State-of-the-Art Review Article

Pronunciation

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This article is organised in five main sections. It begins by outlining the scope of pronunciation teaching and the role of pronunciation in our personal and social lives. The second section surveys the background to pronunciation teaching from its origins in the early twentieth century to the present day, and includes a discussion of pronunciation models and of the role of the first language (L1) in the acquisition of second language (L2) pronunciation. Then a third section explores recent research into a range of aspects involved in the process: the effects of L1 and L2 similarities and differences; the role of intelligibility, accent attitudes, identity and motivation; the part played by listening; and the place of pronunciation within discourse. This section concludes with a discussion of a number of controversies that have arisen from recent pronunciation research and of research into the potential for using computer-based technology in pronunciation teaching. The fourth section explores a range of socio-political issues that affect pronunciation teaching when the L2 is learnt as an international rather than a foreign language, and the fifth section moves on to consider the implications of all this for teaching.

1. Introduction

1.1 The scope of pronunciation teaching

Pronunciation involves the production and perception of segmentals (sounds), both alone and in the stream of speech, where they undergo a number of modifications and interact with suprasegmental (prosodic) features, particularly stress and intonation. Although all these aspects of pronunciation could be expected to appear on second language (L2) curricula, there are differences in the degree of importance attached to pronunciation teaching in different parts of the world. For example, for the past three decades, pronunciation in English Language Teaching (ELT) has tended to be marginalised in the UK and US, but to be regarded as critical in many parts of mainland Europe such as Austria and Russia. On the other hand, if somewhat curiously, pronunciation is widely accorded far more importance in the UK as far as the teaching of foreign languages other than English is concerned. One might well wonder why differences in attitude towards pronunciation teaching exist, when quite evidently it ought to be an important aspect within a teaching and learning context which is communicatively oriented (see Grotjahn's 1998 review of pronunciation teaching). Whatever the pedagogic orientation, however, pronunciation is universally considered to be a 'difficult' aspect of an L2 to teach and learn – and possibly *the* most difficult, for various reasons which will emerge below.

We would like to state that this article focuses unashamedly on English pronunciation, as this is the authors' area of expertise. This should not be taken to mean, however, that work on the pronunciation of other languages has either not been undertaken, or is less important.

1.2 The role of pronunciation

Whether or not pronunciation is accorded a major role in the L2 classroom, it plays a major role in our personal and social lives. On the one hand, at the affective level it is through the way we speak, and above all, by means of our accent, that we project our regional, social and ethnic identities. The latter are deeply-rooted, often from a very early age, and may prove subconsciously resistant to change even if on the surface, as language learners, we profess the desire to acquire a nativelike accent in our L2. On the other hand, our pronunciation is also a major factor in our intelligibility to our listeners. The

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pragmatics literature consistently emphasises the role of the interpretation of meaning in context in communication breakdown (see e.g., Thomas 1995). However, when a pronunciation feature impedes the intelligibility of a word, the likelihood – particularly in the case of a non-native listener, who tends to focus on the acoustic signal rather than use contextual cues to resolve ambiguity – is that communication will fail even before pragmatic factors enter the equation (cf. Jenkins, 2000: 80–83). Pronunciation, then, plays a vital role in successful communication both productively and receptively. One of the main problems for L2 learners, however, is that pronunciation tends to operate at a subconscious level, particularly with regard to suprasegmental features, and so is often not easily amenable to manipulation.

2. The background

2.1 Origins of interest in phonology/ phonetics and pronunciation teaching

Pronunciation has a long and distinguished history in second language teaching. For, as Seidlhofer (2001: 56) points out, it "stood at the very beginning of language teaching methodology as a principled, theoretically-founded discipline, originating with the late-nineteenth-century Reform Movement". The Reform Movement brought together phoneticians interested in the teaching of pronunciation from a number of European countries and resulted in the establishment of pronunciation as a major concern of second language instruction lasting well into the second half of the twentieth century, even in the teaching of English (see Collins and Mees, 1999; Howatt, 2004). Their collaboration also led to the founding of the International Phonetic Association and the development of the International Phonetic Alphabet (IPA), capable of representing the full inventory of sounds of all known languages. The pervasiveness of the IPA in pronunciation teaching and research is attested by the fact that, over a hundred years later, it is still the universally acknowledged system of phonetic transcription.

