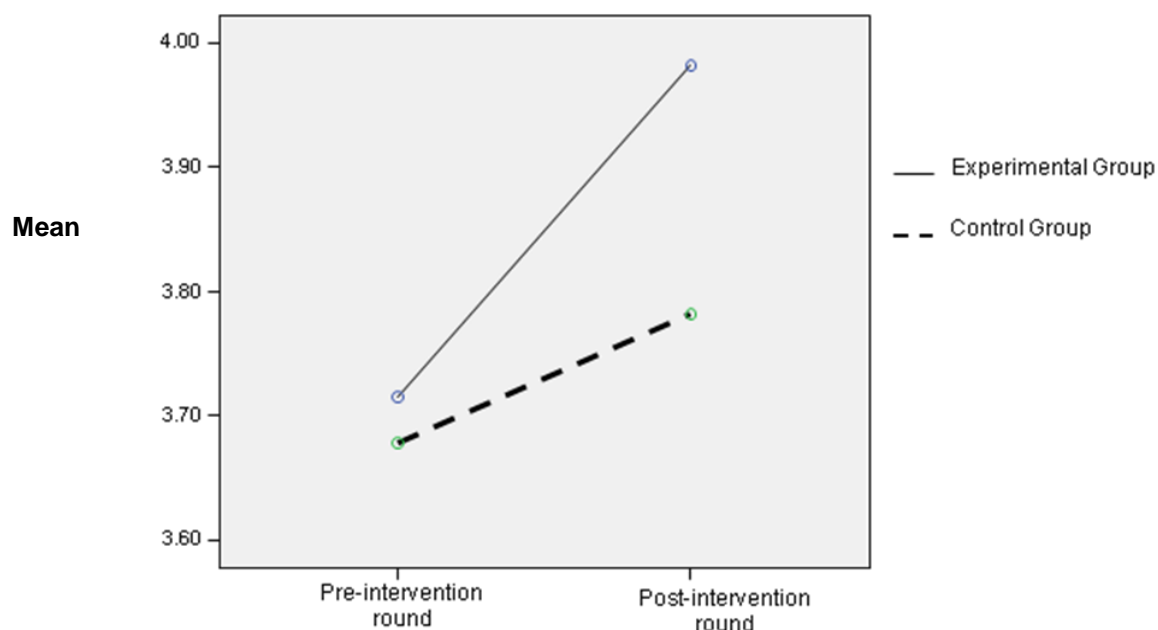
Differences between groups (main effect for group)

Table 4.2 shows there is no statistically significant difference between the comprehensibility of the group who studied the pronunciation syllabus based on the LFC and the other group who studied the traditional syllabus based on RP/GA with $F=1.76$, $P=0.19>0.05$ and Partial Eta- = 0.01. Effect size was small (Eta-squared = 0.01). However, the experimental group scored relatively higher than the control group in the post-intervention round (Figure 4.2) where the mean of the control group in the post-intervention round was 3.78 while the experimental group is 3.98. The difference between the two groups remains insignificant.

Interaction between groups and rounds (interaction effect)

The data revealed statistically significant interaction effects of group by round. $Sign=0.01<0.05$, $F=6.59$. The effect of the interaction was small with the Eta-squared = 0.042. The experimental group's mean score in comprehensibility increased in the post-intervention round ($M=3.98$) in comparison with the pre-intervention round ($M=3.72$). Similarly the mean score of the control group rose as a result of the experimental condition, but this increase remained relatively lower than the increase that had been achieved by the experimental group (mean in pre-intervention round was 3.68 and 3.78 in the post-intervention round).

Figure 4.2: Comprehensibility scale: Interaction between group and round



4.2.2 Research question 2:

Is there any significant difference among the 3 groups (NSs, ESLs and EFLs) in scoring the intelligibility and comprehensibility of the LFC learners and learners of the RP/GA pronunciation syllabus?

One-way ANOVA was conducted to tell whether there are significant differences in the mean scores on the dependent variables (the intelligibility and comprehensibility) across the three groups of listeners: native speakers of English (NS), users of English as a second language (ESL users) and users of English as a foreign language (EFL).

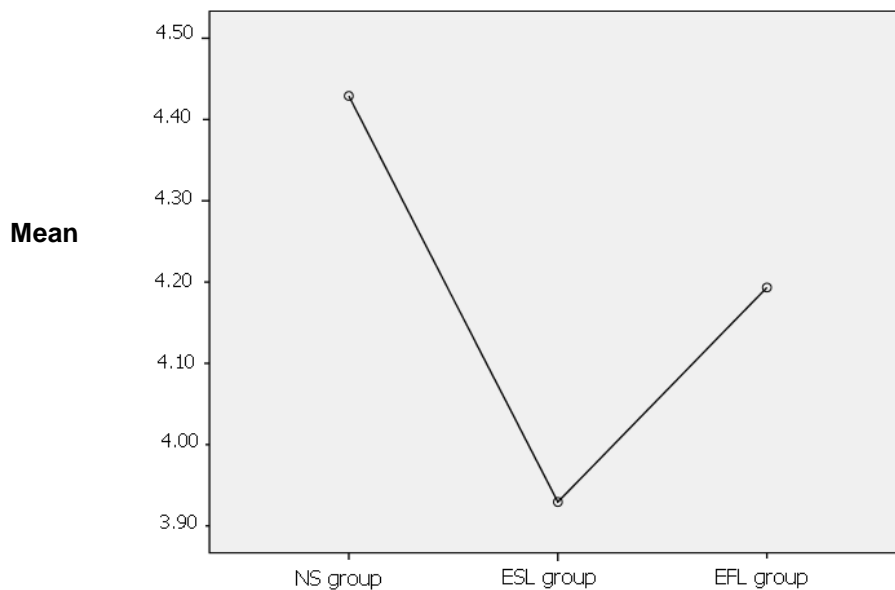
4.2.2.1 Intelligibility Scale

A statistical significant difference was found among the three groups of listeners; NS, ESL and EFL listener in rating the intelligibility of speakers of both groups; the EG and CG with $F(2,147)=7.701$, $P=0.001$. Despite reaching statistical significance, the actual difference in mean scores between the 3 groups of listeners was quite small. The effect size was small (Eta-squared = 0.09). Post-hoc comparison using the Tukey HSC test indicated that the mean score for NS ($M=4.43$, $SD=0.55$), was significantly different from ESL listeners ($M=3.93$, $SD=0.65$), EFL ($M=4.19$, $SD=0.61$) but did not differ significantly from either NS or ESL groups (Table 4.3 – Figure 4.3). In this way, despite reaching statistical significance, the actual difference in mean scores between the groups was small.

Table 4.3: Mean scores and standard deviation of intelligibility of the three groups

Group	N	Mean	Std. Deviation	Std. Error	F	Sign	Eta-squared
NS	42	4.4290	.54980	.08484	7.701	0.001	0.09
ESL	48	3.9294	.64719	.09341			
EFL	60	4.1933	.60543	.07816			
Total	150	4.1749	.63104	.05152			

Figure 4.3: Estimated marginal means for the intelligibility of both groups



While this reveals that there are significant differences in rating the intelligibility by the three groups, specifically between the NS and ESL groups, it does not tell whether this significance existed in responding to the EG and/or CG. Table 4.4 and Table 4.5 reveal that this statistical difference exists in responding to both groups; EG and CG. In the case of the experimental group, Table 4.4, $F(2,72)=4.267$, $P=0.02$, however, the actual difference in the mean scores between the groups was still very small. The effect size was small (Eta-squared = 0.12). Post-hoc comparison using the Tukey HSC test indicates that the difference exists between the mean scores of NS ($M=4.52$, $SD=0.48$) and ESL listeners ($M=4.04$, $SD=0.54$), while EFL ($M=4.23$, $SD=0.62$) did not differ significantly from either of the other groups.

Table 4.4: Mean scores and standard deviation of intelligibility of the experimental group

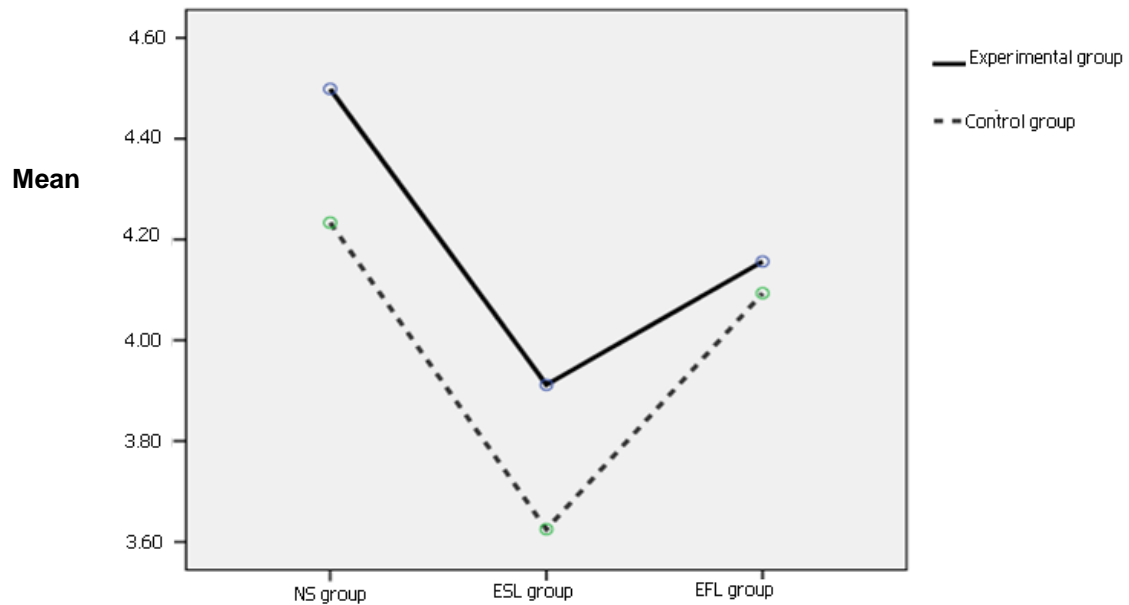
group	N	Mean	Std. Deviation	Std. Error	F	sign	Eta-squared
NS	21	4.5205	.48080	.10492	4.267	0.02	0.12
ESL	24	4.0354	.54340	.11092			
EFL	30	4.2267	.61596	.11246			
Total	75	4.2477	.58211	.06722			

Similarly, significant differences existed in the ratings of the intelligibility of the control group between the three groups of listeners. Table 4.5 shows $F(2,72)=3.72$, $P=0.03$ ($P<0.05$). However, the actual difference in the mean scores between the groups is very small. The effect size is small (Eta-squared = 0.09). Post-hoc comparison using the Tukey HSC test indicates that the mean scores for NS ($M=4.34$, $SD=0.91$), are significantly different from ESL listeners ($M=3.82$, $SD=0.73$), while EFL ($M=4.16$, $SD=0.60$) does not differ significantly from either NS or ESL groups (Figure 4.4).

Table 4.5: Mean scores and standard deviation of intelligibility of the control group

group	N	Mean	Std. Deviation	Std. Error	F	Sign	Eta-squared
NS	21	4.3376	.60906	.13291	3.72	0.03	0.09
ESL	24	3.8233	.73292	.14961			
EFL	30	4.1600	.60335	.11016			
Total	75	4.1020	.67244	.07765			

Figure 4.4: Intelligibility of EG and CG according to group types of listeners



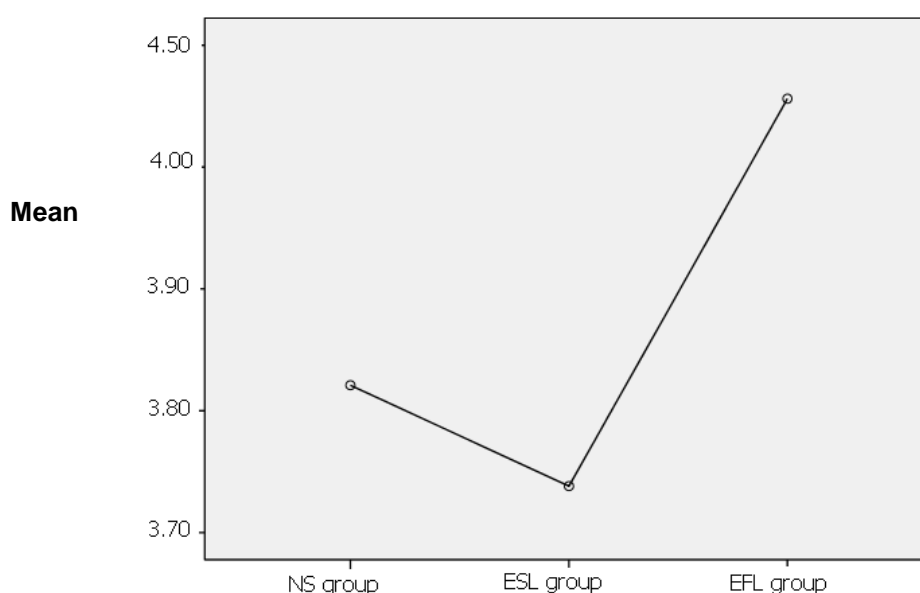
4.2.2.2 Comprehensibility Scale

Statistically significant differences were found among the three groups of listeners; NS, ESL and EFL in rating the comprehensibility of the speakers in the EG and CG with $F(2,147)=4.128$ and $P=0.02$. The effect size is small (Eta-squared = 0.05). Post-hoc comparison using the Tukey HSC test indicates that the mean score for EFL ($M=4.0562$, $SD=0.64$) is significantly different from ESL listeners ($M=3.74$, $SD=0.64$), while NS ($M=3.82$, $SD=0.48$) does not differ significantly from either EFL or ESL groups (Table 4.6 – Figure 4.5). In this way, although the difference was statistically significant, the actual difference in mean scores between the responses of the 3 groups of listeners was small.

Table 4.6 : Mean scores and standard deviation of comprehensibility of the three groups

Group	N	Mean	Std. Deviation	Std. Error	F	Sign	Eta-squared
NS	42	3.8210	.47869	.07386	4.128	0.02	0.05
ESL	48	3.7381	.63721	.09197			
EFL	60	4.0562	.64166	.08284			
Total	150	3.8885	.61160	.04994			

Figure 4.5: Estimated marginal means for the comprehensibility of both groups



While the above reveals that there are significant differences in rating the comprehensibility by the three groups, specifically between the EFL and ESL groups, it does not tell, however, whether this significance exists in responding to the EG or CG. However, Table 4.7 and Table 4.8 reveal more details and show that this difference does not exist in responding to the comprehensibility of the EG but the CG. In the case of the EG, Table 4.7 shows that $F(2,72)=1.29$, $P=0.28$. The effect size is small (Eta-squared = 0.03). Post-hoc comparison using the Tukey HSC test indicates the mean scores for NSs ($M=3.9$, $SD=0.45$), ESL listeners ($M=3.87$, $SD=0.56$), and EFL listeners ($M=4.11$, $SD=0.66$).

Table 4.7: Mean scores and standard deviation of comprehensibility of the experimental group

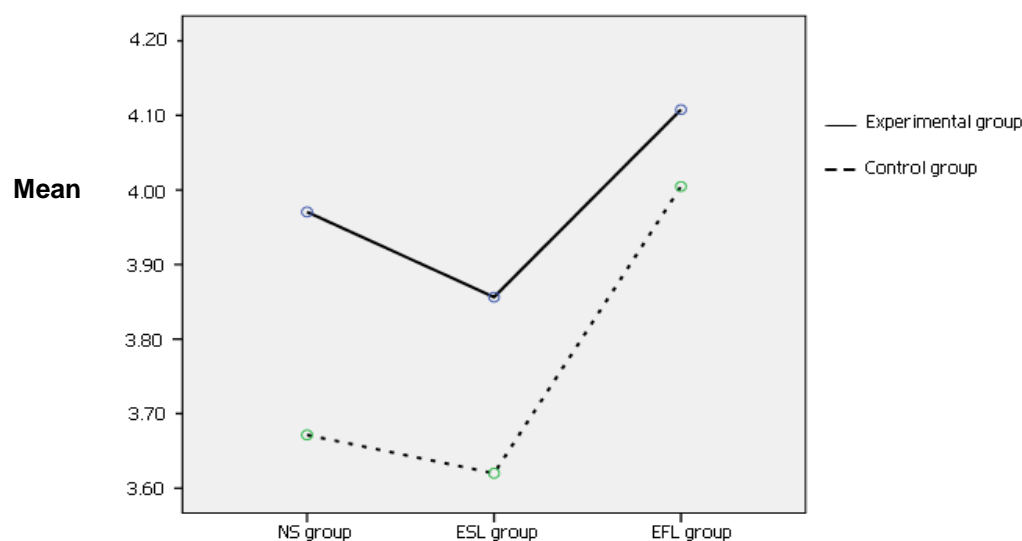
Group	N	Mean	Std. Deviation	Std. Error	F	Sign	Eta-squared
NS	21	3.9705	.45285	.09882	1.29	0.28	0.03
ESL	24	3.8563	.56032	.11437			
EFL	30	4.1077	.65575	.11972			
Total	75	3.9888	.57710	.06664			

Table 4.8 below shows that there are significant differences between the NS, ESL and EFL groups of listeners in rating the comprehensibility of the control group with $F(2, 72)=3.14$, $P=0.05$ and a very small difference in the mean scores of the 3 groups. The effect size is small (Eta-squared = 0.08). Post-hoc comparison using the Tukey HSC test indicates that the mean scores for NS listeners ($M=3.97$, $SD=0.45$), differs significantly from the EFL listeners ($M=4.00$, $SD=0.63$) while ESL listeners ($M=3.67$, $SD=0.47$), does not differ significantly from either NS or EFL listeners (Figure 4.6).

Table 4.8: Mean scores and standard deviation of comprehensibility of the control group

Group	N	Mean	Std. Deviation	Std. Error	F	Sign	Eta-squared
NS	21	3.6714	.46660	.10182	3.14	0.05	0.08
ESL	24	3.6200	.69760	.14240			
EFL	30	4.0047	.63416	.11578			
Total	75	3.7883	.63225	.07301			

Figure 4.6: Comprehensibility of EG and CG according to group types of listener



4.3 Interview Findings

The overall purpose of the interviews was twofold: firstly, to triangulate the responses of the rating scale; and secondly to explore which factors impacted on the PI and PC of the three groups; particularly cases where LFC features were mispronounced but the listener did not press the buzzer, which presumably suggests that the utterance was intelligible. Responses of the listeners in this part will be presented in categories according to their themes rather than to speaker groups to give a broader overview of the topics involved in perceiving speech intelligibility and comprehensibility.

There were two sets of groups: the speakers (Appendix E) and the listeners (or interviewees) (Appendix F). These were using false names as mentioned in the Methodology chapter. In this Chapter, the group each participant belongs to is attached to his/her false names. For example, Rama-EG is a speaker from the experimental group, while Viola-EFLS is an interviewee who is a speaker of English as a foreign language. The speech samples discussed in the interviews are at post-intervention round. There is one case where Reem's-(CG) speech at pre-intervention round was used, and this is clearly indicated in the relevant section.

4.3.1 Background and Familiarity

The types of familiarity which the interviews found to influence intelligibility and comprehensibility were: familiarity with speakers' accent, the phonology of speakers' L1, context, and the topic of the speech.

Familiarity with context, topic, and understanding the overall message facilitated recognition of individual words in many instances despite mispronunciation of some LFC features. These instances occurred in both EG and CG speech samples, but they were more obvious and occurred more frequently in the case of NS than ESL and EFL listeners. Examples follow.

Familiarity with several NNS varieties, not necessarily with an Arabic accent, was the reason why Susan-EG was intelligible and comprehensible although not without difficulties. Rita-NS described Susan's accent as 'thick' and for this reason she said about Susan-EG: 'I found Susan not easy to understand'. Nevertheless, Rita's childhood background made this understanding possible, as Susan's accent, according to Rita, is similar to the 'thick' Lancashire accent to which she was exposed during her childhood:

I would understand it (referring to the thick accent) because I have heard it in my childhood [...] it could be that I was used to listening to somebody with that accent and I became more attuned to it.