Although pronunciation teaching suffered a setback with the advent of Communicative Language Teaching in the later twentieth century, especially in the teaching of English, the basic principles of the Reform Movement, such as the prioritising of the spoken language over the written, were never altogether lost. And in more recent years, pronunciation specialists have devised ways of incorporating the teaching of pronunciation within a communicative framework, by moving away from the drilling of discrete language items to communicative activities in which pronunciation contributes to the meaning in context. This in turn has led to a much greater interest in the teaching of suprasegmental aspects of pronunciation than existed in the earlier years, itself underpinned by copious research into the communicative role of pronunciation (see, for example, Morley (ed.), 1994; Wennerstrom, 2001; and the discussion of pronunciation within a communicative-discourse paradigm in Section 3.5 below).

2.2 Pronunciation models in research and teaching

Pronunciation is a matter which needs to be addressed in the teaching of all languages, as clearly there is little point in learning a (living) language if one does not mean to communicate with other speakers of that language. However, the main body of literature in this area is on teaching English pronunciation. This is probably unsurprising given the status of English world-wide. This article focuses on teaching and research in the area of English pronunciation, but many of the issues and concerns which are raised here can be applied to pronunciation in other languages.

When English pronunciation teaching takes place in institutions all over the world, the models adopted are generally derived from what are referred to here as older varieties of English (OVEs), these being for the most part British and American English. These accents are comprehensively described in pronouncing dictionaries (see Roach et al., 2003; Upton et al., 2001; Wells, 2000) and books on English phonetics and phonology (see, e.g., Roach, 2000; Kreidler, 2004) – although some more recently conceived texts do include other Englishes (see, e.g. Collins & Mees, 2003; Deterding & Poedjosoedarmo, 1998; McMahon, 2002) – and materials are copious and readily available. Countries such as Japan, Taiwan, the Philippines and those in South America tend to use American English as a model, whereas British English is found in former colonies and protectorates, such as Hong Kong, India and certain African countries, and also in Europe.

This approach to the selection of a model is intuitive rather than empirical, and can be based on sociocultural or market-driven choices. OVEs are regarded as 'proper English', and any local variety is simply not good enough. An example of this way of thinking can be seen in the case of India; although Indian English is a recognised nativised variety of English (NVE), many Indian speakers of English aspire towards Received Pronunciation (RP), rather than treating Indian English as a valid model in its own right (see section 3.3).

For British English, the main and, it must be said, exhaustively comprehensive reference is *Gimson's pronunciation of English* (2001, Arnold), edited by Cruttenden, currently in its 6th edition and regularly updated. Although some writers believe the term to be outdated (see, for example, Roach, 2000: 3), Cruttenden continues to use RP for the prestige accent of English, noting that this term is "the result of a social judgement rather than an official decision as to what is 'correct' or 'wrong'" (2001: 79). He goes

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on to say, however, that innovation in RP "tends to be stigmatised" (2001: 79), and it must be said that deviation from RP norms among announcers on the BBC can still cause consternation among some British (and overseas) listeners, to the extent of letters of complaint appearing in the British press. While the term RP can bring to mind a radio announcer from the early 20th Century, Cruttenden gives examples of changes and recent innovations in RP, and also mentions features of 'Estuary English' as having an influence, such as vocalisation of 'dark l' in e.g. *milk*, and use of a glottal stop to replace a /t/ before an accented vowel or a pause in e.g. *not always*. It should be noted that 'Estuary English' does not describe any one single accent of British English, but is rather an umbrella term covering many accents spoken in the south-east of England which share some features of pronunciation, such as those mentioned above (see Przedlacka, 1999). For American English, Kreidler (1989) provides a clear description, although it does not provide detail at the level of Cruttenden (2001), and is rather more akin to Roach (2000).

In the classroom, the teacher is certainly the main influence on learners. Classes taking place in monolingual situations will generally have a non-native speaker (NNS) teacher, and that teacher's pronunciation will act as a model for students. Some countries, such as Hong Kong, operate schemes to employ teachers from OVE backgrounds in order to provide an OVE model. The strong form of the argument for use of models based on OVEs goes something like this: surely speakers need to have a common pronunciation in order to be able to understand one another? Monolingual teaching situations which involve a NNS teacher would seem to lead to chaos rather than mutual intelligibility. However, writers on the subject in recent years can be seen to take a more flexible approach. Roach (1994), for example, in an address to tertiary teachers in Singapore, a community of speakers with a recognised NVE, suggests that students will need to learn a variety which is more intelligible to other speakers of English as well as using the local variety, but does not recommend strict adherence to an OVE model. Taylor (1991), stressing that intelligibility is interactional in nature, suggests "teaching to a transcription rather than a particular model" (Taylor, 1991: 433), where the transcription represents any viable accent, and acts as a guide to the necessary contrasts. Barrera-Pardo & López-Soto (2003) are more concerned with a mismatch between the model learners are exposed to in the real world and that which is the focus of instruction, insisting that, if a model has to be adopted, it should at the very least reflect that which is closest to the "real language" the learners are going to hear outside the classroom (Barrera-Pardo & López-Soto, 2003: 2839).

In research, NNS English is usually compared with OVEs, such as in Setter (2003), Pickering (2002), Low et al. (2000) and Tajima et al. (1997). Similarly, native speakers (NSs) are very often the listeners in tests of intelligibility (see, for example, Anderson-Hsieh et al., 1992; Tajima et al., 1997), although studies which look at the opposite do exist, for example Derwing & Munro (2001), Derwing et al. (2002), which look at how intelligible NSs are to NNSs. It is, of course, necessary to have a point of reference for such studies, but in future it may be the case that comparisons are made between accents/varieties of English which do not involve OVEs at all. If intelligibility between NSs and NNSs is a source of data for researchers, intelligibility in English between NNS groups would seem to provide endless possibilities for research, and could lead to the development of teaching materials which are geared towards particular English communication situations – between Hong Kong and Japanese speakers of English, perhaps. The scope for study, then, is almost infinite.

2.3 The role of L1 – transfer and interlanguage

It was once thought that a straightforward comparison of the features of a learner's L1 with L2, a target language, would uncover all the mysteries of what was difficult in L2, and also what should be straightforward. This method of comparison, known as Contrastive Analysis, has some validity for pronunciation, where the total inventory of sounds available to a speaker in L1 is sure to have a bearing. But it is not enough to do a simple comparison of which sounds constitute phonemes in each language and whether or not they occur in both to predict what a learner will or will not be able to pronounce. The syllable is a unit of immense importance in L1, and the positions in which sounds occur in syllables must be taken into account; although the Contrastive Analysis Hypothesis may have addressed it, this is often not picked up by teachers when considering pronunciation difficulties. Many Chinese languages, for example, allow only a vowel or a nasal consonant at the end of a syllable, and so the non-nasal single consonants and consonant clusters which can occur at the end of English syllables in words such as *please*, *crisps* and *films* present a difficulty for learners, even if the sound(s) appear in syllable initial position in their language(s).

In a development of the notion that a contrastive analysis will not account for all learner differences and difficulties, Corder (1971) and Selinker (1972) proposed that L2 be regarded as a distinct system, an interlanguage. This, together with the idea of L1 interference on L2 – where features of the L1 play a part on the successful acquisition of elements of the L2 – has given rise to many studies of interlanguage phonology and the role of L1 in pronunciation. In 1987, Tarone lamented the dearth of studies into the

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phonology of interlanguage (Tarone, 1987: 70) – a reflection, perhaps, of the lack of materials specifically geared towards pronunciation teaching at that stage – but this has been rectified in recent years. The *New Sounds* conferences, organised by Allan James of the University of Klagenfurt and Jonathan Leather of the University of Amsterdam, attract researchers into interlanguage from all over the world (see for example Leather & James, 1997; James & Leather, 2002). New theories in how interlanguages work are being developed all the time.

Major, for example, has developed what he calls the Ontogeny Model (see, for example, Major, 1987a, 1987b, 1997, 2002), in which he argues for "an interrelationship of interference and developmental factors" in L2 phonological acquisition (Major, 1987a: 102). Major shows how interference is more prevalent in initial stages of phonological acquisition, where a learner copes by using a similar L1 phoneme, but this interference slowly decreases over time, to be overtaken by developmental factors as learning takes place. These developmental processes are more akin to native speaker L1 phonological acquisition processes as the learner becomes more proficient (and presumably has sufficient NS input).

Looking at interlanguage from the aspect of parameter setting, a notion used in the framework of generative phonological acquisition, Archibald examines the acquisition of what he calls "new knowledge" (2002: 11). His findings suggest that learners are actually able to "alter their L1 representations on the basis of the L2 input" (Archibald, 2002: 20); that is, parameters which are set for L1 can be altered if learning of L2 processes take place, rather than a speaker setting up a whole new set of parameters for the phonology of L2. This is clearly a necessity if learners are to break out of the phonology of their L1 and pronounce L2 with any accuracy.