On another occasion, Rita found difficulties recognizing the word 'film' by Hawwa-CG who pronounced the final consonant cluster in 'film' inserting a vowel and pronouncing it as /fɪlɪm/. She said:

When she said 'film' (/fɪlɪm/) I started to think: 'fill them with what'? Because /fɪlɪm/ sounds like 'fill them' but again, that is me, where I come and it is the business of pronouncing every single letter.

Vowel insertion in the final consonant cluster of ‘film’ did not cause problems in recognising the word by Elaine, another NS interviewee, who said:

I have heard the word ‘film’ mispronounced like that before it is obvious to me that ‘filim’ is just ‘film’... I’ve heard children mispronounce it like that, English children, or possibly it is a mistake I have made when I was a child rather than I have heard other children make the mistake.

Elaine suggested that NNSs might recognize words where the final consonant cluster is pronounced differently from NSs as they might have had the same difficulty with consonant clusters while learning English:

Perhaps you think that other than NNSs have problems in understanding this word (referring to ‘film’) what about the one who mispronounced /fɪlm/ as /fɪlɪm/ and it has been corrected would he understand someone else pronouncing it like that? Would they then understand it? They will understand the word /fɪlɪm/ as ‘film’ because they made this mistake themselves before.

It is worth mentioning that none of the EFL interviewees reported that they recognized consonant clusters (or any other words that were pronounced differently from NSs) because they pronounced them while learning English similar to the speakers in the recordings.

At some points, unfamiliarity with the context also makes speech more difficult to comprehend, but not necessarily to recognize. This is the case of some speakers who were describing pictures but did not establish the setting and started clearly with (for example) ‘I can see in this picture...’ before immediately describing what is there. Lack of establishing context by Anfal-EG was why her speech, although intelligible, was not very comprehensible to Elaine.

It is obvious that in all these cases it was NS interviewees who could exploit their familiarity and background to recognize words. There was only one EFL interviewee, Pink

from Korea, who found the speech of several speakers from both groups incomprehensible although she is regularly exposed to Arab speakers of English. She said:

I have to focus while listening to what they are saying and their pronunciation was not very familiar to me although I have got some colleagues from their country. I should focus on listening.

Pink's response suggests that exposure to certain accents might not have a positive influence on intelligibility and/or comprehensibility. There are also instances where familiarity might have a negative rather than a positive influence on intelligibility and comprehensibility. This is when the listener starts to evaluate what he/she is listening to in an attempt to recognize and comprehend a speech based on his/her background. If these expectations are not met, the result could be less intelligible/comprehensible speech than expected. The next section focuses on this idea.

4.3.2 Expectations' of Listeners

Based on his phonological knowledge on how /r/ sounds in Arabic, Socrates-ESLS (Pakistan) expected to hear the Arabic trilled /r/ he is familiar with. Lack of the trilled /r/ in Rama's-(EG) speech where /r/ was almost elided, resulted in Socrates having difficulties recognizing the words where /r/ occurred. He said: 'I would have understood Rama easier if she pronounced the normal Arabic /r/ instead of the very weak /r/ she has pronounced'.

Mamba-ESLS (also from Pakistan) has been exposed to Arab speakers of English who have good command of English (a level of proficiency which the speakers in this study do not have). Although the buzzer technique revealed that he could recognize the majority of the speech samples, some samples were rated as either unintelligible or incomprehensible. Mamba said:

I think that more than English Arabic is connected ... when you are speaking in Arabic you do not say each word separately. If you are doing it in English it means that it is not natural and you are doing it because you do not have that much command in the second language.

Similarly, Peter-NS expected Reem-CG to sound like the Arabs he is frequently exposed to. Although he found her speech very intelligible, that was not achieved easily. He also reported an overall difficulty in understanding her speech. Peter explained:

She is pretending, the RP was not right, that it is like elite language because I am expecting the Arabic accent but I am not expecting the strange sound. I know what to expect with the Arabic and the RP, it is like twisted, out of shape; it is no longer in its proper or original shape, for example because it has been damaged or wrongly handled. It does not meet my expectations.

Furthermore, Reem's speech in the pre-intervention was perceived more positively by Peter and was easier to comprehend than the post-intervention speech. Without recognizing that it was the same speaker but at two different stages, Peter asserted that the pre-intervention speech was more comfortable and natural despite its pronunciation mistakes and very strong Arabic accent. He said:

If you have got the Arabic accent even if it is strong it is more acceptable because it is an Arabic accent and it is better than something incorrect because I cannot say that Arabic accent is incorrect like I cannot say that the Pakistani accent is incorrect.

Expectations also involve how listeners expected speech to sound. To the interviewees, 'monotonous' speech does not mean lack of intonation in the sentences. It is rather the use of a single intonation throughout the whole speech repeatedly. For Jane-NS, Zozo-CG was very easily recognizable, but commented on the degree she could understand her. She said:

There is no intonation. If you are speaking you would not pronounce it in that way intonation goes up with positive and down at the end with negative but there is difference between the positive and the negative feelings, and in comparing and contrasting because the intonation is the sedulity of a language.

Similarly, Sarah-NS recognized Anfal's-(EG) speech 'very easily', but it was not equally comprehensible. She suggested that it was her 'monotonous' and 'clipped' speech. She said:

Normally when you are speaking the voice goes up and down and one word follows immediately the other in a kind of fluid way which is how you convey meaning ... when somebody is coming to the end of the sentence the voice changes and they go down to finish the point whether it is a question or whatever when making a point so you know that point has finished and then the next one is about to start so when you are listening you will know that is now I am listening to something new whereas with her it is impossible to know.

4.3.3 Speaker's Attitude

Speakers' interest in their topics also influences intelligibility and comprehensibility. This interest was shown by the speakers in several ways, stressing prominent words is one way. For some interviewees, stressing certain words was the reason behind two main aspects: facilitating understanding the message and enjoying listening to the speakers as their speech sounded more engaging. Socrates-ESLS said of Jasmine-EG:

I think enthusiasm and her love for what she is saying add to your understanding. If someone is saying something with emotions in it helps you to get involved in it as a listener, it attracts your attention as a listener.

For Socrates, stressing necessary words was sufficient to carry the speaker's emotions, and was also an indication of enthusiasm. Similarly, Jane-NS said about Nancy-CG:

I liked it very much ... the stress is on the right part of the sentence. She said: 'it was really AMAZING', 'after that', that was perfect, just the transition between the two sentences that was great, 'ROMANTIC music' ... that was very nice ... 'Muscat is REALLY a VERY BEAUTIFUL place' A 'REALLY BEAUTIFUL city' I mean it is what I would say.

Similar to the comments of Jane and Socrates are those of Japhet-ESLS and Obi-ESLS. Both believe that stressing prominent words (particularly in the case of Jasmine and Nancy) makes the speech sound attractive, conversational, and consequently easy to comprehend.

Listeners have also been critical about the role of stress and how it contributes to conveying the speaker's message. Obi-ESLS said that Jasmine-EG sounded more conversational than Mira-CG while both got relatively the same rating in the quantitative data. Obi could observe the differences in meaning carried by stressing prominent words (nuclear stress by Jasmine) and word stress (by Mira). Obi said:

Jasmine sounded more conversational. Mira said 'WALking' and 'TALking'... if she is stressing 'WALking' and 'TALking' what is she trying to make me understand? She does not have anything new to add in 'walking' and 'talking' but when I listen to Jasmine it was 'VERY interesting' you see that had something to add 'it was VERY interesting' it must have been really interesting for her to stress it like that so I personally prefer to communicate with Jasmine she would be more interesting to communicate with.

How confident the speaker appears to the listener is one reason why some speakers sound more intelligible and easier to understand. One of the most important features reflecting this is how 'clipped' and 'jerky' her speech was. Japhet found Mira's-(CG) speech 'amazing', 'because she has confidence in her delivery'. Japhet-ESLS also explained how Sophie's-EG being confident facilitated comprehensibility:

Sophie is appealing to me because she sounds conversational and confident about her language abilities and this made her sound very familiar with and confident in her subject...it is the ability to understand her subject and what she is talking about, confidence in her language skill and the fact that she is a relaxed person.

4.3.4 Foreign Accent and Attitude of Listener

Compared to the EFL syllabus, the LFC encourages learners to maintain part of their L1 accent. Thus, it is important to consider the listeners' attitude towards the accents of the LFC group, and their influence on the PI and/or PC of their speech. One major issue revealed by the listeners concerns 'correctness'.

There are two contradictory positions for the attitude of two NS interviewees in this study towards pronouncing words differently from NSs. Rita did not consider this difference a 'mistake' or deviation from any standard as this variation in pronunciation is becoming a very common phenomenon in her country, Britain. For her, this might be attributed to some factors, for example the spread of TV and radio. This would have possibly made people, like herself, attuned to this variation in pronunciation and stopped perceiving these differences as mistakes. At the other extreme, another NS, Jane, believes that the English that is used among NNSs is 'pseudo'. For her, learners should interact with NSs to acquire the 'proper' English. No matter how intelligible it is, it remains 'improper' and 'unreal':

I think if you speak to a non-native English speaker even if there level of English is very good you find that they will make mistakes. I think there is the problem of accuracy because if neither of them (the interlocutors) is a native speaker of English both might be making the same mistakes and then because both of them are making the same mistakes they are like developing their own pseudo-English language that is not real. It is a fabricated language that everyone probably would still understand what you are saying but it is not good English, it is not proper or normal English.

It is important to report that Rita asserted that she felt unhappy 'criticising' the way the speakers spoke because they were learning English more successfully than she did when learning German. Jane, despite revealing a negative attitude towards most speeches, expressed her appreciation towards the speakers' abilities to speak English better than she would if she had to learn another language.

Along with the ‘correctness’ issue, the listeners also described many speech samples as ‘boring’, ‘irritating’, ‘clipped’, ‘jerky’, ‘intimidating’ and ‘chunky’. Nevertheless, there were samples where listeners revealed their positive attitude towards them. The following will present data drawn from three instances where:

- a. intelligibility and comprehensibility are not influenced by foreign accent (FA);
- b. intelligibility and/or comprehensibility are influenced negatively by FA; and
- c. intelligibility and/or comprehensibility are influenced positively by FA.

4.3.4.1 Intelligibility and Comprehensibility are not Influenced by Foreign Accent

The majority described the speeches as ‘clipped’, ‘chunky’, ‘intimidating’ and ‘jerky’. To many, they were ‘boring’ and ‘irritating’. Viola-EFLS, described them as ‘scholastic English’. Nevertheless, a negative attitude by interviewees did not influence PI and PC negatively. This was the case of Japhet, Rizwana, and Obi (who are all ESLs). Describing the stress and rhythm of Anfal-EG Obi said:

She is stressing the words they are very heavy. It does not make the language beautiful and simple and straight forward like it should be. Honestly she is easy to understand but she is not speaking very beautifully.

Similarly, EFL interviewees shared ESL listeners' attitudes. Anistisha-EFLS marginalized the influence of Susan’s-(EG) ‘jerky’ accent asserting that she only minds about clarity when listening to speakers of English:

I wish the English I hear to be easy for me to follow and I will not care about whether it comes out as word by word or all together I do not care about it. I think it is fine I need to get all the information from her very clearly and so the way she talks is not a big deal.

4.3.4.2 Negative Influence of FA on Intelligibility/Comprehensibility:

While the above revealed that FA does not influence intelligibility and/or comprehensibility, the following shows that attitude has a negative influence.

Obi-ESLS (Nigeria) rated Rafif's-(EG) intelligibility and comprehensibility negatively. However, the buzzer technique revealed that he was able to recognize every single word. Obi explained:

It will need patience to sit down and start listening to her words and trying to understand what the person is saying but before I listen to the word I am listening for the sound of it first if it started to sound very strong like /rrr/rrr/rr/ I always do not want to listen to the rest of it. It is really very heavy, very strong and stressed accent.

Similarly, Pink-EFLS (Korea) commenting on Fatma's-(EG) clipped speech, said:

Her speech is not flowing; it is in chunks and there is no connection between words she says the word one by one. Although it was easy for me to understand each word but it is annoying to try to understand what she was talking about because there is no fluency at all and she seemed to focus on the accuracy of each word.

Elaine-NS explained the relationship between a negative attitude towards speech and its influence on comprehensibility. About Anfal-EG she said:

You have to concentrate to understand what she is saying so it took more work to listen to her... I think she required more concentration because she was going slowly... it was almost annoying when you are walking through town and people in front of you are walking slowly and trying to pass them ... it irritates me because I wish her to hurry up to get to the point... I think because of the long gaps between the words I think that it was difficult to tell ... or to link the entire sentence I have to think about and remember what she was saying so slowly I think.

4.3.4.3 Positive influence of FA on Intelligibility/Comprehensibility

Despite the negative impact of the clipped speech above, its slow pace had a positive influence for some EFL interviewees. For Maple-EFLS (Taiwanese), slow speech, although heavy and jerky, helped her concentrate and think about the meaning of the utterance. About Anfal-EG, she said:

The speech is slow so I can guess [the words] and then understand her although I did not like her speech.

In four different instances, the interviewees reported that they prefer a NNS speaker to maintain his/her FA than imitate NSs. For example, Rita-NS said of Susan-EG:

Pronouncing every single letter is better than many alternatives which might mean that they are applying a different pronunciation all together.

Socrates-ESLS commenting on the elision of /r/ in the word 'sport' (by Rama-EG) said: 'I would understand her better if she used the Arabic /r/'.

Jane-NS commented on Hawwa's-(CG) use of weak form and features of connected speech in 'fish and dates'. Although it was appropriately pronounced as /fɪʃəndæts/, Jane said: 'I would have preferred her to say 'fish-and-dates' (three separate words) although it was recognizable it was still 'odd' to me'. This point of view was also shared by Peter-NS who reported that Reem's-(CG) speech sounded like an 'elite' and said: 'I would prefer her to maintain her L1 accent than trying to lose it; it sounded like twisted'.

Stacy-NS believes that speakers should maintain a gap between their own accent and the interlocutors' in order to communicate properly. Stacy based her response on her background as a fluent speaker of the Kaleeji dialect:

When I meet new people that do not know I speak Arabic and hear me speaking Arabic I feel I am not taken seriously ... I'll give you a specific example ... the new girl who works in the reception ... I did not know where her level of English is so most of the time I speak to her in Arabic and she just looks at me like I am performing a magic or calling poetry. This is fine at the beginning, but get over it, let us talk I do not feel that I can communicate with her I do not feel that I can exchange ideas because I do not think that she is listening to my ideas what I am really communicating ... I do not feel that there is a progress in our relationship because of that my speech which was so close to native speech.

Stacy's experience is on speaking in Arabic not in English, but it also provides an example where becoming closer to NS varieties (of Arabic) might impede rather than facilitate communication with NSs of the language used in that specific situation.

4.3.5 Influential Relationship between Intelligibility and Comprehensibility

In this study, there are instances where the listeners have found speech intelligible but not similarly comprehensible. Mamba's-(ESLS) responses to Anfal's-(EG) and Fatma's-(EG) intelligibility and comprehensibility are samples where speech can be very intelligible but not equally comprehensible:

To be a good speaker the listener should not be under any sort of pressure to concentrate. I am speaking from the speaker's perspective, the first thing is whatever you say should be clearly said so that all your words are understood but along with that there should be clear enough to that extend that the listener does not need to concentrate or pay specific attention to you even if you see a normal conversation there we should understand what is being said.

Socrates-ESLS rated the comprehensibility of speakers in both groups more positively than intelligibility. He believed that for speech to be comprehensible it is not necessary to be intelligible. He said:

to me it is very important that you recognize and understand every word to get the whole message clearly but it is not indispensable, it is not absolutely necessary to recognize each and every word to get to the whole message of the speaker but it would be better if the listener understand each and every word of the speaker.

Peter-NS explained how speech that is difficult to recognize influenced comprehension negatively in Maya's-(CG) speech:

I am struggling to understand this person. I can recognize words but I struggle with some words it starts to be difficult to understand the rest because my mind is still trying to understand the part that was missing and I cannot follow the rest it is like if I am back and I cannot catch up.

Jane-NS attributed unintelligibility of speech to her hard work fitting words to their context. Yet despite her efforts yielding word recognition, she found understanding the full context difficult. Similarly, Sarah-NS, found Anfal's-EG speech 'very easily' recognized, but not very comprehensible: She said:

Every word was pronounced very clearly and you have to concentrate very hard to understand the whole sentence. It is quite difficult to understand the meaning of what she is saying. While you understand every word it is just difficult to understand the thing... difficult to follow you have to concentrate very hard to understand the meaning.

Viola-EFLS believes that intelligibility of words is essential for understanding the message. She struggled to understand Sarah-EG and attributed this to not recognizing some of her words. Viola explained further how she uses context to recognize individual words when possible. She said:

I was listening to put my efforts to understand as much as I can and using the information the person was giving on the basis of this information to understand. What I normally try to do is to understand better using not just the single word but using the other words to infer the meaning of the word which I could not

understand using the context. I use the topic sometimes or my experience with listening to people with this kind of accent. With some people this is easy, but more difficult with some other people.

For Anistisha-EFLS (China), missing the opening of the speech impeded comprehending the rest of the speech. For this reason, Reem-CG was not intelligible or comprehensible:

I could not follow her at start when she started speaking but after several words I started to get the meaning ... when I heard the first word is not very easy for me and I suddenly lost it ... this does not always happen but many times with many speakers (in this study) maybe because I lost the first few words.

4.4 Discussion

4.4.1 Intelligibility/Comprehensibility of Speech to NSs and NNSs

This study has found that learners of both groups, experimental and control groups, are more intelligible to NS than to EFL and ESL groups. However, this is not the case with comprehensibility. Although NSs could find the speech intelligible, it was less comprehensible to them than to the EFL group.

There are three issues that could explain this. The first might be the way NSs and NNSs perceive speech. According to Brown (1990), NSs are more able to recognize words with limited phonological input as they are more able to use top-down processing than NNSs. This is because of their ability to apply their background and knowledge on the language better and, eventually, more successfully interpret mispronounced words than NNSs do. This could be why the NSs (and many ESL listeners in this study) attribute their ability to recognize words, which are pronounced differently from NSs and include core features in the LFC, to context and background (the rating scale showed a mean score (M) of NSs=4.43; M of EFLSs=4.19 and M of ESLs= 3.93). This is also evident in section 4.3.1

where all interviewees who reported examples from their background, familiarity and experience were NSs.

In contrast, NNSs are more likely to implement bottom-up processing (Brown, 1990; Jenkins, 2000) which suggests that they depend heavily on how sounds are pronounced more than exploiting a broader picture, and recognize individual words by inferring them rather than actually listening to their pronunciation. Careful pronunciation and slow pace of speech, although not always helpful in recognizing individual words, can help processing the meaning of speech. This might explain why, contrary to intelligibility, the rating scale of the quantitative study found that speakers were more comprehensible to EFLSs (with $M=4.06$) than to NSs ($M=3.82$) and finally to ESLs ($M=3.74$). Furthermore, some NS listeners reported that the speeches were 'boring' and 'intimidating' and this might have reduced their patience to follow the speeches, although individual words were intelligible. Similarly, Gumperz's (1982) found that NSs are often annoyed and distracted by NNSs' accents and thus miss the wealth of information revealed by contextual and paralinguistic cues that might disambiguate.

These findings offer less support to the argument of Jenkins (2000 and 2005) and Bent and Bradlow (2003) who argue that NNSs are more intelligible to each other than to NSs. Nevertheless, there are still some features which could be surprisingly shared by learners of English and help to make speech more intelligible and comprehensible than it is to NSs; for example, slow and careful pronunciation. And it may be this latter factor that makes NNSs more comprehensible to NNSs. There are two more reasons provided below.

One reason may be attributed to the English variety they have learned. Both Anistisha (Chinese) and Maple (Taiwanese) reported some words which are pronounced differently from how they learned it, and both (according to them) have been learning American English back home. The other reason may be attributed to theories of second language acquisition (SLA) and the differences of the phonology of listeners' L1 from the speakers'. Elaine (an NS interviewee) reported that NNSs could find the speech of many of the speakers more intelligible than hers, as NNSs might have passed through the same process of learning English which the speakers had. However, none of the EFL or ESL interviewees reported this. The speakers and listeners in this study have different L1s.