Flege, a prolific writer on the subject of interlanguage phonology, is most well known for his work on the effect of age on the acquisition of segments, most specifically vowels, in an L2. For some recent co-authored studies, see Tsukada et al., 2003 and Aoyama et al., 2003. Flege (1995) developed the Speech Learning Model (SLM), which "leads to the expectation that subtle differences will exist between vowels produced by early bilinguals and L2 monolinguals" (Flege, 2002: 132). Flege asserts that sounds in the L1 and L2 systems of a bilingual speaker share what he calls a "common phonological space" (Flege, 2002: 132), and it is suggested that they will likely influence and interact with each other. This sits well with Archibald's position (see above). Probably unsurprisingly, Flege's studies show that early bilinguals are judged to have more L2-like vowels than late bilinguals, but still "can not be expected to perform like 'perfect' bilinguals" (Flege, 2002: 140), i.e., have a production which is identical to a NS of the target L2.

3. Recent research into L2 pronunciation acquisition

3.1 L1 and L2: similarities and differences

From a research point of view, there has been quite a lot of interest in the acquisition of L1 consonants among English speaking children, but little, by comparison, on vowels. The earliest consonant sounds that English L1 children tend to acquire are the plosives, nasals and fricatives /p b t d k g m n h s/ and also approximants /j/ and /w/, with the approximants described as liquids, /l r/, the remaining fricatives /f v θ ð z ʃ ʒ/ and affricates /ʧ ʤ/ being acquired later, together with consonant clusters. Syllables tend to be CV to start with, and partially or fully reduplicated – for example, *mama* or *babi* – and slowly take on adult characteristics, with patterns such as voicing of consonants in syllable initial position and devoicing of those in syllable final position (so *dog* would sound like *dock* and *cat* like *gat*), and simplification of consonant clusters (*play* might sound like *pay* and *stop* like *dop*), being common. Intonation patterns are, interestingly, distinguishable between very small babies from different L1 backgrounds. So, what, if any, similarities are there between L1 and L2 phonological acquisition?

Carlisle (2001: 2) tells us that the CV syllable is recognised as an "absolute universal in the languages of the world", and so it is logical that a child will start with syllables such as *mama* or *babi*. From the perspective of complex syllable onsets and codas, or consonant clusters at the beginning or end of a syllable, those which adhere to the Sonority Sequencing Principle (SSP) (Clements, 1990) are preferred, with the hierarchy as follows: vowels are most sonorant, followed by glides (for English, /j w/), liquids (/l r/), nasals (/m n ŋ/), fricatives (/f v θ ð s z ʃ ʒ h/), and finally plosives (/p b t d k g/). Voiced sounds are considered to be more sonorant than voiceless ones. This means that a syllable beginning *pl-* (e.g. play) is more preferred to one which begins *st-* (e.g. *stop*), and may explain why NS children retain the first sound in *play* but the second in *stop*; if Universal Grammar is activated, *st-* is dispreferred. English allows a large number of complex syllables, with up to three consonants allowed in initial position and four in final position; s-clusters (clusters beginning with /s/) in particular do not adhere to the SSP. In fact, these clusters, called "reversals", are considered to be a serious departure from the SSP (Carlisle, 2001: 5).

So, how does this relate to L1 and L2 acquisition? Carlisle's (2001) survey of studies on interlanguage and syllable structure universals comes to the conclusion that L1 transfer is, in fact, a stronger influence on the pronunciation of an L2 than the preference for CV syllables, from which one can deduce that patterns of phonological acquisition of L2 are far removed from those of L1 due to the incontrovertible effect of L1 phonology. However,

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where the L2 phonology is dissimilar to that of L1, it is not impossible that a sequence of acquisition similar to that of L1 takes place – if it ever does. Major's Ontogeny Model (see above) gives us an indication that this can happen under suitable learning circumstances; see Major (1999) specifically on consonant clusters, and also Hansen (2001) for a discussion of linguistic constraints, including sonority, on the acquisition of various final consonant combinations among Chinese speakers of English. Peng & Setter (2000) find a systematic alternation in the deletion of alveolar plosives in consonant clusters in English spoken in Hong Kong which is not unlike patterns found in L1 English speakers.

Another matter which features in L1 acquisition is the Critical Period Hypothesis (CPH), originally put forward by Lenneberg (1967). Lenneberg's initial suggestion was that, pre-puberty, it is easier to learn a language, but following puberty the brain "behaves as if it had become set in its ways" (Lenneberg, 1967: 158), and language learning is much more difficult. This was attributed to hemispheric specialisation for language functions, which was thought to have taken place by puberty, and is a popular excuse for why it is difficult for L1 English speakers to learn foreign languages at school. See also Celce-Murcia et al. (1996: 15–16). Although the strong form has been discredited for a number of years, the CPH might explain Flege's findings (see above) that those who learn an L2 at an earlier age have a more native-like pronunciation. Flege, however, in an early paper, finds the CPH counter-productive for research into L2 phonology, and concludes that it cannot and should not account for the differences between adult-child performance, as many other factors play a part (Flege, 1987: 174). Hiding behind the CPH, says Flege, means that important questions that need to be asked about individual L2 learners may not be asked. In Flege et al. (1999), both the pronunciation and grammatical structures among Korean L2 speakers of English are examined, and correlated with their age of arrival (AOA) in the United States. It is found that pronunciation is indeed more native-like as participants' AOAs decreased; this is attributed to the possible influence of brain maturation, but is more likely, say Flege et al., due to "changes in how the L1 and L2 phonological systems interact as the L1 system develops" (1999: 101). Again, this echoes Major's Ontogeny Model (above).

3.2 Research into intelligibility

As mentioned in section 2.2 above, much of the research into intelligibility has involved testing whether NNSs are intelligible to NSs, the (rather arrogant?) premise being, one assumes, that NNSs are learning English principally in order to communicate with NSs. Research of this kind includes work by Tajima et al. (1997), Magen (1998), Nelson (1992), Tyler (1995), Benrabah (1997), Anderson-Hsieh et al. (1992), Grosjean & Gee (1987), Munro & Derwing (1995a, 1995b, 1998), Major et al. (2002), Bürki-Cohen et al. (2001), to name but a few. The impact of this research has been to show that it is, in fact, deviance in the pronunciation of suprasegmentals which causes the most difficulty for NSs listeners.

A relatively new approach to the intelligibility of pronunciation concerns interaction between NNSs. Here, by definition, the premise cannot be that the second language is being learned for communication with its NSs or that intelligibility for and of a NS listener is paramount. Nor can it be assumed that pronunciation deviance will have the same effect in NNS-NNS interaction as it does in NS-NNS communication. So far the research in this area has investigated only English, and here the findings are that segmentals have a far greater role in English as an International Language than they do in English as a Foreign Language (see Section 4 below for further discussion).

3.3 Research into attitude, motivation and identity

While much of the research into pronunciation focuses on linguistic factors, there is a growing interest in socio-psychological influences: the role played by identity, attitudes and motivation in learners' selection of pronunciation models and goals, and in their ultimate achievement in relation to their choices.

Pronunciation seems to be particularly bound up with identity. Our accents are an expression of who we are or aspire to be, of how we want to be seen by others, of the social communities with which we identify or seek membership, and of whom we admire or ostracise. At the same time, and sometimes in spite of the latter, our accents are also likely to indicate a strong, if for some people a subconscious, attachment to our mother tongue, which Daniels (1997: 82) describes as "a sort of umbilical cord which ties us to our mother". He argues that "whenever we speak an L2 we cut that cord, perhaps unconsciously afraid of not being able to find it and tie it up again when we revert to L1" and observes that "a possible way of avoiding the cut is to continue using the sounds, the rhythms and the intonation of our mother tongue while pretending to speak L2". Acquiring an L2 accent, then, may be felt by learners whether consciously or subconsciously to involve the development of a new ego and as such, be resisted because of individual and/or social pressures.

Pronunciation attitudes play an important part in determining learning choices and outcomes. Cenoz and Garcia Lecumberri (1999) show how the perceived difficulty of some NS English accents cause learners to develop less favourable attitudes towards these accents. Jarvella et al. (2001) demonstrate that

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Danish learners of English are able to distinguish between different NS English accents and that they rate them differently in terms of attractiveness, with English-English accents generally being rated as most attractive and American-English as least. Dalton-Puffer et al. (1997) also find that English-English (in this case RP) is the most highly evaluated accent by Austrian learners, with near-RP their second choice, and American-English (GA) their third choice, while the two non-native (Austrian) accents are evaluated as having very low status. Of the latter two, the one rated as by far the least attractive is the accent most often heard in Austria and that spoken by the subjects themselves. Smit and Dalton (2000) likewise find that Austrian learners prefer to aim for an NS accent, while Smit (2002) adds a further dimension to the complex equation, that of linguistic insecurity. Her findings may help account for learners' aspiration for an NS accent and yet their failure to acquire one: their feelings of inadequacy pronunciation-wise. Common to the majority of the accent attitude research, then, is the subjects' professed desire to acquire a prestige NS accent rather than a local or internationally acceptable accent, even though such is rarely the learning outcome.