Accordingly, what has been a problem for Arab learners in learning English pronunciation might not have been equally difficult to the non-Arab EFL listeners.

Nevertheless, these reasons (differences in perceiving speech between NSs, and NNSs; varieties of English which NNSs have been taught and exposed to; and differences in phonology of NNSs L1s) suggest two important ideas: firstly, that both NSs and NNSs have factors which can increase and/or decrease their potential to perceive intelligibility and comprehensibility of speech more successfully than other groups. Secondly, that the ability to discriminate between relevant sounds in the L2 does not imply the ability to comprehend spoken messages which supports the argument of Brown (1989a), Nelson (2008), Smith and Nelson (2006), Scales *et al.* (2006), Tauroza and Luk (1997) and Matsuura *et al.* (1999).

4.4.2 Familiarity and Background of Listener

This study has revealed the influence of different types of familiarity on intelligibility and comprehensibility. Frequent exposure to Arabic speakers seems to have facilitated intelligibility and comprehensibility. This study, therefore, is in line with other research. Some of this work is by Gass and Varonis (1984), Rajadurai (2007), Smith (1992), Taylor (1991) Giles and Smith (1979), Smith and Nelson (2006), and Matsuura *et al.* (1999). One reason behind this, according to Matsuura *et al.* (1999) is that familiarity may have at least a positive psychological effect on listeners, which could include less inhibition, bias towards and more tolerance of different varieties of English.

While this was true in general, the amount of exposure frequently does not seem to have a facilitating affect. This may be because exposure does not necessarily enable listeners to become aware of the phonological features of the speakers' L1 (Yang, 2009). For example, a listener exposed to Taiwanese English may identify this accent when it is heard, but this may not necessarily imply that he/she recognizes the features which make the speech sound Taiwanese. Without an adequate contrastive analysis of the L1 and L2 sound systems, adults often fail to effectively improve their ability to comprehend L2 speech.

Lack of linguistic knowledge might be the reason why familiarity with accent and exposure to certain varieties plays a minor role in mutual intelligibility, unless it is accompanied by the knowledge of the accented English sound patterns in question (Yang, 2009). According to Yang (2009), adult L2 learners tend to mishear the pronunciation of a new word, despite speakers' repetitive demonstrations.

Another reason is that a negative attitude towards a particular variety of English decreases intelligibility in spite of the listener's familiarity with the variety (Eisenstein and Verdi, 1985). Interviewees in this study described the speech of the learners of the LFC syllabus as 'irritating', 'boring', and 'intimidating'. These, although they did not influence the recognition of words, made the listeners, sometimes, less patient to work out the message and understand what the speaker was trying to say. In this way, negative attitudes towards a speech tend to decrease comprehensibility in spite of the listener's familiarity with that variety.

In this study, the listeners' background was one factor that influenced the recognition of words. Its influence can be explained in reference to Catford (1950). Identification of sounds depends on associating heard sounds with the right kinaesthetic images (traces left of the muscular and tactile sensations which the subject has experienced on past occasions when he himself plays the role of speaker). Catford (1950) assumed that the better a person's execution of sounds, the better his identification.

While 'hearer auditory image' has a positive influence on word recognition, this study revealed situations where it can be negative. When the speech is not in harmony with the listener's execution, the result could sound unintelligible or hard to understand. In other words, if the heard speech does not meet the expectations formed by the listener according to his/her auditory image, the speech might sound more unintelligible and/or incomprehensible than it is. This might be why Socrates-ESLS, Mamba-ESLS, and Pink-EFLS were unable to explain their familiarity with how Arabic sounds and understand the speakers easily.

4.4.3 Attitude towards Speech

In line with Nakashima (2006) and Rubin (1994), this research found that listeners who described speech easy to recognize and comprehend also had a positive attitude towards it. Often, however, where the accent sounded 'clipped', 'jerky' and 'heavy', the speech was still fully intelligible. These findings match those of Derwing and Munro (1997) who also found no correlation between intelligibility and foreign accent. Similar to the research by Rubin and Smith (1990), strong FA resulted in perceiving speakers as less competent and attractive; and if speech was 'boring', 'irritating', and 'jerky', it could make listeners less tolerant to make the effort to understand even an intelligible utterance.

Ethnolinguistic identity theory provides one reason why NNSs in this study expressed less tolerance towards LFC speakers than NSs. The NNSs described the LFC as 'jerky', 'boring', 'irritating', and 'tough'. This negative attitude was discussed earlier as causing the incomprehensibility of speech despite the listener's familiarity with that variety. If listeners have a negative attitude towards speech, they will more likely reject the idea that both the listener and speaker learned it as a second or additional language.

This study is also in line with that of Fayer and Krasinski (1987) who found that NNSs are not always more tolerant than NS to NNS English varieties. It also contrasts with Kroch (1987) and Chambers (2003) who suggest that NSs might prefer to maintain the gap between themselves and the NNSs they are communicating with. The positive attitude of NSs toward speech samples of the EG might be the reason why NSs rated the intelligibility of the EG higher than the EFL and ESL groups did, and comprehensibility higher than ESL listeners did. Nevertheless, the differences between them overall remain small.

In the present study, two NS interviewees revealed two contradictory responses about the differences of the speakers' pronunciation from that of NSs; one of them believes that these differences are not mistakes, while the other one thinks that the English developed among NNSs is unreal English. Findings also showed lack of agreement of what 'correct' or 'incorrect' English is, which has long been argued in literature by Kachru (1985 and 1986).

4.4.4 Summary

This chapter presented the findings of the two research questions in this study. The first was: *Is there any significant difference between the intelligibility and comprehensibility of learners following the syllabus based on the LFC and learners of the RP/GA syllabus?* The study used the repeated measures mixed ANOVA to answer the question and found there were no significant differences between the two groups, EG and CG, in terms of intelligibility and comprehensibility. While the Lingua Franca Core was based entirely on interaction among NNSs and excluded NSs, this study involved NSs along with ESL and EFL listeners. The findings of the first research question about the responses of the three groups to the intelligibility and comprehensibility of the speakers were presented jointly (for the three groups of listeners; NSs, ESLs, and EFLs). To shed more light on the responses of each group of listeners, the response of each group was presented independently from the other two groups in research question two.

The second question was: *Is there any significant difference among the 3 groups (NSs, ESLs and EFLs) in scoring the intelligibility and comprehensibility of the experimental and control groups?* One-way ANOVA was conducted to answer the question. The data found that there was a significant difference between the responses of the NS and ESL listeners in perceiving intelligibility of the speech of both the EG and CG. There was also a significant difference between the responses of the ESL and EFL listeners in perceiving the comprehensibility of the CG but no difference existed in the responses to the EG.

Rating scales were followed by semi-structured interviews. These interviews were addressing cases where core features (in the LFC) were pronounced appropriately but were still intelligible to listeners. One of the reasons was familiarity with the speakers' L1, where most (if not all) comments about the influence of the background on intelligibility were made by NSs. While knowledge about speakers' L1 facilitated intelligibility often it did not have a similar positive influence. Sometimes the impact was negative if the speech did not meet the listener's knowledge and expectations.

Listeners' attitudes towards the way the speakers speak and the speakers' self confidence were two more factors. Interviewees reported that less 'clipped' speech and stressing prominent words while speaking made the speech sound 'conversational' and 'interactive'. According to the interviewees from the NS, ESL, and EFL listener groups, FA did not always have a negative influence on recognition of words; it has enhanced (rather than impeded) intelligibility. Nevertheless, the speech of many speakers was intelligible, but not equally comprehensible.

These quantitative and qualitative findings were also discussed in this chapter and some existing literature was useful to explain the following phenomenon in the study: firstly, why the speakers were more intelligible to NSs than to EFL and ESL groups, and more comprehensible to EFL than to the other groups. One suggested reason was the difference between how NSs and NNSs perceive speech and their ability to invest the dual processing of speech perception top-down and bottom-up. The reasons behind recognition of words with mispronounced core features were attributed to familiarity and the listeners' background. Attitude was also important in facilitating intelligibility and/or comprehensibility. Having said this, PI and PC do not necessarily correlate positively with the last two factors. In other words, there are instances where familiarity influenced PI and/or PC negatively while attitude did not seem to have similar negative consequences on PI and/or PC.

The short summary of this chapter is amplified in the study's concluding chapter. Chapter 5, next, introduces and discusses the findings of the buzzer technique.

5 Chapter Five: The Buzzer Technique: Findings and Discussion

5.1 Introduction

The main thrust of this chapter is to present and examine the speech of the speakers by means of the buzzer technique where the interviewees/listeners were instructed to press the buzzer at unrecognizable utterances. This technique, as mentioned earlier in Chapter Three, is part of the semi-structured interviews conducted with 18 of the 75 judges (6-NSs, 5-ESLs, and 7-EFLs) (Appendix F) who responded to the rating scale. The qualitative examination of the phonology of the speakers was based upon the interview schedule (section 3.10.3). Findings will be separately presented in the experimental group (EG) and control group (CG) to give an accurate picture of unintelligible items and incomprehensible utterances in both groups' speech at the post-intervention round. The data included in this section are derived from two resources; the items which were problematic to the listeners and how these specific items were commented on during the intercoding process by 2 NSs. The findings will then be discussed based on Jenkins' argument (2000).

It is also important to remember that incorporating the buzzer technique within the semi-structured interviews facilitated seeking further explanation from the speakers, especially on some phonological features whose influence could not be captured by means of pressing the buzzer (for example, pitch movement and nuclear stress). The comments provided by the interviewees about these features and their possible influence on understanding the speech will also be introduced in this chapter.

5.2 Findings of the 'Buzzer Technique'

The items in the post-intervention speech samples where the interviewees pressed the buzzer are summarized in Table 5.1 (for the experimental group) and Table 5.2 (for the control group). At the end of each table, further explanation of the data will be introduced. In addition to the influence of phonology, the explanation also includes the influence of grammar and vocabulary.

5.2.1 Experimental Group

Table 5.1: Findings of the buzzer technique for the experimental group at post-intervention round

#	Listener	Dalal	Dina	Jasmine	Latifa	Malak	Nour	Renad	Sarah	Susan	Rama
1	Peter	Planes	Ticket	Really	Soft drinks	-	Meals	'thing'	'friendly and hard working'	Dogs	I will tell you
			Expensive	Weight				'bread'	'seven-thirty'	'playing'	how you can stay healthy
				I booked to me						The picture	
2	Viola	Need easily	Expensive	Dinner	Bad things	-	Vegetables	Fruit	-	-	I will tell you how you can stay healthy
		Types	One pm	Weight				Illness			
3	Pink	-	Ticket	-		-	-	-	-	-	
4	Ana	-	Airport	-	'I have to change it like	I was ill	Vegetables	-	-	-	'Four, sleep eight hours'
5	Elaine	Planes	I will spend in London 15 days	Weight	Vegetable	-	Vegetables		Wednesday	- playing together	'and make some sports'
		Need Easily					Three litters				
6	Socratese	-	-	-		-	Three meals	-	'is better than to live in a hostel'	Girls	and make some sports
							Sleep early	Finally	-		This

#	Listener	Dalal	Dina	Jasmine	Latifa	Malak	Nour	Renad	Sarah	Susan	Rama
7	Japhet	Need easily	-	Costed		-	-	-	-	-	-
8	Rita	Planes	I will spend in London 15 days	I booked to me	Soft drinks	-	Vegetables	bread	Wednesday	Dog	and make some sports
		Common					Of water	-	-	also two women are walking on the street'	Eight hours
9	Tina	Them	Expensive	-	one litter	-	Healthy	-	Friendly	Playing	
								Illness	'when we clean the room		
10	Maple	Transportation	A ticket	-	Water	I didn't come to college	-	-	safer	a big building'	-
		Types	Second class							playing'	
		People									
		Pay									
11	Obi	Cars	London	-		I didn't come to college	Early	Fruit	I think if you live with your family	-	-
								Bread			
								Illness			
12	Jane	Planes	I will spend in London 15 days	Costed		-	Vegetables	-	Wednesday	- playing	-
		Common							Meals		
									Healthy		
13	Rizwana	-	Ticket	-	-	-	-	-	-	-	-
14	Mamba	-	-	-		-	'one litre'	-	-	-	make sports'
15	Sarah	Planes	Second	-	one litter	-	Vegetables	-	Seven thirty	'two dogs playing together'	make sports'
		Need easily	I will spend in London 15 days								
16	Stacy	-	Expensive	-	-	-	-	-	-	-	make sports'
17	Anistisha	Bus	-	-	-	I was ill	-	-	-	'two girls'	-
18	Purple	Them	Expensive	Weight	-	-	Three meals	Illness	Safer	playing	'make sports'
											Before you sleep

In the case of the experimental group, most items which were difficult to recognize seemed to be attributed to vowel sounds. There were also instances where consonant and consonant clusters were a source of problems to intelligibility.

5.2.1.1 Vowel Phonemes:

Data revealed that quantity of vowel sounds was more problematic to intelligibility than quality. Table 5.1 shows there are 7 instances which could be attributed to vowel quantity. One instance is that of Dalal who pronounced the word ‘planes’ as /plænz/ instead of /pleinz/. This caused intelligibility problems to 5 NS listeners.

Another exists in Malak's speech where the word ‘ill’ in ‘I was ill’ was pronounced with the long vowel /i:/. This word was unintelligible to 2 EFL listeners.

In Nour’s speech, the vowel in ‘meals’ was shortened and pronounced as [i̥] instead of /mi:lz/, which was unintelligible to 4 interviewees (1-ESL 1-EFL and 2-NS listeners). The short vowel /e/ in ‘healthy’ also was longer than normal duration and sounded [e:] which was problematic to 2 listeners (1-EFLS and 1-NS).

The short vowel in the word ‘bread’ in Renad’s speech was also shortened and sounded more [ɛ̃] than /e/, which might be the reason why ‘bread’ was problematic to 3 listeners (1-ESLS and 2-NSs).

In the word ‘fruit’, the duration of the long vowel /u:/ sounded longer than normal. Along with this, /r/ was not clearly pronounced. This word was problematic to 2 interviewees (1-EFLS and 1-ESLS) who heard it as ‘food’.

In Rama’s speech, the intercoding process revealed that the vowel /ɔ:/ was shortened and pronounced as [ɔ̃:] in ‘sports’. This word was problematic to 7 listeners (1-EFLS, 2-ESLSs, and 4-NSs), where it was heard by the majority as ‘spots’. Similarly, the word

‘eight’ was problematic to 2 listeners (1-EFLS and 1-NS) and was heard as ‘either’ by one EFL listener. The duration of the vowel was shortened and pronounced as [eɪt].

Moving to vowel quality, the open back low vowel /ɒ/ was pronounced differently on three occasions. However, it was not problematic in all cases. In the word ‘dog’ by Susan, /ɒ/ was pronounced as /ʌ/. This word was heard as ‘ducks’ by 3 NSs. In this word, the consonant /g/ was also devoiced and sounded /k/.

Dalal pronounced the word ‘common’ with a less rounded /ɒ/ ([ɒ]), and was hard to recognize by 2 NS listeners. Another case was the word ‘college’ by Malak where /ɒ/ sounded less rounded than it should and was pronounced as [ɒ] in ‘I did not come to college’. This was problematic to one ESL listener who heard it as ‘courage’. Along with the vowel problem in this word, the voiceless stop-plosive /k/ is not aspirated, so it was [kʰɒlɪdʒ] instead of [kʰɒlɪdʒ]. Another unintelligible word in Dalal’s speech was the word ‘bus’ which was not recognized by 1 EFLS who said that it was pronounced differently from how she was taught.

In Renad’s speech, the vowel in the first syllable of ‘finally’ was pronounced as /eɪ/ (the falling, narrow, closing diphthong) instead of /aɪ/ (the falling, wide, closing diphthong) but ‘finally’ was fully intelligible to all listeners.

In Sarah’s speech, the intercoding process also revealed a problem in the quality of the short vowel in ‘cook’ where although short, it is a more open-back short vowel /ɒ/ than the close-back short vowel /ʊ/. All listeners fully recognized it.

There are very few words where the long vowel /ɜː/ exists. These are some: ‘third’, ‘work’ and ‘girl’. /ɜː/ was replaced in these words by the diphthong /eɪ/. However, this was fully intelligible to all listeners. There was only one case, in the word ‘girl’, which was problematic for 1 EFL from China. The reason, however, might be due to the consonant /r/ more than the vowel /ɜː/. The interviewee asserted that she had learned

American English and was taught to pronounce /r/ differently from the way the speakers do which made /r/ problematic for her in most (if not all) cases where it occurred.

5.2.1.2 Consonant Phonemes

Table 5.1 shows the consonant sounds which were mispronounced are: /v/, /n/, /g/, /d/ and /r/.

In Sarah's speech, /v/ in 'seven' was partially devoiced and sounded as /f/ (/sefən/ instead of /sevən/). This revealed no intelligibility problems for any of the listeners. In the same speech, 2 listeners (1-NS and 1-EFLS) heard 'clean' as 'clear' in 'when we clean the room'. But the context helped recognition. The consonant was problematic in 'thing' where /g/ was also partially devoiced and sounded /k/. This word was not recognized by 1 NS.

In Dalal's speech, /d/ sounded /t/ in 'need'. This was problematic to 4 listeners (1-EFLS, 1-ESLS and 2-NSs) and was heard as 'neat'.

The consonant /n/ in 'one litter' by Latifa was barely pronounced. This caused intelligibility problems to 2 listeners (1-NS and 1-EFLS), where 'one litter' was heard as 'whole litter'.

The consonant /r/ was problematic in two cases. Susan used the Arabic trilled /r/ in 'girls'. This word was hard to recognize by 2 listeners (1-ESLS and 1-EFLS). The EFL listener reported that it sounded different from how she was taught to pronounce it. In Sarah's speech, elision of /r/ at the end of the word 'safer' (pronounced as /seɪfə/) was problematic to 2 EFL listeners who heard it as 'so far' and /selfə/.

Along with the mispronunciation of some consonant sounds above, lack of aspiration in initial voiceless plosives also revealed intelligibility problems. Susan did not aspirate /p/ in 'playing' and pronounced it as [p⁼] instead of [p^h]. This was problematic to 6 listeners

(3-NSs and 3-EFLSs) where 2 EFL listeners heard it as 'blame', and 2 NS could recognize the word from the context.

Similarly, the words 'type' by Dalal, 'ticket' by Dina and 'college' by Malak were all unintelligible to a number of listeners. In all of these words the voiceless stop-plosives /t/ and /k/ were not aspirated and pronounced as [t̚] and [k̚]. Along with the aspiration problem, the words 'college' and 'ticket' include other problems. /ɒ/ in 'college' was less rounded than it should be and pronounced as [ɒ], and word stress was misplaced in 'ticket' (pronounced as [t̚ɪˈkɪt]).

5.2.1.3 Consonant Cluster

There are only three instances relevant to the mispronunciation of consonant clusters. In Renad's speech, 'illness' was pronounced as /ɪlɪnɪs/ instead of /ɪlnɪs/. This caused intelligibility problems to 4 listeners (3-EFLSs and 1-ESLS).

Another consonant cluster problem was the word 'friendly' by Sarah. She dropped the consonant /d/ which caused problems to 2 NS listeners. 'Wednesday' was also problematic to 3 NSs but they recognized it from the context despite it being different from the way they pronounced it in their own NS contexts.

The intercoding process reported that each individual letter in 'soft drinks' (by Latifa) was pronounced the same way it is written without reducing the consonant /t/. So 'soft drinks' was clearly pronounced as /sɒft drɪŋks/. This was problematic to 2 NS listeners, but not to any EFL or ESL listener.

5.2.1.4 Word Stress

Word stress is among the non-core features of the LFC and the EG were not instructed on this feature. The existence of word stress accompanied other deviations in pronunciation. This gave rise to uncertainties about the importance of word stress on intelligibility.

For example, Dalal pronounced 'common' placing a stress on both syllables instead of /'kɒmən/. This word was hard to recognize by 2 NS listeners. It is not obvious yet the influence of misplacing word stress as there is another problem. That is the vowel /ɒ/ in the first syllable of 'common' was less rounded and the word was pronounced as ['kɒ'mən].

Dina pronounced the word 'ticket' stressing the second syllable [tɪ'tɪkɪt]. This was problematic to 4 interviewees (1-NS, 2-ESLs and 1-EFLS). Dina also hesitated over this word, a fact reported by listeners as well as the intercoders. Additionally, the voiceless stop-plosive /t/ was not aspirated (so pronounced as [t̚] instead of [tʰ]).

In many cases, lack of word stress or misplacing word stress did not influence intelligibility. For example, Fatma pronounced 'Monday' stressing the second syllable (/mʌn'deɪ/ instead of /'mʌndeɪ/). This word was fully recognizable by all listeners and revealed no intelligibility problems.

The most serious influence for word stress on recognizing the utterance was in words of more than two syllables. In Dina's speech, among the 18 interviewees 5 could not recognize the word 'expensive' (2-NSs and 3-EFLSs). The word 'vegetable' by both Latifa and Nour was unrecognizable to 2 EFL and 4 NS listeners. The word 'transportation' by Dalal was also unrecognizable to 1 ESL. Across these words, intercoding revealed that the primary syllable was not stressed in any of these words.

5.2.1.5 Nuclear Stress

While the buzzer technique's purpose is to detect the unintelligible items, the feature of nuclear stress influences comprehension rather than recognition of words. However, the inclusion of the buzzer technique within the semi-structured interviews gave the interviewees the chance to comment on the influence of stressing prominent words in the speech of the EG. Interviewees reported that stressing dominant words has contributed to the overall understanding of speech, as the speaker sounds more enthusiastic and interested in her topic. An example of this is the response of 3 ESLs to the speech of Jasmine.

In Renad's speech, 'some' was stressed in the sentence 'eat SOME fruit, bread, cheese and eggs'. Also in 'drink EIGHT CUPS of water every day', Renad stressed both 'eight' and 'cups'. According to the intercoding process, they should not be equally stressed from an NS perspective. However, stressing these words showing their prominence and importance was reported as enhancing understanding and delivering the message successfully, despite being different from how they would have been pronounced by NSs.

5.2.1.6 Vocabulary and Grammar

There are instances of grammatical and vocabulary inaccuracies in all the speech samples. However, many of these were not among the utterances which the interviewees pressed the buzzer on; for example, using the simple present 'is' instead of the simple past 'was' in 'the first class (is) very expensive' by Dina, and missing the preposition 'for' in 'don't eat anything (for) about three hours' by Rama. However, there were other instances where the interviewees pressed the buzzer, which are reported in this section.

Dina's utterance 'I'll spend in London 15 days' was problematic to 5 interviewees (1-ESLs and 4-NSs). She should have said: 'I will spend 15 days in London'. One heard it as 'I'll stay longer than 15 days' and another recognized '15 days' with difficulty. Wrong word order of the sentence made some listeners 'flip back' to rethink what the

speaker meant. One ESL listener, Obi, trying to understand the grammar, lost concentration and could not hear other words properly. So he was not sure about 'London' being 'around'. In this word, the only noticeable sounds for Obi were possibly the voiced consonant phonemes /n/ and /d/, whose articulation requires escaping the air through either the mouth (as in /d/) or nose (as in /n/) after a complex closure. Also the sound /l/ has been perceived as /r/, which could be attributed to the slight difference in the articulation of these two phonemes where in the former the tip of the tongue touches the alveolar ridge, while in the latter the tip of the tongue curves back. Consequently Obi perceived 'London' as 'around'.

Another example came from Jasmine. The intercoding reported that 'I booked to me' has an inappropriate structure and should be: 'I booked for me/myself'. This was problematic to 2 NSs. Another instance was (costed) in 'the ticket costed a thousand pound' which should have been 'cost'. This utterance was hard to understand for 2 listeners (1-EFLS and 1-NS). In both cases the grammatical mistakes did not impede intelligibility but made comprehension slightly more difficult as listeners had to 'flip back' which made the message harder to understand.

In Rama's speech, the word 'before' was not recognized by 1 EFLS. Rama was giving advice on how to stay healthy. She numbered her points 'one', 'two', but when it came to 'before you sleep do not eat anything about three hours', she did not precede it with 'three' which could have made the opening of the sentence (which starts with the word 'before') hard to follow.

Latifa said: 'I have some bad things I have to change it like ...' instead of 'I have some bad things which/that I have to change'. Grammatical mistakes, and the inclusion of 'it' was problematic to one EFL who failed to recognize 'it'.

In terms of vocabulary, 4 interviewees (2-NSs and 2-EFLSs) reported comprehensibility problems with Jasmine's utterance: 'including dinner, weight and luggage'. Although the word 'weight' was appropriately pronounced and perceived as /weɪt/, it was used

inappropriately making the message harder to understand. Only two were helped by the context.

In Rama's speech, along with the phonological causes discussed earlier in the word 'sports' in 'make some sports', Rama should have used 'do' instead of 'make'. Although the word 'make' was intelligible to all listeners, 7 of them (4-NSs, 2-ESLs and 1-EFLS) reported difficulties in following the message.

5.2.2 Control Group

Table: 5.2: Findings of the buzzer technique for the control group at post-intervention round

#	Listener / speaker	Hawwa	Maryam	Maya	Mira	Nancy	Reem	Sabah	Shamma	Yasmin	Zozo
1	Peter	Liwa is a small town	The woman is sitting on the chair	Hi dear	playing	Five-stars restaurant	-	-	-	to put little salt in your food	
		Fish and dates	Dogs	Next week						Middle lunch	
		Palm tress	-	To have a full mark							
		There are many trees.		Go anywhere							
2	Viola	Liwa is a small town	The woman is sitting on the chair	Hi dear	-	-	Washington	The weather is sunny	-	-	She wears special dresses
		Fish and dates		To have a full mark			I want to go on Saturday	One woman is reading newspaper			
		Surrounded by									
		Palm tress									
		fort									
3	Pink	Liwa is a small town	-	Hi dear	-	-	-	-	-	-	-
		Fish and dates		Next week I'll stay in the hostel to study							
		An old fort									
		There are many trees.									
4	Ana	-	-	I cannot go with you anywhere	-	-	-	-	-	-	-
5	Elaine	Liwa is a small town	-	-	-	-	-	-	-	It is necessary to put little salt in your food	-
6	Socrates	Fish and dates	-	-	-	-	-	-	-	eat a middle lunch	-

#	Listener / speaker	Hawwa	Maryam	Maya	Mira	Nancy	Reem	Sabah	Shamma	Yasmin	Zozo
7	Japhet	-	-	Hi dear	-	-	-	-	-	-	-
8	Rita	Liwa is a small town	-	Maybe later I'll go with you	-	Muscat		One woman is reading newspaper	You should eat fruit	to put little salt in your food	Who is tall with big eye
		Fish and dates				Middle lunch					
		Near the beech									
9	Tina	Famous for fish and dates	-	I study very hard to have a full mark	-	Muscat	Washington	-	-	-	-
		Palm trees		Maybe later I will go with you							
10	Maple	Fish and dates	Playing	Won't be angry	-	-	prefer	-	-	To put little salt	-
		Palm trees									
		Many trees									
11	Obi	In the east of Oman	-	-	-	Five-stars restaurant	I want to travel to American	-	-	You should eat a middle lunch	-
		It's on the coast					I prefer a direct flight				
		fish and dates									
		It also has an old fort									
12	Jane	Liwa is a small town	-	-	-			-	-	put little salt in your food	-
		Fish and dates								Middle lunch	
13	Rizwana	-	-	-	-	-	-	-	-	-	-

#	Listener / speaker	Hawwa	Maryam	Maya	Mira	Nancy	Reem	Sabah	Shamma	Yasmin	Zozo
14	Mamba	Fish and dates	-	-	-	-	-	-	-	-	-
15	Sarah	Fish and dates	The men are talking to each others	Maybe later I will go with you	-	We went to a fort	I want to travel to American alone	Baseball		Middle lunch	-
		Liwa is	The weather is sunny			Five stars restaurant					
16	Stacy	-	-	-	-	-	-	-	-	-	-
17	Anistisha	-	Two girls	Girls	Two girls	-	I want to travel to American	-	-	-	Pretty girl
							I prefer a direct flight				
							I want to go on Saturday				
18	Purple	Liwa is a small town	There are tall buildings	Hi dear	walking and talking	-	I want to travel to America alone	-	-	Little salt in your food	She is a pretty girl
		It also has an old fort		I study very hard to have a full mark			I choose Washington				She wears special dresses
				Maybe later I will go with you			I prefer a direct flight				

5.2.2.1 Vowel Phonemes

In contrast with the experimental group, vowel sounds were less problematic for the control group. There were only two cases attributed to vowel quantity. In Maryam's speech, the duration of the long vowel /ɔ:/ in the word 'tall' was longer than normal. This was problematic to 1 EFL who heard 'tall' as 'toe'. The other is Yasmeen who shortened the vowel /u:/ in 'food' and pronounced it as [ʊ:]. This accompanied consonant problems in the phrase 'put little salt in your food' (discussed in the next section) and the phrase was problematic to 7 listeners.

Considering the quality of vowel sounds, the short vowel /ɒ/ in the word 'dogs' sounded /ʌ/. The consonant /g/ was also devoiced and sounded /k/ which made the word 'dog' heard as 'duck' by 1 NS.

Sabah pronounced the short vowel /ə/ in the second syllable of the word 'woman' as /ɪ/, so she pronounced it as /'wʊmɪn/ instead of /'wʊmən/. Inappropriate vowel quality caused no intelligibility problems, and the word 'woman' was fully recognized by all listeners.

Similar to the experimental group, the control group also replaced the vowel /ɜ:/ by /eɪ/ in two words. The first was the word 'prefer' in Maryam's speech. Along with replacing the vowel /ɜ:/, both syllables of this word were stressed equally (pronounced as /'prɪ'feɪ/ instead of (/prɪ'fɜ:/). 'Prefer' was unintelligible to 1 EFL listener. The second word, 'girls', occurred in the speech of 4 speakers (Maryam, Mira, Maya and Zozo) and 'girl' was problematic to 2 EFL listeners.

5.2.2.2 Consonant Phonemes

The consonant /r/ was problematic to listeners in several instances. In Maya's speech, /r/ was deleted from the end of the word 'anywhere' which was pronounced as /'enɪweɪ/. This was unintelligible to 1 NS who heard it as 'any way'. Hawwa pronounced 'fort' in 'it also has an old fort' as /fɔɪ(t)/ (deleting the /r/). This word was not recognized by 3 EFL listeners. Lack of a clear /r/ in 'surrounded by' (by Maryam) also resulted in this word being heard as 'sounded by' by 1 EFL listener. In Shamma's speech, partial elision of /r/ was problematic only to 1 NS listener who heard 'fruit' as 'food'. Similarly, in Zozo's speech, 'wears' was heard as 'was' by 1 EFL. /r/ in 'girls' by Maryam, Mira, Maya and Zozo was also problematic to 1 EFL from China whose major comment on that was 'I was taught to say /r/ in a different way. One EFL from Turkey also found the elision of /r/ in Zozo's speech unintelligible.

In Nancy's speech, 'fort' was heard by 1 NS as 'four'. Along with the partial elision of /r/, the stop plosive /t/ at the end of the utterance was unreleased and pronounced as [t̚].

In Reem's speech, although the intercoding process did not report that the alveolar nasal /n/ sounded velarized, /n/ was heard as /ŋ/ (the velar plosive) by 1 EFLS. Accordingly, 'alone' was heard as 'along'.

While /l/ in the word 'Palm tree' should be silent, Hawwa pronounced it. This was problematic to 4 interviewees (1-NS and 3-EFLSs). The NS heard it as 'bounties' and one EFL heard it as 'pomades'.

The phrase 'put little salt in your food' in Yasmeen's speech was problematic to 6 listeners (2-EFLSs and 4-NSs). This utterance was pronounced as [put̚ 'ɦɪl sɔɪt̚]; where velarized /l/ was used in word-final as well as word-initial positions. The speaker could also hardly pronounce the consonant cluster between the words 'little' and 'salt'. It was heard by 1 NS as 'put out', and 'to bottle' by 1 EFLS. Similarly, 'middle lunch' was also pronounced as ['mɪd̚l̚ 'ɦʌnʃ] was problematic to 6 listeners (2-ESLSs and 4-

NSs). This utterance was perceived by 1 NS as ‘March’, 1 ESLS, and 2 NSs heard it as ‘little lunch’.

5.2.2.3 Consonant Cluster

Maya pronounced the word 'picture' as /'pɪkɪtʃə/ inserting a vowel between /k/ and /tʃ/. This caused no intelligibility problems to any listener and was fully intelligible to all.

Avoiding the consonant cluster between words, Nancy pronounced the phrase ‘five stars restaurant’ as /faɪv ə stɑːz (ə) 'rest(ə)rənt/ inserting a vowel between ‘five’ and ‘stars’ and also between ‘stars’ and ‘restaurant’. Vowel insertion, however, was more obvious between the first two words than the latter. This utterance was problematic to 4 listeners (1-ESLS and 3-NSs).

5.2.2.4 Word Stress

In the case of the CG, there were two samples where word stress was misplaced, but words were fully intelligible to listeners. The first word was 'football' where Maryam stressed the second syllable instead of the first (pronounced as /fʊt'bɔːl/). The second concerned Shamma whose stress in the word ‘important’ was placed on the second and third syllables (pronounced as /ɪm'pɔː'tənt/ instead of /ɪm'pɔːtənt/). Sabah placed the stress in 'baseball' on the first syllable, but seemed to vary between force, loudness, and vowel duration. However, this caused no intelligibility problem for any listener. Reem also pronounced ‘prefer’ as /'prɪ'feɪ/ with a stress on both syllables instead of on the second syllable only. The long vowel /ɜː/ was replaced with the diphthong /eɪ/. 4 interviewees reported problems with ‘prefer’ (3-EFLSs and 1-ESLS) and 1 EFLS heard it as ‘black fair’.

As mentioned previously in the case of the experimental group, lack of primary stress in words exceeding two syllables revealed intelligibility problems. There is another instances in the control group where Reem placed the stress in the word ‘Saturday’ on the first and last syllables (pronounced as /'sætə'deɪ/) while it should have been only on the first syllable. This word was unintelligible to 2 EFLS who heard it as ‘certain day’.

It is also important to mention again the response of one ESL interviewee (which was presented in Chapter Four) who commented on the use of word stress by Mira Although Mira's speech was perceived positively by that ESLS, he reported that pronouncing ‘walking and talking’ as /'wɔ:kɪŋ ənd 'tɔ:kɪŋ/ did not add anything new to the meaning of the sentence, and it was not clear either what she was trying to make the listener understand when she stressed the first syllables of these two words.

5.2.2.5 Weak forms and Connected Speech

The difficulty in tracing the influence of weak forms on PI and PC stems from the idea that an utterance could still be comprehensible when grammatical words are not fully pronounced or heard, considering that it is content, not grammatical words that carry the meaning. However, recognition of words (whether grammatical or content) is what this study is interested in. For this reason, when weak forms occurred listeners were asked to repeat the utterance to check its influence on the intelligibility and comprehensibility of the whole utterance.

The intercoding process indicated that weak forms and features of connected speech were frequently used within the control group. In many cases that caused no intelligibility problems for both NS and NNS listeners. For example, Zozo used the weak form of 'a' /ə/ in 'a pretty girl' and throughout her speech. She also used /ənd/ for 'and' in 'cooking and eating'. No intelligibility problems were caused by these weak forms. However, weak form was problematic in ‘who is tall’ also in Zozo’s speech who pronounced it as /hʊztɔ:l/ and was problematic to 1 NS who heard it as ‘whole’. There

are also other examples where weak form causes problems and these are provided below.

In the speech of Maryam, the utterance ‘the woman is sitting’ was problematic to 2 interviewees (1-NS and 1-EFLS) and ‘the weather is sunny’ was problematic to 1 NS. The intercoding process revealed that weak form of ‘is’ was used in both utterances.

The utterance ‘walking and talking’ by Mira was pronounced as /'wɔ:kɪŋ ənd 'tɔ:kɪŋ/. Using the weak form /ənd/ for ‘and’ revealed intelligibility problems. 1 EFLS also perceived /t/ in ‘talking’ more as /d/ than /t/, so ‘talking’ was heard as /'dɔ:kɪŋ/.

Similar to Mira, Hawwa used the weak form of ‘and’ pronouncing ‘fish and dates’ as /fɪʃəndæts/. This was problematic to 10 of 18 interviewees (4-NSs, 4-ESLSs and 2-EFLSs). 1 NS heard it as ‘fish and aids’, 1 EFLS heard it as ‘anodes’. In this utterance, along with its use of weak form, there is a vocabulary problem. 2 listeners reported that they expected to hear ‘fish-and-chips’. Consequently, the word ‘dates’ was unrecognizable.

Another instance in Hawwa's speech concerned the weak form for grammatical words in ‘it also has an old fort’ which was pronounced as (/ɪt 'ɔ:lsəʊ həd ən əʊld fɔ:t/). This was heard by 1 ESLS as ‘its total head’.

In Maya's utterance, the weak form of ‘will’ in ‘I will stay in the hostel to study’ was used and thus it revealed intelligibility problems to 5 interviewees. Similarly, ‘I will’ (or ‘I'll’) in ‘Maybe later I'll go with you’ was problematic to 4 interviewees (2-NSs and 2-EFLSs). Maya's ‘Next week’ was pronounced as /nekswi:k/ and was problematic to 1 NS listener.

5.2.2.6 Sentence Stress and Rhythm

There were many instances where speakers misplaced stress in sentences. However, this revealed no intelligibility problems. For example, Shamma was giving advice about how to stay healthy. In one sentence she said ‘you should TAKE care of your health’ placing stress on ‘TAKE’ though it should have been on ‘care’. However, the utterance was fully intelligible. Another case was when Zozo said ‘I like HER’ stressing ‘HER’ instead of ‘like’, and her utterance was recognized by all listeners.

However, there were other instances where sentence stress caused intelligibility problems. Zozo's ‘pretty girl’ was problematic to 2 EFLSs listeners. It was heard as ‘practical’ by one listener. Zozo was noticeably stressing ‘pretty’ and weakening ‘girl’ which is similar to the stress pattern of ‘practical’ (/ˈpræktɪk(ə)l/) where the stress is in initial position.

Importantly the listeners commented on Mira's distribution of sentence stress in two contradictory instances. The intercoding process revealed that Mira used English rhythm effectively and, generally, appropriately. One NS listener said of her use of rhythm: ‘this is what I would say’. In contrast, another NS listener said: ‘Mira’s stress is everywhere. It seems odd’.

5.2.2.7 Intonation (Pitch Movement)

Pitch movement was not among the features which the interviewees commonly referred to during the buzzer technique. However, 1 NS reported that Zozo sounded ‘monotonous’ which influenced easiness of understanding her speech despite being easily intelligible. The same comments also reported by another NS for Anfal (from the EG). As mentioned in the Chapter Four, those two listeners used ‘monotonous’ speech to refer to the use of a single intonation throughout the whole speech repeatedly.

5.2.2.8 Vocabulary and Grammar

As with EG, there are instances where vocabulary and grammar mistakes occurred but had no negative influence on the PI and/or PC; for example, using the past tense instead of the simple present in ‘it also (had) an old fort’ in the speech of Hawwa. Another example is word structure in Nancy's speech who said ‘me and my family’ which should have been ‘my family and I’. A third example is the lack of the indefinite article in Sabah's speech: ‘one woman is reading (a) newspaper’.

However, there are other instances where grammar as well as vocabulary caused intelligibility problems. Nancy's utterance of ‘five-stars restaurant’ was problematic to 4 listeners (1-ESLS and 3-NSs). It was explained earlier that the insertion of a vowel between ‘five’ and ‘stars’ could have caused recognition difficulties. The intercoding process also revealed a grammar problem where the utterance should be ‘a five-star restaurant’.