Pronunciation, it seems, is a more sensitive area of language than the other linguistic levels because of the way in which it encroaches on identity and elicits strong attitudes. This in turn may go some way to explain why, despite a professed desire to sound 'nativelike', the aspiration is rarely achieved by L2 learners. The socio-psychological research (as well as the sociolinguistic research in relation to international languages: see Section 4 below) indicates that pronunciation teachers would do well to replace the notion of absolute 'correctness' with one of appropriateness (see Seidlhofer, 2001: 57–60). In this respect, the prevailing concept of 'accent reduction', with its tendency to treat L2 learners as though they are subjects for speech pathology and to encourage them to lose all traces of their L1 accent, is being questioned by those working on the acquisition of international languages, most notably English as an International Language (EIL). The concept of 'accent addition', that is, the adding of L2 pronunciation features to learners' repertoires in accordance with their needs and preferences is, instead, being promoted as one more in keeping with current theories of bilingualism (additive rather than subtractive) and of learner autonomy. Jenkins (2000: 209–210), for example, proposes five stages of pronunciation learning, each one involving the addition to learners' repertoires if they so desire:

- addition of EIL core items (see Section 4) productively and receptively
- addition of a range of NNS English accents to the learner's receptive repertoire
- addition of accommodation skills
- addition of non-core items to the learner's receptive repertoire
- addition of a range of NS English accents to the learner's receptive repertoire.

Those learners who wish to preserve their L1 identity in their L2 but be understood by and understand other NNSs will probably choose as their goal the first three stages. On the other hand, those who want also to be able to understand NSs' pronunciation will probably aim for all five stages. Whatever their decision, however, there is no requirement for learners to lose their L1 accent and, by implication, their L1 identity.

This all calls into question the traditional distinction between the instrumental and integrative motivation of Schumann's acculturation model (see Schumann 1986). Dörnyei and Csizér (2002: 453), for example, argue that "World English is turning into an increasingly international language and it is therefore rapidly losing its national cultural base while becoming associated with a global culture". This, they believe, "undermines the traditional definition of integrativeness as it is not clear any more who the 'L2 speakers' or the members of the L2 community are". For L2 English pronunciation (and the same will undoubtedly be true of any subsequent international languages that supersede English), motivation is no longer a straightforward concept involving the learner's orientation to the accent of the language's native speaker community. Instead, as Dörnyei and Csizér imply, it has been complicated by a host of factors relating to the new international context of communication. Much more research is needed to clarify the situation and, in particular, the factors influencing the ambivalent pronunciation attitudes of learners of international languages, which Bamgbọṣe (1998: 7) describes in respect of English accents as "a love-hate relationship", in the sense that "one does not wish to sound like a native speaker but still finds the accent fascinating".

3.4 Research into listening

Listening is, to some extent, the flip-side of pronunciation. The extent to which one affects the other cannot be underestimated; one needs to be able to hear a phonemic contrast before one can successfully produce it, for example.

Field advocates a "signal-based approach" (2003: 332) to listening which involves using bottom-up processing in listening activities, rather than assuming enough information can be gained from context. Drawing learners' attention to possible problems such as cross-boundary segmentation, the identification of weak forms and assimilation in NS speech, Field addresses an area which is very often neglected in either listening or pronunciation teaching. Learners, particularly in initial stages, find sounds more

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concrete than higher level units (like phrases or sentences), and tend to be persuaded by their own first parse of an utterance, which can result in miscommunication at the global level, and so this approach seems to be highly sensible. Wilson (2003) also advocates a bottom-up approach, and suggests some practical, student-centred activities to improve listening.

Cauldwell (2002b) looks at suprasegmental aspects of listening. He introduces something he calls the "word-crusher", a double-prominence tone unit in which words between the first and last stressed items are "crushed", or temporally pushed together. In this paper, Cauldwell sees English as messy, and suggests activities in which students can practice the blurring of words in the word-crusher. By understanding how this works in English, processes of connected speech can be better modelled by the learner, and therefore messages better perceived. In another article on listening, Cauldwell (2002–2003) suggests that more attention needs to be placed on understanding fast speech, and that teachers need to be equipped with the ability and terminology to describe it effectively to learners. For this purpose, a teacher or teacher educator could certainly do a lot worse than investing in a copy of Shockey's *Sound patterns of spoken English* (2003), which is a fully comprehensive guide to connected speech processes in English.

In another study on suprasegmental issues, Erickson et al. (1999) show that Japanese listeners have difficulty perceiving and counting syllables in English, and attribute this to negative language transfer at the suprasegmental level, and also, in part, to the fact that English words are written down using Japanese katakana, which represents English words in terms of the Japanese unit of timing, the mora. Strategies for learning how to predict the number of syllables in an English word are surely implicated.

The above activities are aimed at enabling NNSs to decode NS speech. Imai et al. (2003) look at the responses of both Spanish and English speakers of English, presented with English single-word stimuli in noise, some of which are Spanish accented and some not. The English NS group performed best overall; interestingly, the Spanish listeners performed better perceiving unaccented speech than Spanish accented speech, but better than the native English speakers in perceiving Spanish accented speech. Major et al. (2002) looked at what happened when listeners from many different language backgrounds were asked comprehension questions based on lectures given in English by NS and NNS. It was found that all groups scored badly when listening to lectures given by NNS, Spanish speakers did much better when listening to L1 Spanish speakers and Chinese speakers did much worse when listening to L1 Chinese speakers. It is suggested that using NNS speech in listening comprehension tests may well disadvantage listeners from different L1 backgrounds, or create a bias where the listener and speaker are both from the same L1 background. Clearly, there needs to be more work in the classroom on developing strategies for listening to Englishes other than those one might be most likely to come across, although the practicalities of doing so might be problematic.

In an experiment to find which speaking rates were preferred by NNS listeners, Derwing & Munro (2001) use Mandarin and "mixed" groups of L2 English speakers to rate the speed of spoken narratives on a scale ranging from "too fast" to "too slow". English speech produced by NS and Mandarin NNS was presented in its original format, and also in computer modified temporal formats, including an adjustment to the Mean Mandarin rate and Mean English rate. They found that slowing down the speech did not generally lead to better evaluations of preference amongst listeners from any of the groups, but that the preference among the non-Mandarin speakers was for slightly slower Mandarin-accented English. They conclude that asking learners to "slow down" may not actually be beneficial.

3.5 Pronunciation research within a communicative-discourse paradigm

Discourse intonation research began more than three decades ago with Halliday and the Prague School (see Halliday, 1970). Since then, the main focus has been on English, most notably the pioneering work of Brazil and his colleagues at the University of Birmingham, although there has also been research into discourse intonation involving other languages, such as Moyer (1999) on German. Brazil's research was published posthumously (Brazil, 1997) by his colleagues, although it had earlier (1985) been published as a Birmingham University monograph as publishers had not at that time appreciated the significance of Brazil's contribution to the understanding of the relationship between intonation and grammatical meaning on the one hand or the expression of attitude on the other. For more recent publications on discourse intonation see Wichman (2000), and Chun (2002) specifically on discourse intonation in L2.

Discourse intonation is an empirically-based model which is concerned with the communicative function of intonation rather than the grammatical and attitudinal functions which are to this day the concerns of traditional models. Its primary interests are firstly the establishing of social meanings and roles through the assignment of prominence, key and tone choice (with a falling, or 'proclaiming', tone for non-shared and a fall-rise, or 'referring' tone for shared information), and secondly the intonational mechanisms for controlling conversation, such as turn-taking and introducing/concluding topics. The model thus provides teachers and researchers with a means of analysing speakers' intonation choices in

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authentic speech in a way that traditional models, based on invented examples and intuition, cannot.

Nevertheless, discourse intonation is only now beginning to be widely taken up in language teaching. This is to some extent because the earliest teaching materials to embrace the model (e.g. Bradford, 1988; Brazil, Coulthard & Johns, 1980) tended to apply the model in its entirety for productive use. While analysis and interpretation of intonation choices after the event was found to be a useful activity, the assessment of shared/non-shared status and consequent assigning of tone proved too subconscious and too fleeting to be conducive to teaching for production. More recent materials (e.g. Bowler & Cunningham, 1999; Hancock, 2003; Gilbert, 2001; Levis, 2001), perhaps for this reason, focus for production more on prominence, where it is easier to apply the 'rules' at a conscious level, and less on tone assignment, which they tend to treat at a receptive level except in relation to conversation management where, again, productive 'rules' are more amenable to conscious manipulation. Wennerstrom (2001, 2003) emphasises the need to provide learners with authentic conversation data which they can work on at an analytical level, in effect, becoming discourse analysts, before they move on to develop their discourse intonation productive skills.