Looking at vocabulary, the utterance ‘fish and dates’ was problematic to 10 of the 18 interviewees (4-NSs, 4-ESLSs and 2-EFLSs). This utterance was pronounced as (/fɪʃəndæts/). Using the weak form was accompanied by a vocabulary problem. ‘Fish-and-chips’ rather than ‘fish-and-dates’ is what two listeners reported that they had expected to hear, and accordingly, ‘dates’ was unrecognized.

Another example of vocabulary influence came when Yasmeen said ‘middle lunch’. A more appropriate word might have been either ‘lunch in the middle of the day’ or ‘moderate/reasonable amount of lunch’. Along with the vocabulary problem, [ɪ] was used in ‘middle lunch’ and was pronounced as [ˈmɪdɪl ˈtʌnʃ]. Another example involved the word ‘special’ in ‘she likes wearing special dresses’ by Zozo. Although it was pronounced correctly as /ˈspeʃl/, it was unrecognizable to 1 EFL listener. A more appropriate vocabulary in this context could have been ‘beautiful’.

5.3 Discussion

The preceding paragraphs are further explanation of the findings of the buzzer technique which were summarized in Tables 5.1 and 5.2. These findings will now be revised according to their categories. The segmental and suprasegmental features below will compare the findings of this study and those of Jenkins (2000). Additionally, it filters the contents of the LFC-based pronunciation syllabus for Arab learners established in Chapter 3 introducing a revised copy in the final chapter.

5.3.1 Segmentals

5.3.1.1 The Consonan Inventory

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

The LFC asserts the importance of all consonant sounds except /θ/, /ð/ and [ɫ] (dark or velarized /l/) on intelligibility. /θ/ and /ð/ were not among the phonemes causing intelligibility problems in this study. This might be attributed to their existence in the speakers' L1.

Moving to [ɫ], the LFC argued that the [ɫ] is problematic for most learners of English, and many never acquire it. In contrast, substitution with either clear /l/ or /ʊ/ is unproblematic for EIL intelligibility.

Arabic uses the voiced alveo-dental approximant /l/. In the EG speech samples, /l/ was used in: 'friendly', 'clean', 'plans', 'illness' and 'litter'. It was also used instead of the dark [ɫ] in 'hostel' (by Sarah), 'ill' (by Malak), and 'tell' (by Rama). In all these cases, the alveo-dental /l/ caused no intelligibility problems to the listeners. In contrast, [ɫ] in the case of the CG revealed problems in intelligibility. Although [ɫ] was pronounced properly in some words in isolation, it was not when words with [ɫ] occurred more than once in the same statement. This applies to Yasmeen when she said: 'put little salt' (pronounced as [pʊt^ʌ 'ɦɪtl sɔ:ɦt]) and 'have middle lunch' (pronounced as ['mɪdl 'ɦʌnf]).

Repetitive listening to these two utterances (by the intercoders) indicated that the speaker was using [ɪ]. However, 10 interviewees reported these utterances were problematic.

Considering the suggestion of the LFC about substituting [ɪ] by /ʊ/, the vowel /ʊ/ exists in MSA which might not make /ʊ/ hard or impossible to produce in its own right. But the clear /l/ might still be easier to use for three reasons: firstly, as shown above, there were no unintelligibility cases reported when /l/ was used, which suggests that it needs no replacement or alternative. Secondly, with clear /l/ learners will be approximating the spelling of the words which include /l/. This will avoid confusion that might be caused by inconsistency between pronunciation and spelling. Thirdly, in cases where EG learners were encouraged to replace /l/ by the vowel /ʊ/, differences in length between /u:/ and /ʊ/ became less clear to learners. That is comparison between the lengths of the vowel phonemes in 'pool' (/pu:l/) and 'pull' (/pʊl/) when /ʊ/ replaced /l/ (or [ɪ]) become harder to introduce to learners. For this reason, as long as teachability and learnability of the vowel /ʊ/ is of concern to Arab learners, clear /l/ is preferable than the vowel /ʊ/.

Rhotic /r/ only

Jenkins (2000) opted for the GA rhotic variant, the retroflex approximant, which is different from the Arabic trilled /r/. No intelligibility problems were reported due to the use of the Arabic trilled /r/ in the EG. However, it was one reason why some listeners, not only NS, but ESLs and the odd EFLS, rated the speech negatively.

Although the Arabic trilled /r/ is closer to the GA rhotic /r/ than the RP non-rhotic /r/ in its articulation, learners were less able to pronounce the GA /r/. They tend to either pronounce the Arabic trilled /r/, or to elide it. The reason might be that it is harder to acquire similar than dissimilar sounds (Eckman *et al.*, 2003; Flege and Hillenbrand, 1987).

Elision of /r/ resulted in intelligibility problems especially when it was accompanied with other pronunciation problems within the same words. For example, 'sports' was heard as 'spots' where, along with the elision of /r/, the vowel /ɔ:/ was shortened

(pronounced as [ʊ:]). Similarly, /r/ in 'fruit' was partially elided and /u:/ was lengthened so 'fruit' was heard as 'food'. Another example is the elision of /r/ in 'safer' but the stress pattern in this word has as much to do with this as with the elision of /r/ so it was heard as 'so far'.

Due to the unintelligible utterances produced when trying to approximate the rhotic /r/ (which the LFC opted for), and because there were no intelligibility problems reported when the trilled Arabic /r/ was used, it is recommended that Arab learners are encouraged to maintain the /r/ they are already using in their L1.

Intervocalic [t]

Arabic uses the voiceless dental/alveolar stop consonant /t/. The LFC opted for the RP /t/ which is the alveolar stop consonant. As Pennington (1996) pointed out, the dental variant /t/ widely occurs, not only in many learner varieties and indigenous varieties of English, such as African and Caribbean, but also in many areas of Britain. The voiced flap [ɾ] does not exist in Arabic. No intelligibility problems were reported in relation to the intervocalic [t].

5.3.1.2 Phonetic Requirements

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

The LFC opted for the aspiration [ʰ] following the fortis (voiceless) plosives (stops) /p/, /t/, and /k/ when they occur in initial position in a stressed syllable. Similar to Jenkins' findings, lack of aspiration in this study after /t/ in 'type' and 'ticket' caused intelligibility problems. Lack of aspiration of /k/ in 'college' (which was also unintelligible) was accompanied by mispronunciation of the vowel /ɒ/ which was less rounded and pronounced as [ʊ].

Appropriate vowel length before fortis/lenis consonant sounds

The speech of the EG revealed the importance of vowel length before fortis/lenis. The vowel [i:] in 'need' was shortened before the lenis /d/. This could explain why 'need' was unintelligible to 1 EFLS, 1 ESLS and 2 NS listeners, and /d/ sounded partially devoiced, so 'need' was heard as 'neat'.

Another example came when 'dogs' was heard as 'ducks' by 3 listeners (all NSs) when the vowel /ɒ/ was shortened before the lenis /g/. Also the vowel /eɪ/ in 'eight' was markedly lengthened before the fortis (/t/) and was a source of unintelligibility.

5.3.1.3 Consonant Cluster

The LFC asserted the importance of the correct treatment of consonant cluster in initial and medial position. Arab learners are more likely to use addition (or epenthesis) than deletion (Kharma and Hajjaj, 1997). According to Jenkins (2000), the former is less problematic than the latter in intelligibility except in two cases: where an epenthetic syllable is stressed, or where paragoge creates a homonym. The latter cases seem to be irrelevant to the discussion of the Arab learners as the listeners reported no problems on these issues.

As for the experimental group, words with initial consonant cluster pronounced by the speakers included: 'planes', 'stay', 'fruit', 'sports', 'sleep', 'bread', and 'protein'. Some were either hard to recognize or completely unrecognizable. However, the reasons are not clearly attributable to consonant clusters in these words as they were accompanied by other problems. For example, 'planes' (replacing /eɪ/ by /æ/), 'bread' (shortening /e/ into [ɛ]), 'fruit' (elision of /r/), and 'sports' (elision of /r/ and shortening /ɔ:/ into [ɔ:]). In all these examples, consonant cluster included only two consonant sounds.

Moving to consonant clusters in medial position, according to Jenkins (2000), ‘t’ or ‘d’ between words are regularly elided even in relatively careful speech. The data in this study demonstrates the importance of this for NS listeners only. Latifa’s-(EG) ‘soft drinks’ was not recognized by two NS listeners. However, none of the NNSs reported any problem in recognizing it, but it was obvious to them that the speaker pronounced the words exactly as written. In summary, elision of /t/ and /d/ between two words is not necessary for intelligibility and ‘soft drinks’ is intelligible when /t/ and /d/ are fully pronounced.

Insertion of the vowel /ə/ between words when consonant cluster might have occurred in ‘five stars restaurant’ was problematic to 1 ESLS and 3 NS listeners. This was pronounced as /farrv ə stɑ:z (ə) 'rest(ə)rɒnt/ by Nancy-CG. However, this was also accompanied by a grammar problem and the utterance should have been ‘a five-star restaurant’.

In contrast, consonant clusters within words were not always unintelligible to listeners. ‘Illness’ (by Renad-EG) was unintelligible to 4 listeners (3-EFLS and 1-ESLS) when pronounced as /ɪlnes/. However, pronouncing ‘picture’ as /pɪktɪʃə/ (by Susan-EG) was fully intelligible to all listeners.

Moving to the final consonant cluster, the LFC considers this a ‘non-core’ feature. In the EG, this study also found no noinstances where final consonant clusters caused intelligibility problems. Final consonant clusters occur especially in plurals. For example, ‘meals’, girls, ‘drinks’, and ‘things’ were reported as having no problems. In the CG, ‘film’ was pronounced as /fɪlm/. This word was perceived initially by 1 NS listener as ‘fill them’. Similar to Jenkins, this study found no clear instances where final consonant cluster should be core features.

5.3.1.4 Vowel Quantity

Long-short contrast

Similar to Jenkins' findings, this study has revealed that vowel length (vowel quantity) is important in intelligibility. The long vowel /ɔ:/ in 'sport' was shortened and, along with the elision of /r/, 'sport' was unintelligible to several listeners and heard as 'spots'. The short vowel /e/ in 'healthy' was lengthened and pronounced similar to /eɪ/ and also revealed intelligibility problems.

Other cases where length of vowel influenced intelligibility were: increasing the length of the vowel /eɪ/ in 'eight', /ɪ/ in 'ill' (pronounced as /i:l/), and /u:/ in 'fruit' (in addition to the elision of /r/). The vowel /i:/ was also shortened into [ɪ̃] in 'meals'. Inappropriate vowel length in these instances revealed intelligibility problems for several EFL, ESL and NS listeners.

Similar to the EG, vowel quantity revealed its importance in intelligibility in the CG. Some examples are: increasing the length of the vowel /ɔ:/ in 'tall', and shortening the length of /i:/ into /ɪ/ in 'trees'. These words were unrecognizable to several listeners.

5.3.1.5 Vowel Quality

L2 (consistent) regional qualities Plus /3:/

According to the LFC, vowel quality is not as influential as vowel quantity in intelligibility. The data of this study revealed no instances where unintelligibility could be clearly attributed to vowel quality. Frequently this accompanied other pronunciation problems within the same word, or the same syllable where the vowel (in question) exists.

For example, Dalal's-(EG) 'common' and Malak's-(EG) 'college' were both pronounced with a less rounded /ɒ/ ([ɒ]) and caused intelligibility problems to some listeners. However, in both words the consonant plosive /k/ was not aspirated but pronounced as [k̠] instead of [kʰ]. 'Finally' (by Renad-EG) was pronounced as /fɛnəlɪ/ (with the falling, narrow, closing diphthong) instead of /fɑːnəlɪ/ (with the falling, wide, closing diphthong). Another example is 'cook' (by Sarah-EG) which was pronounced with the open back short vowel /ɒ/ (/kɒk/) instead of the close back short vowel /ʊ/ (/kʊk/). However, these words were recognized by all listeners and caused no intelligibility problems.

As with the EG, there were no direct intelligibility problems attributed to vowel quality. For example, Sabah used the short vowel /ə/ in the second syllable of 'woman' (pronounced as /'wʊmɪn/ instead of /'wʊmən/). Despite the inappropriate vowel quality, 'woman' caused no intelligibility problems, and the word was fully recognized.

In this way, this study reflects Jenkins' assertion that vowel quality is a non-core feature. However, while Jenkins (2000) considers the quality of /ɜː/ a core feature (as in her study the Japanese speaker replaced /ɜː/ with /ɑː/ which caused intelligibility problems. This study found that replacing /ɜː/ by /eɪ/ (by both the experimental and control groups) caused no intelligibility problems. For this reason, the quality of /ɜː/ is a non-core feature in the Arab learners' pronunciation syllabus.

5.3.2 Suprasegmentals

The previous sections discussed the segmental features which existed in the LFC and the RP/GA syllabuses, and are shared by both groups. However, more differences exist between them at the suprasegmental level. Most suprasegmental features are non-core features except for 'nuclear stress'. This section will look at weak forms, stress-timed rhythm and intonation. It will start with the assimilatory process; i.e. elision and assimilation.

5.3.2.1 Features of Connected Speech

Some features of connected speech were obvious in the speech samples of the control group, but it did not influence intelligibility in any of them. An example is when Maya-CG said: ‘because I have a difficult exam’ – /bɪkəʊz aɪ əv ə dɪfəˈkʌlt ɪɡˈzæm/ where the weak form of ‘have’ was used (which is /əv/ and the weak form of ‘a’ was also used (which is /ə/). And in her sentence: ‘I’ll stay in the hostel to study’ - /aɪl steɪn ðə hɒstəl tə stʌdi/, the two words ‘stay’ and ‘in’ were linked and pronounced as /steɪn/. Weak forms were also used in ‘the’ (pronounced as /ðə/) and ‘to’ (pronounced as /tə/).

There were also instances in the CG speeches where weak forms and connected speech occurred but were unintelligible. ‘Fish and dates’ (produced as /fɪʃənderts/) by Hawwa was unintelligible to 11 of the 17 interviewees. One NS listener said, importantly: ‘I would have preferred her to say: [fish-and-dates]’. Another NS expressed her preference to listen to heavy, strong, jerky sentences than to sentences which are hard to understand.

The LFC contends that features of connected speech are ‘inconsequential or unhelpful’. The experimental group received no instructions on connected speech. In this way, an utterance such as ‘I live in a big hostel’ was more likely to be /aɪ-lɪv-ɪn-eɪ-bɪɡ-hɒstəl/ by a speaker from the EG instead of /aɪlɪvɪnəbɪghɒstəl/ which a speaker from the control group might produce.

In contrast, interviewees expressed their appreciation to some EG samples which showed no features of connected speech, but provided other criteria which made the speech ‘communicative’ and ‘interactive’. The section about nuclear stress discusses this issue.

5.3.2.2 Weak Forms and Stress-Timed Rhythm

According to the LFC, stress-timed rhythm is a non-core feature and weak forms are unhelpful in intelligibility. According to Swan and Smith (2001), Arabic is arguably a stress-timed language, but unstressed syllables are pronounced more clearly in Arabic, with neutral vowel phonemes, but not ‘swallowed’ as in English. Arabic-L1 speakers ‘will often avoid contracted forms and elisions’ and eventually their speech can show ‘a rather heavy staccato rhythm’ (p.199).

In the EG, it was obvious that the speakers were producing grammatical words in their full rather than weak forms: ‘and’ was fully pronounced as /ænd/, and ‘should’ as /ʃʊd/, ‘you’ as /ju:/. No listener reported these full forms as unintelligible. However, it influenced comprehensibility in some cases and attitude in many cases.

Looking at its influence on attitude, this feature (of slow highly stressed syllables) had a negative influence on some of the NS, ESL and (most of) EFL listeners. Among the 17 interviewees, 11 stopped at this feature, describing it as ‘clipped’, ‘chunky’, ‘jerky’ or ‘heavy’. Not only did NSs find the slow speech hard to comprehend, but the NNSs got used to listening to English with a faster pace than the speakers'. As mentioned above, both Arabic and English are arguably stress-timed languages. In Arabic distinction between the strength of stress in weak and strong forms is not as obvious as in English. The accent of many NNSs, not only Arabic speakers, is perceived as jerky, choppy, staccato and heavy. For example, Hawkins (1984) indicated that since in a syllable-timed language the speaker gives almost the same time to each syllable, whether the syllable is stressed or unstressed, this produces a characteristically even and ‘staccato’ rhythm. Crystal (1996) asserted that syllable-timing appears to be much more widespread in the world’s languages. Thus, teaching weak forms and features of connected speech is not needed in the Arab context. It is sensible to demonstrate the need to develop a tolerant attitude of English users towards NNSs varieties.

Moving to the influence of weak forms and rhythm on intelligibility and comprehensibility, Brown, in a personal communication with Jenkins, demonstrated that

lack of suprasegmental features in NNSs speech might make speech sound slow and very careful but intelligible (Jenkins 2000). This slow speech had a positive influence for the Taiwanese and Chinese listeners in this study. Both believed that slow speech helped in recognizing words and understanding meaning. To them, having enough time to receive the word and its position in the speech facilitated intelligibility and comprehensibility. This demonstrated what Jenkins and Brown said about the preference of slow careful speech.

It is argued in the literature that through the speaker's weakening of grammatical items, the listener's attention is able to focus on the more important words spoken (or the content words) (Jenkins, 2000). Jenkins disagrees with the argument that it is necessary to weaken an unimportant item in order to highlight an important one, provided that the latter is adequately stressed. Jenkins' and other researchers' central point is that content words must be clear to provide intelligibility. However, the data of this research suggests something different.

There were samples where speakers stressed grammatical words which sounded meaningful to them in carrying their messages. For example, Jasmine described her Egyptian trip as very interesting 'FROM the VERY BEGINNING'. Not only 'very' and 'beginning' were stressed, but also 'from'. Theoretically, 'from', as a preposition, should not have been stressed, but it was obvious that Jasmine not only wanted to carry the message that the trip was interesting, but that it was interesting throughout.

Another example was Malak leaving a message to her friend and giving her telephone number. She said: 'please call me ON ...'. The preposition 'on' was obviously stressed, and the phone number sounded less stressed than 'on'. She was intentionally making the receiver pay attention to the fact that she will be giving her telephone number.

Nour, giving advice on 'healthy living' said: 'sleep early to GET UP early'. She stressed 'get up', and said it without any linking between 'get' and the vowel that follows it in 'up, and again between 'up and 'early. Seemingly her intention was to convey the message that it is getting up early that can be a positive consequence of sleeping early

In all these examples stressing certain words, whether grammatical or content words, made these utterances, although clearly not approximating that of NSs, sufficient to carry their messages, and sound interactive, conversational, confident, and easy to understand.

5.3.2.3 Word Stress

The LFC considers word stress 'unnecessary' and 'can reduce flexibility'. Misplacing word stress in some cases was obvious to the listeners but this did not cause any intelligibility problems. For example, pronouncing 'Monday' as *ˈmʌnˈdeɪ* instead of *ˈmʌndeɪ* by Fatma-EG. However, most words of more than two syllables in the case of the EG were unintelligible. For example in Diana's case, 'expensive' was unrecognisable to 5 listeners (2-NSs and 3-NNSs). 'Transportation' (by Dalal) was difficult to recognize for 1 EFL listener. 'Vegetable' (by Nour) caused a problem for 6 listeners.

This study supports Brown's argument (1990) of the importance of word stress in enhancing bottom-up processing and facilitating word recognition by attracting attention to specific syllables. According to Brown (1990:151), word stress is 'the best and most stable feature of the word's profile'. In the speech samples of the EG in this study, due to the lack of primary word stress in words exceeding two syllables, all syllables sound equally stressed. None of them was prioritized or accented and the listener, equally, had to focus on individual syllables, which is another source of difficulty. This study also gives less support to Benrabah (1997) who argued that it is the NS who would find word stress significant for word recognition. This study found that lack of primary word stress was not only problematic to NSs, but equally to EFL and ESL listeners.

In addition to word recognition, primary stress in long words involves relative ease of articulation. That is stressing all syllables equally involves more muscular energy than do weak syllables. To the interviewees, the speakers sounded hesitating over pronouncing these long words. For example, with the primary stress on the first syllable

of 'vegetable' (/ˈvedʒtəbl/), it could have become easier for the speaker to make the other syllables sound 'weaker'. So word stress has relative ease of articulation as it is, nevertheless, easier for the speaker to focus energy on one syllable and put less effort on the rest of the word than to pronounce all syllables with equal clarity to guarantee being clear to the listener.

Compared with the LFC group, words of more than two syllables in the CG speech samples revealed no intelligibility problems. Examples include: 'important' (by Shamma), and 'beautiful' and 'restaurant' (by Nancy). There are many cases in the CG where the use of word stress sounded 'odd' or 'inaccurate'. For example, the second syllable of the word 'important' sounded 'odd' because it was overstressed by Yasmeen. However, the word was still fully intelligible. Arabic tends to be presented by increasing the degree of force and loudness (Kharma and Hajjaj, 1997) while English tends to make rather greater use of vowel duration than the majority of L1s (which, similar to Arabic, tend only to rely more on pitch change and loudness) (Jenkins, 2000). According to Dalton and Seidlhofer (1994, in Jenkins, 2000), loudness (as in Arabic) provides less of a guide for the receiver, as some sounds are intrinsically louder than others.

So using force and loudness is less likely to make the stress syllable become noticeable. Additionally, the English stress system also involves far more weakening of unstressed syllables than most other L1s (Jenkins, 2000), with many L1s making only a small distinction between stress and unstressed syllables. This is evident in Arabic in which weak forms are produced with relatively less force than stressed syllables, but still with more force than weak English syllables. Thus although the speaker might place the stress correctly, it might not be perceived as such especially by a listener who is either an NS or NNS but accustomed to, and therefore expecting, the acoustic cues of length and weakness in addition to pitch changes (Jenkins, 2000).

5.3.2.4 Intonation

5.3.2.4.1 Pitch movement

According to the LFC, pitch movement is unteachable and incorrectly linked to NS attitudes and grammar.

Some studies, for example Binns and Culling (2007), Laures and Weismer (1999), and Watson and Schlauch (2008) have found that monotone speech is less intelligible than normally intonated speech. However, there is no language in the world which is entirely monotonous (Hawkins, 1984; Timková, 2001). Arabic is no exception. Furthermore, English and Arabic intonation patterns are quite similar (Kharma and Hajjaj, 1997). In this way, if learners' L1 transfer influenced L2 intonation, the result might be accented English rather than monotonous speech. If learners' speech lacks intonation this might suggest that there is more than one process involved in the acquisition of L2 intonation along with L1 transfer, a conclusion which has also been suggested in the field of SLA (Mennen, 2006).

One source of unintelligibility of some speech samples in both EG and CG was 'monotonous speech'. However, interviewees did not use 'monotonous speech' in the same notion used by the studies above. For the interviewees, monotonous speech does not mean lack of intonation, but the use of a single intonation throughout the whole speech.

In the case of the CG, one possible reason behind lack of approximating NS intonation, and along its unlearnability, is the amount of phonological load which learners consciously were trying to apply, not only with segmentals, but suprasegmentals which are supposed to function at the subconscious level. This reveals the advantage of adopting the LFC syllabus as it reduces the number of features where NNSs need to imitate NSs by maintaining some features of their L1 which do not impede intelligibility and/or comprehensibility.

Actual topics might be a reason behind monotonous speech (in both groups). Some topics were more descriptive, i.e: describing their daily activities or describing two pictures. In contrast, there were topics which required showing more interaction, for example, talking about a holiday.

Another reason could be that intonation implies not only the attitude of the speaker but also the grammatical structures, although Jenkins (2000) was careful about this and argued that intonation is connected with grammar while they are two different systems. These grammatical structures are not the same in the two languages. For example, 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; Kharma and Hajjaj, 1997).

5.3.2.4.2 *Tone unit*

The LFC suggested two advantages in prioritizing word groups: facilitating teaching nuclear stress and planning time for NNSs. According to Brazil (1996:9), 'The tone unit is the minimal stretch of speech for which assembly plans are made. This assigns an important purpose to the interval between them: it is the time the speakers can use for planning'. Jenkins also argued that in using ELF, the listeners are also NNSs. The interval between word groups thus not only helps speakers with planning, but also provides crucial support to listeners, by indicating which words they should process together for meaning, and providing them with time to do so.

Moreover, this research supports the positive influence of pausing among the tone unit, especially in the case of EFL listeners (the Chinese and Taiwanese). However, it requires listeners' tolerance, not only from NSs expected by Jenkins but also from ESL and most of EFL users.

5.3.2.4.3 *Nuclear (tonic) stress*

The LCF considers nuclear stress a critical feature. This study parallels Jenkins on the salient role of nuclear stress which makes utterances more comprehensible and speech more communicative, interactive and conversational.

One reason behind the importance of the nuclear stress was the idea of ‘retrievable information’. According to Hawkins (1984), the speaker shows, first, that he is treating that nuclear word as the carrier of new, non-retrievable, information, and second, that the information of the other, non-emphasized words in the tone group is not ‘new’ but can be ‘retrieved’ from the context. This non-retrievable information given by the nuclear word, can be either contrastive or non-contrastive (simply ‘new’).

In the EG, nuclear stress was used contrastively by Malak in ‘I did not come to college LAST week’ indicating that the week when she could not attend college was specifically last week. It was also in the last content word in Jasmine’s speech when she said about the ticket ‘it was very CHEAP’ with the raising/falling intonation indicating her attitude and the unexpected price of the ticket. Those speakers who could place nuclear stress properly were also perceived as people who were interested in their topic, enthusiastic and self-confident.

Nuclear stress in the speech samples of the CG was not as noticeable as the EG’s. Similar to the discussion about intonation above, one reason might be the phonological load which learners consciously were trying to apply, especially with suprasegmentals which are supposed to function at subconscious level. Producing nuclear stress was another feature which CG speakers were trying to produce in addition to word stress and sentence stress. This explains why some listeners were critical about the types of ‘stress’ they were listening to in the speech of the EG and the CG. One ESL interviewee reported that the way Mira-CG stressed her utterance ‘WALking’ and ‘TALking’, although stressed properly, did not add any meaning, but stressing ‘cheap’ in ‘it was very CHEAP’ by Jasmine-EG made the speech more conversational and the speaker more interesting to listen to. This also reveals the influence of word stress on how the nuclear stress functions which is suggested by Jenkins (2000). That is word stress might

influence how noticeable the nucleus is in the speakers' speech and the listener might not distinguish between dominant words stressed purposefully for their importance in the message and other stressed words.

5.4 Summary

This chapter was divided into two broad sections. The first presented the findings of the buzzer technique, summarizing the items and utterances which were unintelligible to listeners in both the experimental and control groups. The second looked critically at these findings and compared them with those of Jenkins (2000).

In terms of segmental features, this study found that all consonant sounds are important for intelligibility, and learners in this study did not report problems in producing /θ/ and /ð/ which are non-core LFC features. The Arabic trilled /r/ was fully intelligible to listeners, apart from EFL listeners who had been taught GA and had difficulties recognizing the trilled /r/.

While the LFC considers consonant sounds in initial and medial position core features, but not in final position, this study found some instances where medial consonant clusters influenced word recognition. Initial consonant cluster was not the obvious reason behind unintelligibility as the words where initial consonant clusters were missed have other problems. As Jenkins found, final consonant clusters show no intelligibility problems.

Looking at the suprasegmental features, this study observed that all words longer than two syllables in the case of the EG encountered intelligibility problems. However, none of the similar words in the CG (where word stress was used appropriately in most cases) were reported as unintelligible. Both NS and most of the NNS listeners expressed their inability to focus on the whole word when it is long while trying to recognize it. The inclusion of primary word stress would have two advantages; increasing opportunities of word recognition, and rendering long words easier to produce.

While this chapter is an overall summary of the buzzer technique, a more comprehensive summary follows in Chapter Six, whose purpose is to draw together the threads of the study.

6 Chapter Six: Conclusion

6.1 *Summary of the Study*

This thesis investigated the influence of a syllabus based on the LFC in improving the intelligibility and comprehensibility of Arab learners at post-secondary level to three groups of listeners, NS, ESL, and EFL listeners. The objectives of this study were: to design a syllabus based on the LFC for Arab learners; implement that syllabus in an actual classroom setting; evaluate the intelligibility and comprehensibility of Arab learners of the designed syllabus in comparison to Arab learners of the traditional pronunciation syllabus, based on the RP/GA; and, eventually, revise the contents of the designed syllabus based on the data of this study and generate a new version for a syllabus based on the LFC for Arab learners.

6.1.1 Differences in the Intelligibility and Comprehensibility of both Groups

The research found that there were no significant differences between the intelligibility and comprehensibility of both experimental and control groups. However, the LFC group scored relatively higher than the RP/GA group in both intelligibility and comprehensibility in the post-intervention round. The study discussed this finding in light of some other factors that might have influenced listeners' views on the intelligibility and comprehensibility of Arab learners. These were: listeners' backgrounds and familiarity with NNS varieties, attitudes towards how speakers spoke, the NS varieties which EFL listeners were taught, and their expectations in understanding the speech. Overall, the range of these factors suggested that both NSs and NNSs have factors which might impede and/or increase their potential to perceive intelligibility and comprehensibility of speech more than other groups.

Considering the differences between the PI and PC according to group type (NS, ESLs and EFLs), learners of both groups were more intelligible to NS, than to the EFL and the ESL groups. However, this was not the case with comprehensibility. Both groups were less comprehensible to the NS than the EFL group. One possible reason might be the difference between how NSs and NNSs perceive speech. According to Brown (1990) and Jenkins (2000), NSs (and arguably NNSs with high command of English) are more able to use top-down processing using their background knowledge and, accordingly, infer what the mispronounced words could be. Eventually, they found that mispronounced words were still recognizable despite limited phonological input due to mispronunciation.

Speakers were possibly more comprehensible to EFL than to NS listeners because EFL listeners were more reliant on bottom-up processing focusing on acoustic features rather than exploiting the contextual cues required in top-down processing which made it possible to process the words and understand the overall utterance.

The two research questions investigated quantitatively in this study are summarized in Figure 6.1. The shaded parts outline the reasons behind the findings discussed in this study:

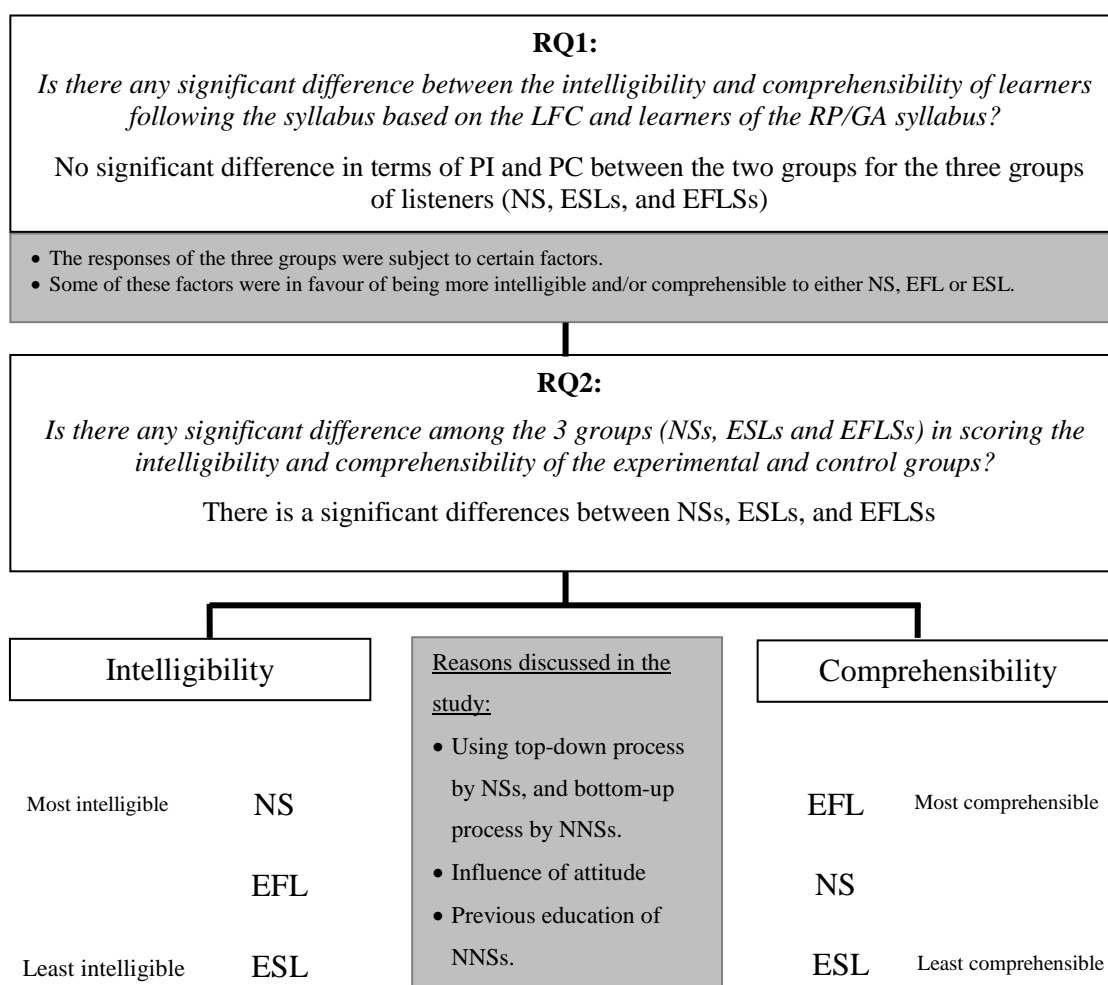


Figure 6.1: Summary of findings of the rating scale

6.1.2 Factors influencing Intelligibility and Comprehensibility

Detecting the differences between the responses in the rating scale and the buzzer technique, along with the explanation from the interviewees, the findings revealed a wide range of interrelated and inseparable factors that might influence intelligibility and comprehensibility. Figure 6.2 shows the topics emerging from the interviews.

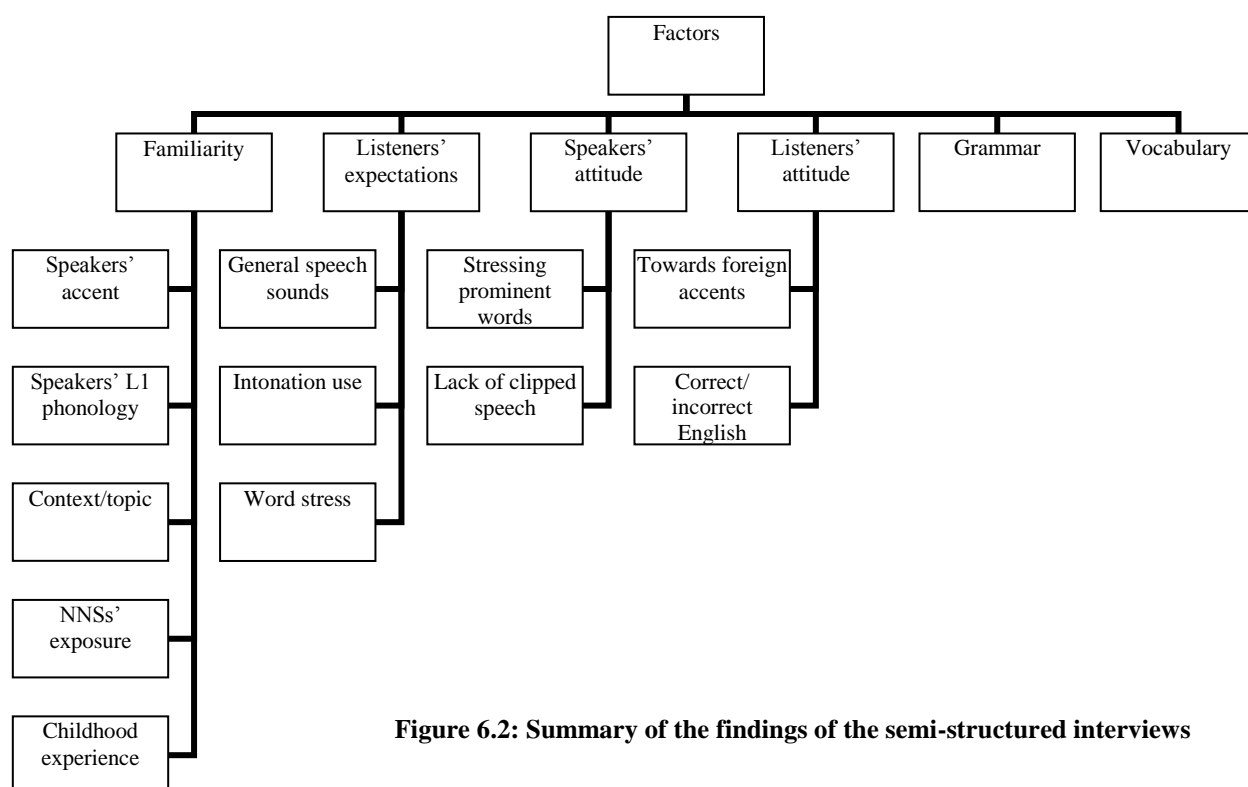


Figure 6.2: Summary of the findings of the semi-structured interviews

One factor, ‘familiarity’, was an umbrella which includes knowledge about the phonology of the speakers’ L1, the context, the topic of the speech, and attuning to a specific accent. The more the listener is familiar with these, the more intelligible and comprehensible the speech could be. However, there were exceptions: frequent exposure did not always have a positive influence on comprehension. This was attributed to two reasons. The first was that recognition of how an accent generally sounds is not sufficient to recognize words unless accompanied by knowledge of the accented English sound patterns in question (Yang, 2009).

The second was the difference in the level of proficiency of the speakers in this study and those to whom the judges had been exposed. This minimized the positive influence which exposure to Arab speakers might have had in understanding speech. This is connected with another factor which is the ‘expectations’ of listeners which might have been established according to their familiarity with the Arabic phonology or accent. When the performance of the speakers did not meet the expectations of the judges, the judge tended to perceive the intelligibility and/or comprehensibility less easily.

The slow speech of the speakers gave EFL listeners from Taiwan and China time enough to understand what had been said. However, they showed less ability in recognizing individual words. The study related this to three ideas: firstly, the variety of English which the NNSs have been taught and which was different from the phonemes used by the speakers. Secondly, having a decent level of English proficiency, and adopting bottom-up processing rather than top-down where context had a less obvious role in recognizing the words. Thirdly, perceiving the speakers' speech as 'jerky', 'heavy', and 'clipped' could be manifestation of a negative attitude towards the speakers' speech.

The discrepancies between responses to the rating scale and the buzzer technique, and explanations from the interviewees revealed that negative attitude resulted in rating intelligibility and comprehensibility of speech harshly. Two issues were discussed in relation to attitude. The first was correctness. Some interviewees who were attuned to listening to NNSs refused to describe NNS features that are different from NSs' as 'wrong' since, according to them, they were fully intelligible. However, others still consider English developed among NNSs with features different from NSs as 'pseudo' or 'unreal' English. The second concerns identity. Some interviewees perceived a speaker's foreign accent positively in comparison to cases drawn from the control group where speakers obviously were trying to imitate NSs.

6.1.3 The LFC syllabus

Considering the segmental features, although the LFC excluded the /θ/, /ð/ and [ɫ] from its inventory, this study found that /θ/ and /ð/ were not among the problematic sounds for the learners. It also agrees with the use of clear /l/ rather than the dark velarized /l/.

The LFC also opted for the GA rhotic /r/ rather than the RP non-rhotic /r/. The trilled /r/ used by Arabs only reported intelligibility problems for two interviewees (a Chinese and Taiwanese) who reported that they had been taught GA. Accordingly, the /r/ they heard by (most of) the speakers is different from the one they attuned to. The data also showed

no intelligibility problems when the voiceless dental/alveolar stop consonant /t/ was used.

Similar to Jenkins, this work asserts the importance of the aspiration after /p/, /t/ and /k/ in initial position in a stressed syllable, as well as the proper length of vowel before fortis/lenis. While the quality and quantity of the long vowel /ɜ:/ is a core feature in the LFC, this study found that it is quantity, not quality, that is important in word recognition. Replacement of the vowel /ɜ:/ by /eɪ/ in the data was fully intelligible and caused no intelligibility problems to any listener. While this applies to Arab learners, teachers of learners of different L1 should observe the vowel which learners use to replace /ɜ:/ as it might cause intelligibility problems.

While the LFC considers consonant clusters in initial and medial position core features, but not in final position, this work found that the mispronounced medial consonant clusters were not always unintelligible to listeners. Initial consonant cluster was not obviously the reason behind unintelligibility as the words where it was missed have other problems. Similar to Jenkins' findings, final consonant cluster deletion revealed no intelligibility problems.

Turning to the suprasegmental features, similar to Jenkins findings, lack of features of connected speech and weak forms (and accordingly, not using stress-timed rhythm of English) was not among the causes of unintelligibility. Although pronunciation of grammatical words in their full forms was helpful for some EFL listeners, particularly those from Taiwan and China, most of the speeches were perceived as heavy accented, clipped and jerky. This negative attitude which most judges had towards how speakers sounded could have, to some extent, piloted rating process harshly.

While word-stress is a non-core feature, this study observed that all words longer than two syllables in the case of the EG revealed intelligibility problems to both NS and NNS listeners. However, none of the similar words in the CG (where word stress was used appropriately in most cases) were reported as unintelligible.

Nuclear stress proved its value not only in facilitating intelligibility and comprehensibility, but also perceiving the speakers' speeches more positively. It was a sign of communicative speech and interaction between speaker and the topic.

Although both the control and experimental groups were trying to use nuclear stress, it is more noticeable in the experimental than the control group. This study suggested one reason which was that the control group was trying to use word stress, sentence stress, strong and weak forms, and pitch movement which might not make nuclear stress stand out in their speech. This could also explain why some speakers in the control group, although highly intelligible and comprehensible, sounded heavily loaded with stress 'almost everywhere', according to some interviewees.

In summary, this study's findings mostly reflect those of Jenkins about the influence of segmental and suprasegmental features on intelligibility and comprehensibility except for the rhotic /ɹ/, quality of the long vowel /ɜː/, and word stress in words of more than two syllables.

6.2 Contribution of the Study

The LFC established by Jenkins (2000) was meant to address the teaching and learning process and be introduced in a classroom setting. However, it was criticized on a theoretical more than an empirical basis. Two empirical works which this research is aware of are Cole's (2002) and Osimk's (2009). However, neither of them implemented the LFC in classroom teaching for which Jenkins had initially established it. This study actually sets LFC practice in the classroom. It looked at the LFC addressing the argument against (or for) it challenging all the circumstances which have long been considered obstacles against accepting the LFC in ELT (for example: heterogeneity of learners L1 phonology and lack of material for teaching ELF).

The second contribution for this study stems from its design and method of triangulation. It triangulated data using a rating scale along with the buzzer technique within interviews. This helped achieve three purposes: firstly, giving an overall picture of the influence of the LFC on the intelligibility and comprehensibility of Arab learners using rating scale; secondly, developing an index for the unintelligible items in learners' speeches using the buzzer-technique; thirdly, seeking clarification from the judges about how words were heard and possible causes of how they perceived the speeches using semi-structured interviews.

The buzzer technique, although discussed briefly by Kenworthy (1987), was marginalized in investigating intelligibility due to its weaknesses. However, embedding it in the semi-structured interviews in this study may have minimized its disadvantages and enhanced its advantages. Along with revealing unintelligible elements in the learners' speeches, the buzzer technique acted as a reference (with the findings of the rating scale) which could tell the researcher which aspects of speech to focus on while questioning the interviewees. The flexibility of the semi-structured interviews was employed to fit the buzzer technique within the overall research design and objectives.

The third contribution of this study concerns its context. The spread of the Arabic language over 23 countries makes its findings applicable to Arab learners throughout this vast region.

Finally, beyond the Arab context, replicating the research's quasi-experimental design in another context could help explore other issues relevant to its implications for the classrooms. But issues such as the teachability and learnability of the LFC compared with the traditional pronunciation syllabus, perceptions and attitudes of learners towards the implications of the LFC within classroom compared with the learners of RP/GA, and listeners' perceptions to and attitudes towards the speech of the LFC and RP/GA learners, are beyond the scope of this research.

6.3 Implications

6.3.1 Theoretical Implications of the Study

6.3.1.1 Distinction between Intelligibility and Comprehensibility

The literature revealed the diversity in the definition of intelligibility and comprehensibility. As had Derwing (2006), Nelson (2008), Smith and Nelson (2006), Scales *et al.* (2006), and Tauroza and Luk (1997), so this research found the relationship between intelligibility and comprehensibility is non-reciprocal. The definition of these terms by Smith and Nelson (1985) adopted in this study places these terms at two different levels: intelligibility is limited to recognition of individual words by which the speaker conveys his/her message, while comprehensibility is the ability to understand the message delivered. At this level, comprehensibility acts beyond the boundaries of individual words into neighbouring words in the same utterance. In other words, comprehensibility of the overall message through linguistic context could be exploited to recognize words which could have been missed by the listener.

Rather than using these two terms as two faces of the same coin, this research suggests the importance of considering them distinct from one another functioning at different levels, within word boundaries, and above words by using context. Considering this theoretically could have several practical advantages in classroom teaching: firstly, teachers could better classify the types of exercises in classroom to better achieve their goal. For example, the teacher could focus on individual phonological features when the goal is improving intelligibility, while, when the goal is comprehensibility, more communicative activities and instructions for improving accommodation skills could be targeted. Nevertheless, some teachers might still prefer to integrate work at these two levels.

The second is that this classification of intelligibility and comprehensibility would better fit into the two processes that visualize how speech is perceived: the top-down and bottom-up processing (Brown, 1990). There were instances in this study where listeners depended on the bottom-up process starting from phonemes to recognizing individual words. When this phonological input was not sufficient for recognition, listeners started to invest neighbouring words and linguistic context by implementing top-down processing and investing their overall understanding of the utterance to predict what the missed word could have been.

Based on the findings of this study, the literature on the top-down/bottom-up processing, and definition of intelligibility and comprehensibility by Smith and Nelson (1985), Figure 6.3 was developed to visualize the relationship between intelligibility and comprehensibility of speech on one hand and top-down/bottom-up processing on the other.

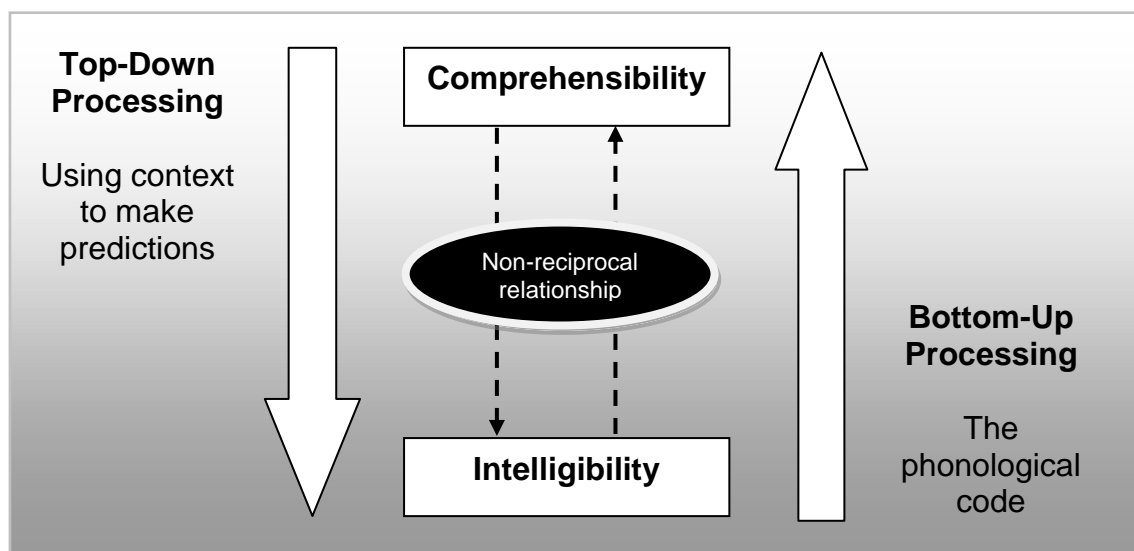


Figure 6.3: Proposed relationship between intelligibility/comprehensibility and approaches to listening

6.3.1.2 Model of Speech Perception

This research also calls for a rethink of Catford's (1950) model that explained the process of speech perception. Catford's model is conceptualized in Figure 2.4 (Chapter 2). However, considering the discussion above and the findings of this study, it is possible that words in the speech might be individually recognizable but the listener might still hesitate over the utterance's meaning. Catford's, however, does not reflect this non-reciprocal relationship between intelligibility and comprehensibility. In other words it does not indicate that identification of words is not necessarily a pre-request of understanding speech. Additionally, it does not introduce intelligibly and comprehensibility as two different notions, but uses 'intelligibility' to refer to both; initially to identifying, and then, understanding the message. Catford's model is revised and presented below in Figure 6.4.

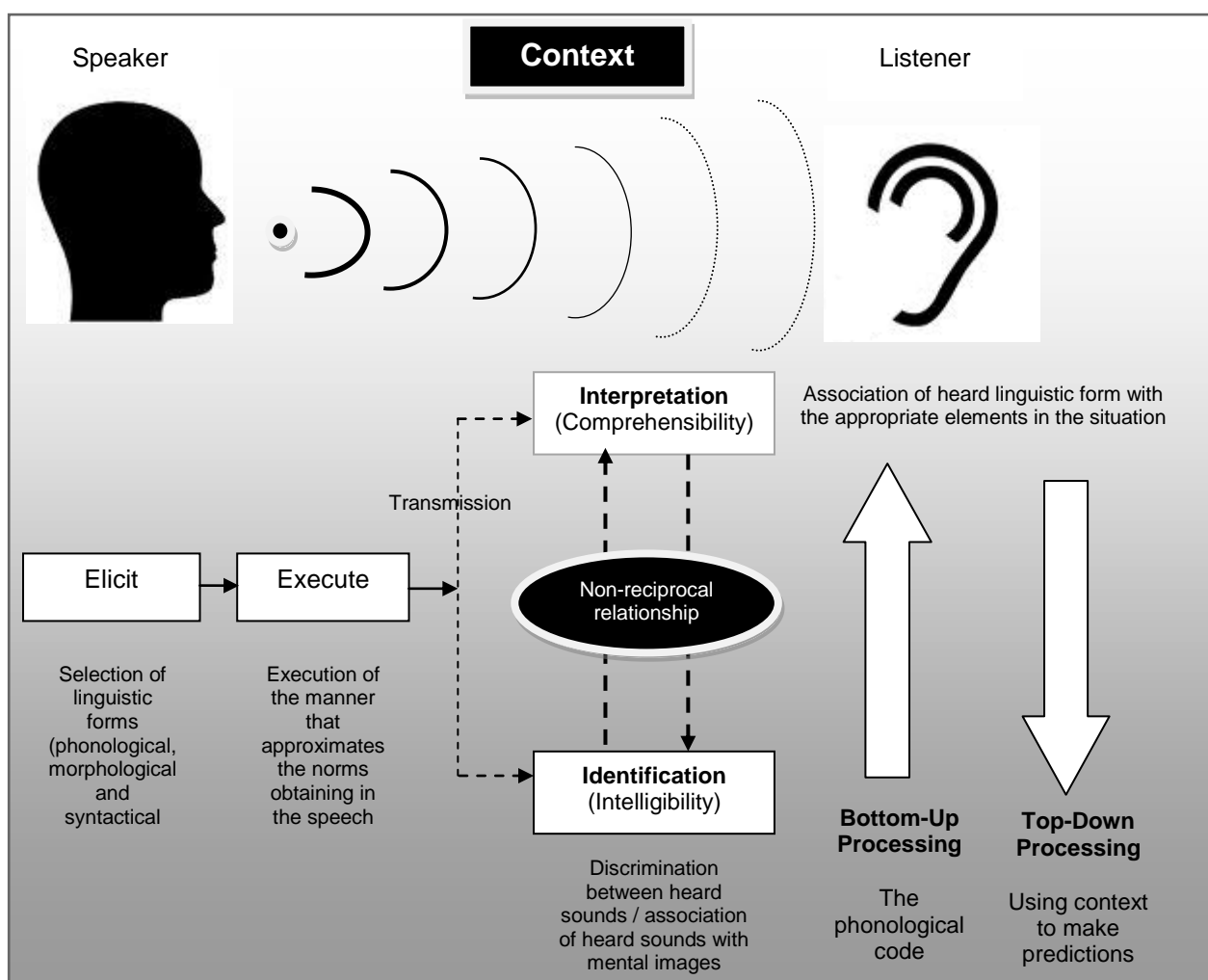


Figure 6.4: Revised Catford model (1950)

6.3.2 Practical (Pedagogical) Implications of the Study

6.3.2.1 The LFC: Revised

Based on the findings of this research, the contents of the LFC are shown in Table 6.1. The column in the middle shows the contents of the pronunciation syllabus established earlier in this study for Arab learners based on the LFC. This is revised and presented in the right hand column based on both the LFC and the data of this study.

Table 6.1: Revising contents of the LFC for Arab learners

Contents of the LFC (GENERAL)	Contents of syllabus for Arab learners based on the LFC (OLD)	Contents of the syllabus for Arab learners based on LFC and this study (REVISED)
<u>The consonant inventory</u>		
All sounds except /θ/, /ð/ and dark (or velarized) /ɫ/ (as in 'little')	/p/, /v/, /dʒ/, /g/ and /ŋ/.	Distinguishing between /p/ and /b/ in word initial. /tʃ/ and /dʒ/
Rhotic GA /r/ rather than the other varieties of /r/.	GA Rhotic /r/	Arabic Variety of /r/ (Trilled /r/)
The RP variant of /t/ Intervocalic [t]	The RP variant of /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.	Appropriate vowel length before fortis and lenis	Appropriate Vowel length before fortis and lenis
Avoiding contracted and short forms.	Avoiding contracted and short forms.	Avoiding contracted and short forms.
<u>Consonant cluster</u>		
Word initially, word medially	Word initially and medially	Word initially and medially
<u>Vowel sounds</u>		
Long-short contrast /ɜ:/ to be preserved	Long-short contrast + /ɜ:/	Long-short contrast
L2 (consistent) regional qualities.	Learners' regional quality is accepted.	Learners' regional quality is accepted.
<u>Nuclear stress</u>		
Appropriate use of contrastive stress to signal meaning	Nuclear (tonic) stress.	Nuclear (tonic) stress.
<u>Word stress</u>		
Unnecessary / can reduce flexibility	-	Primary stress is required in words of more than 2 syllables.
<u>Intonation</u>		
-	-	-

6.3.2.2 Increasing Learners' Awareness of the Spread of English

Jenkins (2000) pointed out that non-native English is regarded negatively even by most EFL teachers. In that sense, teachers could be seen as being at least partly responsible for the negative attitudes. Thus, teachers themselves and teacher training programs should propagate greater tolerance of NNSs varieties and encourage a more positive attitude of their learners towards these NNSs varieties and enhance intelligible and communication in English among NNSs and between NNSs and NSs. When this prerequisite is met, further necessary steps could be launched starting with devoting time in the ELT classroom to increasing learners' awareness of the landscape of English as a global language (Brown, 1992; Brumfit, 2002; Crandall, 2003; Takagaki, 2005). This could be done pedagogically in several ways:

Firstly, this study has provided evidence that unintelligibility and incomprehensibility can be a manifestation of negative attitudes towards accented English. For this reason, it is important to improve learners' tolerance of their own varieties as well as other NNSs' to increase opportunities of perceiving speech more intelligibly and comprehensibly.

Secondly, learners should be exposed to several NNSs varieties in classrooms. Some phonological features might include unintelligible items which our learners should not acquire. Hewings (2004) demonstrated that listening provides a foundation for pronunciation improvement in their own speech. Considering this, teachers should have control over the classroom input by bringing to learners' attention the differences between the non-core phonemes used by the NNS samples and those targeted.

Thirdly, this study and some existing literature should provide evidence that familiarity with how certain NNSs' accents sound does not necessarily facilitate intelligibility and/or comprehensibility. Thus, teachers might need to draw learners' attention to certain phonological features in the recordings by focusing on the differences between these and their own.

These implications are equally important for NSs who need to improve their knowledge of the landscape of English, how NNSs sound and how different their phonology could be from NS varieties. There is also a need to improve their tolerance for these varieties to minimize the impact of negative attitude on intelligibility and comprehensibility.

6.3.2.3 Goals of Teaching English in the GCC

For teaching the pronunciation of English to Arab learners, it is important to compromise between the diversity of English varieties in the GCC counties (which also includes NSs) and the nature of ELF which is mostly interested in communication among NNSs (marginalizing to some extents NSs and their perception towards intelligibility and comprehensibility). Arab learners in the GCC need to learn English to communicate with all types of English speakers; NSs, ESLs, and EFLs. The goal of teaching English pronunciation should not be solely to be intelligible to NNSs, but equally to NSs. Any goal that cannot serve this purpose may detract from the role of English as an ‘international’ language. Since English has long been the language that matters across the globe, it should function equally successfully regionally within the GCC.

6.4 *Study Limitations*

These can be summarized as:

Firstly, being conducted on a limited number of female Arab learners (25 learners in each group), over a limited period of time (from September 2008 to January 2009), the majority of whom come from GCC countries, specifically Oman and the UAE. The study did not cover a wide range of interviews; sampling was limited to 18 interviewees.

Secondly, this study did not involve actual communication among people and, accordingly, provided no scope to explore intelligibility and/or comprehensibility breakdown through accommodation skills involved in communication. Additionally, the study included only one type of speech which is connected speech through speaking spontaneously.

Thirdly, due to limited technical resources, the description of the speakers' speech was based on the intercoding and phonological transcription done by two NSs. This study did not consider the acoustic characteristics of the sounds which might have influenced speech perception (Clark and Yallop, 1995; Maniwa and Jongman, 2009). For example, the level of intensity of the sonorant and strong fricative consonant sounds such as /w/ and /s/ require a markedly lower intensity level to be reliably recognized than do weak fricatives such as /v/ and voiceless stops such as /k/ and /t/ (Clark and Yallop, 1995).

Fourthly, although perceived intelligibility and comprehensibility were discussed in relation to a limited number of factors which are revealed during the interviews, there is a need to consider other factors which the literature discussed but are not included in this study (section 6.5.3).

6.5 Suggestions for Further Research

6.5.1 Speech Sample

Although this study was driven by the idea that in actual communication people would be listening and speaking within a context, it calls for further investigation to validate the syllabus established and revise its contents for Arab learners implementing several types of speeches.

6.5.2 Pronunciation Syllabus for Non-Arab Learners

This study was designed, developed, and conducted on Arab learners only. Though it is applicable in over 20 countries, there is a need for further research on designing a syllabus based on the LFC for non-Arab contexts. Establishing a pronunciation syllabus based on the LFC depends highly on learners' L1. Some LFC features are core features for learners in some contexts, but not necessarily for learners in other contexts. For example, Arab learners replaced the vowel /ɜ:/ with /eɪ/ and their speech was fully intelligible. But Jenkins noted /ɜ:/ was replaced by the long vowel /ɑ:/ by Japanese speakers and caused intelligibility problems. In this way, /ɜ:/ is a core feature to be introduced to Japanese but not to Arab learners, since the Arabs' replacement with the vowel /eɪ/ was intelligible.

6.5.3 Factors Influencing Perceived Intelligibility and Comprehensibility

Several factors need to be considered for learners of the LFC syllabus. Some which this study found important but could not report on in depth were: age of NNS listener (Burda, 2000 in Yang, 2009); NNS listeners' level of proficiency of English (Smith and Nelson, 2006; Pihko, 1997, in Yang, 2009); self-corrections and hesitations of speaker (Kenworthy, 1987; Fayer and Krasinski, 1987); age of learning English, where late bilinguals are less able to recognize words than early bilinguals (Meador *et al*, 2000), frequency of using NNS listeners for their L1 rather than L2 (English) (Meador *et al*, 2000) and listeners' cultural background (Catfor, 1950; Matsuura *et al*, 999).

Another factor could be whether the NS listener is a monolingual or bilingual listener. Bilingual NSs might have received intelligibility and comprehensibility more positively than mono-lingual NSs. One interviewee who showed considerable intelligibility and

comprehensibility expressed her appreciation towards the speakers' abilities to speak English better than she did when she had learned German.

Further researchers might also focus on the PI and PC in face-to-face communication. Head movement and eyebrow movement determine which word in a sentence is receiving emphatic stress. Additionally, understanding speech is enhanced when listeners view a speaker's lips movements (Munhall *et al.*, 2004; Bernstein, *et al.*, 2000).

6.6 Researcher Reflections

This study is my second research on ELF. The first was conducted as part of my Masters degree in 2006 and focused on exploring Arab learners' perceptions on the shifting ownership of English as an international language. This prompted reading about the LFC and consideration of investigating Arab learners' perceptions towards the LFC for a doctorate research. However, although learners might (or might not) accept the LFC, it might not be sufficient to improve their intelligibility and comprehensibility. This made me think that perception in this case is not what could influence teaching and learning pronunciation within the Arab context. An evaluation of LFC influence on the clarity of learners' pronunciation is what was needed. From there I started my journey.

Throughout my research, I felt that I was walking in a minefield; at every single step my research was in danger of stopping and not being completed. Investigating this topic experimentally made this research subject to several threats. Individuals who are against the ELF principle could easily pick on these points to continue their argument against the LFC, which might impede the march towards teaching ELF, the small contribution which this research hoped to achieve. I am grateful to all the 'soldiers' who helped me see my work through to the end.

Now it is accomplished I feel pleased with my efforts. Having said this, I feel further research on this topic would be better tackled by a group of researchers rather than by an individual. Believing in the distinguished contribution of the LFC in the field of ELF was the inspiration which supported my research's completion. A group would better negotiate the inevitable pitfalls that I could not do with peace of mind as an individual when I started this project in January 2007.

Although this research was conducted, written and finalized as part of seeking a UK degree, it started with the dream of influencing the teaching of English pronunciation to Arab learners and ended up as a mission to bring this dream into reality.

7 References

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8 Appendices

8.1 Appendix A: Judges' Factual Data

Judge's (false) Name: _____

Please answer the following questions about yourself:

1. Age:

Which age group do you belong to?

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> Less than 20 | <input type="checkbox"/> 20 -25 |
| <input type="checkbox"/> 26 - 30 | <input type="checkbox"/> 31-35 |
| <input type="checkbox"/> 36-40 | <input type="checkbox"/> More than 40. |

2. Ethnic group:

Where do you come from? _____

Which of the following statements is applicable about using English in your country?

- ☐ English is the native language in my country.
☐ English is used as an official language in addition to the native language in my country
☐ English is important in my country but it is not the official language.

3. Familiarity of listening to speakers with NNS varieties of English

How often do you listen to Arabs speaking in English?

- ☐ Daily ☐ Weekly ☐ Monthly ☐ Yearly ☐ Never

4. NNS listeners' level of proficiency

If you are not a native speaker of English, how would you evaluate your listening and speaking skills?

Listening skill

- ☐ Excellent
☐ Very good
☐ Good
☐ Fair
☐ Weak

Speaking skill

- ☐ Excellent
☐ Very good
☐ Good
☐ Fair
☐ Weak

8.2 Appendix B: Sample of Speech Transcription

Sabah (Control Group)

Speech	How words were pronounced	Comments from the intercoders	Grammar and vocabulary mistakes
I <u>can</u> <u>see</u> in <u>picture</u> <u>ONE</u>	5 /Kən/. 1/4 /pɪktʃə/ - ([p ^h]) 3 /wɒn/ instead of /wʌn/ 6 /pɪktʃə'wɒn/	X5 weak form of 'can' was used. √6 linking between 'picture' and 'one'. √4 consonant cluster was pronounced appropriately in the middle of the word 'picture'. X3 vowel quality of 'one'. √3/2 correct long vowel in 'see' √1 the consonant /p/ in 'picture' was aspirated ([p ^h]).	-
<u>The weather</u> is <u>sunny</u>	5 /ðə/ 1 /weðə'/	√5/3 Weak form of 'the' was used.	-
<u>But the</u> <u>SECOND</u> <u>picture</u>	4 /pɪtʃə/ instead of /pɪktʃə/- [p ^h] 5 /ðə/	√ 5 Weak form of 'the' was used. X4 in 'picture' she dropped the medial consonant and said /pɪtʃə/ instead of /pɪktʃə/ √1 the consonant /p/ in 'picture' was aspirated ([p ^h]).	The preposition 'in' is missed – should be: 'but <u>in</u> the second picture'.
<u>The weather</u> is <u>cloudy</u>	3/klʌʊdi/ 1/weðə'/ 3/weðə'/	√5/3 Weak form of 'the' was used √1 correct pronunciation of the consonant /r/ √3 suitable vowel quality in 'weather'	-

In picture one	4 /pɪktʃə/ 3 /wɒn/ instead of /wʌn/	X4 correct pronunciation for the consonant cluster in 'picture' X3 vowel quality of 'one'.	-
TWO girls are playing BASEball	8 'two' nuclear stress. 3/2 /gɜ:l/ 1 correct pronunciation for /p/ ([p ^h]) in /pleɪŋ/ 9 /beɪsbɔ:l/- [f] – was used	√8 'TWO' was emphasized. √3 suitable vowel quality in 'girl' √2 suitable length for the vowel in /gɜ:l/ √1 /p/ was aspirated ([p ^h]) in 'playing'. X9 the word stress in the word 'baseball' is not completely correct. The speaker tends to lengthen the vowel rather than stressing the syllable – dark /l/ ([ɫ]) was used.	-
But in the second PICTURE	4 /pɪtʃə/ instead of /pɪktʃə/ 5 /ðə/	√5 Weak form of 'the' was used. √1 correct pronunciation of the consonant /r/ X4 incorrect pronunciation for the medial consonant cluster in 'picture' – she dropped the medial consonant in /pɪktʃər/ and said /pɪtʃər/.	-
Two boys are playing FOOTball	8 'two' 9 /'fʊtbɔ:l/ 1 /pleɪŋ/ 4 /pleɪŋ/	√8 'TWO' was emphasized. √9 the first syllable of 'football' was stressed. √1 /p/ was aspirated ([p ^h]) in /pleɪŋ/. √4 initial consonant cluster exists in /pleɪŋ/.	-
In picture one	4 /pɪtʃə/ instead of /pɪktʃə/ 3 /wɒn/ instead of /wʌn/ 6 /pɪtʃə'wɒn/ 5 /ðə/	X4 she dropped the consonant /k/ in /pɪktʃər/ and said /pɪtʃər/. X3 vowel quality of 'one'. √6 linking between 'picture' and 'one'.	-

ONE <u>woman</u> is reading <u>NEWS</u> paper	1 /ðə wʊmən <u>is</u> / 3 /wʊmən/ instead of //wʊmən/ 9 /'nu:zpepəʃ/ 1/'nu:zpepəʃ/	X1 /is/ was used instead of /ɪz/. X6 no linking between 'woman' and 'is' X3 vowel quality of 'woman'. √9 initial syllable was stressed. √1 /p/ was aspirated ([p ^h]).	The article 'a' should have been used - Should be: ' <u>A</u> woman is reading <u>a</u> newspaper'
But in <u>the</u> <u>SE</u> cond <u>PIC</u> ture	3/5 /ðə/ 4 /pɪtʃəʃ/ instead of /pɪktʃəʃ/	√5 Weak form of 'the' was used. X4 she dropped the consonant /k/ in /pɪktʃəʃ/ and said /pɪtʃəʃ/.	-
<u>The woman</u> is <u>REA</u> ding a <u>BOOK</u>	5 /ðə/ 3 /wʊmən/ instead of /wʊmən/ 8 nuclear stress/bʊk/ 3 vowel quality in /bʊk/.	√5 Weak form of 'the' was used. X3 vowel quality of 'women'. X6 no linking between 'woman' and 'is' √8 'book' was emphasized. √3 vowel quality of 'book' (/bʊk/).	-

- 1 Consonant sounds
- 2 Distinction between short/long vowel sounds
- 3 Quality of vowel sounds
- 4 Consonant clusters
- 5 Weak form

- 6 Connected speech
- 7 Intonation
- 8 Nuclear stress
- 9 Word stress
- 10 Rhythm

8.3 Appendix C: Reliability Scores of Testing Intelligibility and Comprehensibility

Table 1: Reliability of Intelligibility Test

		Intelligibility1	Intelligibility2
Intelligibility1	Pearson Correlation	1	.922(**)
	Sig. (2-tailed)		.001
	N	8	8
Intelligibility2	Pearson Correlation	.922(**)	1
	Sig. (2-tailed)	.001	
	N	8	8

** Correlation is significant at the 0.01 level (2-tailed).

Intelligibility1 = intelligibility of speech 1 for all speakers
Intelligibility2 = Intelligibility of speech 2 for all speakers

Table 2: Reliability of Comprehensibility Test

		Comprehensibility1	Comprehensibility2
Comprehensibility1	Pearson Correlation	1	.922(**)
	Sig. (2-tailed)		.001
	N	8	8
Comprehensibility2	Pearson Correlation	.922(**)	1
	Sig. (2-tailed)	.001	
	N	8	8

** Correlation is significant at the 0.01 level (2-tailed).

Comprehensibility1 = Comprehensibility of speech 1 for all speakers
Comprehensibility2 = Comprehensibility of speech 2 for all speakers

8.4 Appendix D: Samples of Teaching Material

Practice Prominence

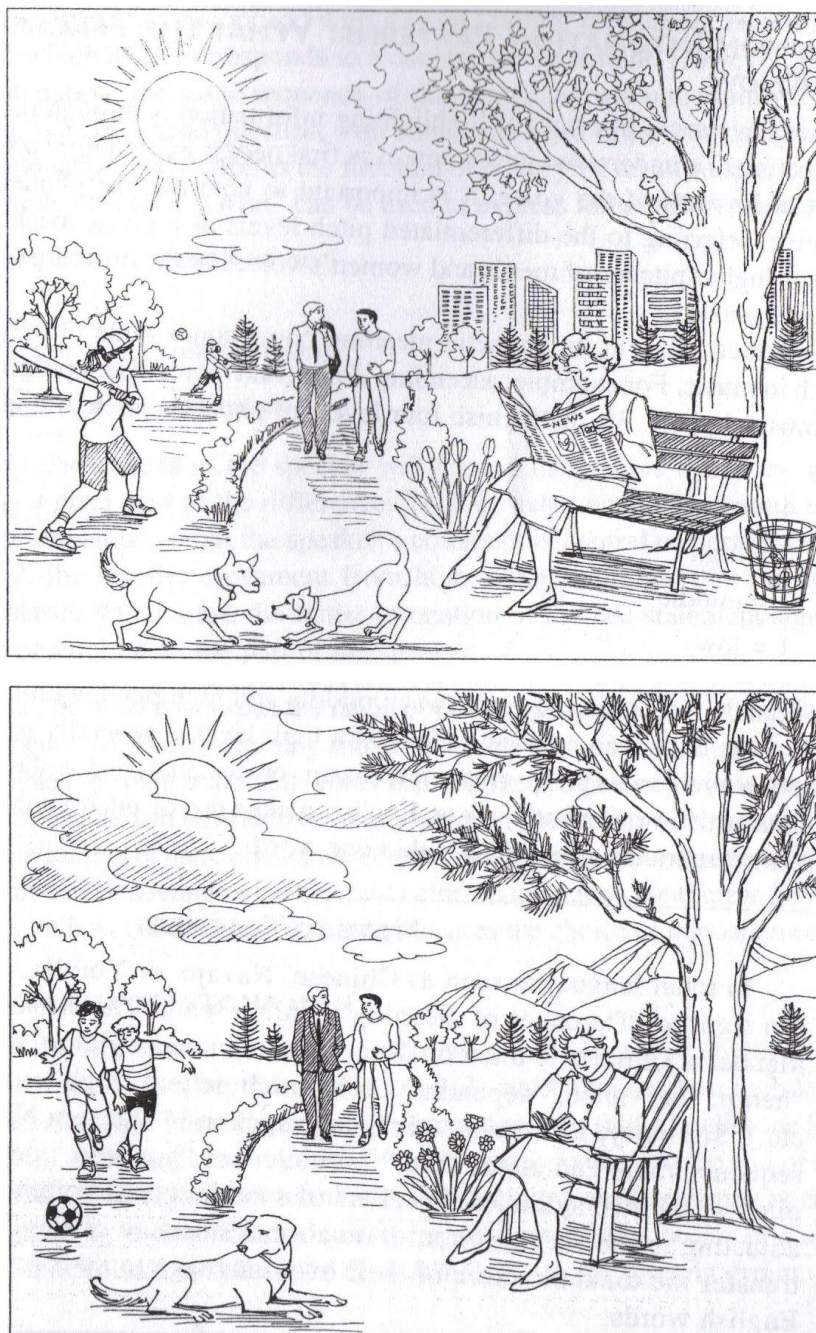


Figure 6.1 Illustrations for Student A (*top*) and Student B (*bottom*) for “Spot the Difference,” communicative practice with prominence

From: Celce-Murcia *et al.* (1996)

Introducing English Phonology (Considering Learners' L1)

Box 1 Student handout

Vowels

- 1 Examples: job give good car
- 2 Underline the vowel sounds in these words:
fall learn way road
- 3 Does your language have the same vowel sounds?
Give example words:
.....
.....

Consonants

- 1 Examples: my top work this
- 2 Underline the consonant sounds in these words:
shoe rob good leave
- 3 Does your language have the same consonant sounds?
Give example words:
.....
.....

Consonant clusters

- 1 Examples: black drop trip queen
- 2 Underline the consonant clusters in these words:
space play climb strong
- 3 Does your language have the same consonant clusters?
Give example words:
.....
.....

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From: Hewings (2004)

Short/long Vowel Distinction

Box 18 Student handout

/ɪ/ (*it*) vs /i:/ (*eat*)

	A	B
1 I can't without it.	live	leave
2 He me on the leg.	bit	beat
3 There's nothing to	it	eat
4 I can't find the anywhere.	lid	lead
5 He emptied the all over the floor.	bins	beans
6 I wanted in the garden.	to sit	a seat
7 Peter had the	list	least
8 Don't on the floor.	slip	sleep

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From: Hewings (2004)

Listen and repeat:

/ɪz/



sheep



heat



eel



receive



leave

i

ship



hit



ill



sieve



live



Practice: "these six silly sisters are sweet to meet"

From: Baker (2006)

8.5 Appendix E: List of Arab Learners / Speakers

- Speech samples were introduced to listeners randomly.
- Details of speech samples (including the topic and duration of each speech in the list) are for post-intervention stage only.

Experimental Group				Control Group			
#	(False) name	Topic of speech recording	Duration in seconds	#	(False) name	Topic or speech recording	Duration in seconds
1	Afnan	Describing a city	34	1	AL-Ferdaws	Describing a picture	30
2	Ameera	Healthy food	39	2	Al-Jouri	Describing two pictures	32
3	Anfal	Daily routine		3	Ameera	Last weekend	30
4	Dalal	Transportation	33	4	Aseel	Living in hostel	35
5	Dina	Ticket booking	35	5	Banana	Healthy food	32
6	Fatma	Hostel life	40	6	Fai	Describing two pictures	31
7	Jasica	Telephone message	34	7	Hawwa	Describing town	38
8	Jasmine	Holiday	34	8	Joudi	Last weekend	31
9	Koloud	Leaving a telephone message	32	9	Lamis	Describing her friend	31
10	Latifa	Healthy food	42	10	Maryam	Describing pictures	34
11	Maitha	Leaving a message (birthday invitation)	35	11	May	Describing pictures	30
12	Malak	Telephone message	31	12	Maya	Weekend plan	32
13	Muna	Weekly plan (going shopping)	37	13	Mira	Describing two pictures	41
14	Nadia	Food / eating out	33	14	Moon	Healthy food	32
15	Nawal	Healthy food	35	15	Nancy	Last weekend	37
16	Nour	Healthy food	36	16	Narges	Introducing herself	42
17	Raffif	Healthy food	33	17	Noor	Telephone message	30
18	Rama	Healthy living / exercise	40	18	Reem	Ticket booking	30
19	Renad	Healthy food	45	19	Roudah	Introducing herself	31
20	Sara	Living in student hostels	40	20	Sabah	Describing two pictures	36
21	Suzan	Describing picture	31	21	Sali	Describing two pictures	39
22	Shaima	Food / eating out	43	22	Shamma	Healthy living / exercise	32
23	Sophie	In student hostels and/or with family	30	23	Shams	Introducing herself	35
24	Sumaya	Describing pictures	34	24	Yasmeen	Staying healthy	31
25	Wed	Describing hostel	31	25	Zozo	Introducing a friends	32

8.6 Appendix F: List of Interviewees

Dates of the interviews: from May 25th to July 30th 2009 - (list is in chronological order)

Duration: from 2 to 3 hours (each interview)

#	Listener	Group	Country
1	Peter	NS	Britain
2	Viola	EFL	Italy
3	Pink	EFL	Korea
4	Ana	EFL	Croatia
5	Elaine	NS	Britain
6	Socratese	ESL	Pakistan
7	Japhet	ESL	Malawi
8	Rita	NS	Britain
9	Tina	EFL	Russia
10	Maple	EFL	Taiwan
11	Obi	ESL	Nigeria
12	Jane	NS	Britain
13	Rizwana	ESL	Pakistan
14	Mamba	ESL	Pakistan
15	Sarah	NS	Britain
16	Stacy	NS	America
17	Anistisha	EFL	China
18	Purple	EFL	Turkey

8.7 Appendix G: Interview Schedule

Interviewee No.: _____

Date of the interview: _____

Time of the interview: _____

Country of the interviewee: _____

Group type of interviewee: NS ☐ ESL ☐ EFL ☐

- **The buzzer technique**

1. What are the items which the listener stopped at?
 - a. Could the listener repeat that specific word? Or repeat the whole statement?
 - b. How did these specific words sound to him/her?
2. Are there any LFC features which were mispronounced but the listener did not stop the buzzer at?
 - a. What were these words?
 - b. Repeating these words to ensure that they were heard properly.
 - c. Did the listener hear the word pronounced similarly to the speakers (for example by other NNSs)?
 - d. Did the listener pronounce the word himself/herself the same way the speaker did?
3. Are there any features which were pronounced appropriately by the speaker but were unintelligible to the listener? (= the listener stopped at)
 - a. What were these words?
 - b. How did the misheard word sound? (if possible)
 - c. Could the listener repeat the neighbouring words?
 - d. (After telling the listener what the misheard word is) how did he/she pronounce it?
 - e. Could the listener explain the differences between how he/she pronounced it and the way the speaker did?
 - f. Could the listener explain why he/she could not recognize the word?
4. Are there any discrepancies between the listeners' responses in the rating scale and the buzzer technique?

If yes, what were these samples? And what were the reasons?

- **Relationship between intelligibility and comprehensibility of speech**

1. Are there any discrepancies in rating intelligibility and comprehensibility of speech?
If yes, what are these samples, and what are the reasons?
2. What do you think is more important in communication, recognition of words or understanding utterance (without recognizing individual words)? Why?

- **Relationship between intelligibility/comprehensibility, accent and attitude**

1. How much did you like the way the person speaks?
2. How strong was the speaker's accent?
3. Did the interviewee's responses to the above question correlate negatively/positively with the degree of the speaker's intelligibility and/or comprehensibility?
If yes, how did the attitude and strength of accent influence intelligibility / comprehensibility positively/negatively?
If not, could the listener explain why?
4. (focusing on specific samples from the experimental and control group which reflect LFC and RP/GA features):
 - Which speech sample did the listener like most? Why?
 - Which one did the interviewee prefer to communicate with? Why?

- **Intelligibility/comprehensibility and the listeners' backgrounds:**

1. Do you meet Arab speakers of English?
If yes, how often?
And how did that influence recognition of words and understanding the speakers?
2. Is the listener in exposure to (non-Arab) NNSs?
If yes, how often?
And how did that influence recognition of words and understanding the speakers?