Pronunciation has also begun to be taught from a discourse perspective within the lexical approach, an approach which advocates the teaching of vocabulary and grammar in lexical phrases rather than as a series of discrete items (see e.g. Nattinger & DeCarrico, 1992). The potential for the teaching of discourse intonation within the lexical approach was first explained in detail by Seidlhofer & Dalton-Puffer (1995). Subsequently the idea has been taken up in numerous teaching materials with lexical phrases being taught complete with their intonation contours and tone units being introduced by means of the lexical phrase.

3.6 Controversies in L2 pronunciation research

English speech rhythm is often described as 'stress-timed'; in basic terms, this means that the beginning of each stressed syllable is said to be equidistant in time from the beginning of the next stressed syllable. This is in comparison to 'syllable-timed' languages (e.g., Spanish, Cantonese), in which the start of each individual syllable is said to be equidistant in time from the start of the next. Instrumental studies have, in fact, shown that very little difference can be found between typically 'stress-timed' and typically 'syllable-timed' languages. Roach (1982) and Dauer (1983), for example, investigated so-called stress- and syllable-timed rhythm; both found that the theory fell down when tested empirically. Cauldwell (2002a) finds English speech rhythm to be "irrhythmical".

This research, however, has had very little impact on pronunciation teaching materials. On the whole, many teachers still believe in stress-timing. But this may not be a complete misnomer. Although it has been proven that the difference between stress- and syllable-timing does not have much basis in reality from a speech *production* point of view, there is evidence to show that it is important for speech *perception*, particularly among speakers of what may be considered OVEs, such as British and American English. Cutler (1993), in an article which discusses the speech segmentation problem in different languages, asserts that rhythm based on word stress is a key factor in English speech segmentation. For French listeners, however, the syllable is more salient in speech segmentation, and for Japanese listeners, it is the mora. Speakers of different languages use that language's approach to linguistic rhythm in order to segment a stream of speech from another language, with, for example, French speakers using the syllable to segment Japanese and English. The fact that speakers segment a stream of speech differently, using different, language specific rhythmic rules to do so, is attributed to how we acquire language as infants, the suggestion being that the "characteristic rhythmic pattern of a language is sufficiently salient to assist the newborn child in segmenting the continuous speech stream into discrete units" (Cutler, 1993: 455). It appears to be the case that, once we have acquired a particular approach as infants, it stays with us as a strategy for parsing the speech signal; studies of what are referred to as "maximally competent French-English bilinguals" show that they seem only to have "one rhythmic segmentation procedure available to them" (Cutler, 1993: 455).

It is asserted that the appropriate production of stressed syllables is, therefore, of a high degree of importance in the effective communication of messages in English among speakers of OVEs, and for some researchers this importance cannot be overemphasised in learner situations. If, as Adams (1979: 87) suggests, learners "fail to recognise the significance of the timing of syllables" when producing utterances in English, and instead "produce an anomalous rhythm which seriously impairs the total intelligibility of their utterance", both parties to the act of communication will be at a loss to explain what has happened and what was intended. In short, the communicative transaction will not be successful. This is a matter which has not eluded researchers, materials writers and teachers (see, for example, Anderson-Hsieh et al., 1992; Anderson-Hsieh & Venkatagiri, 1994; Chela-Flores, 1998; Gilbert, 1984; Taylor, 1981; Wong, 1987), but, claim Anderson-Hsieh & Venkatagiri (1994), it is something which has, until recently, been somewhat under-investigated. Taylor comments that "perhaps the most widely encountered difficulty among foreign learners of English is rhythm" (1981: 219), a sentiment echoed by Anderson-Hsieh (1992:

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51) when she claims that "suprasegmentals often elude ESL students".

The difficulty experienced by NNSs of English in acquiring English speech rhythm can therefore be considered to have implications for intelligibility. This is especially so in the light of studies like the one by Anderson-Hsieh et al. (1994), which asserts that prosody is the most critical feature in English pronunciation (1994: 531), and that of Magen (1998). These two studies, both of which use English-speaking raters to assess the pronunciation performance and intelligibility of the subjects in such areas as segmentals, syllable structure, vowel quantity and voicing, provide us with firm evidence that prosodic and suprasegmental features have a consistently high influence on the intelligibility of a non-native speaker's pronunciation.

So what does happen in other Englishes? Looking at a variety from South East Asia, Low et al. (2000) study the temporal features of Singapore English. Vowel quality and vowel duration in Singapore English is compared with that of British English using a measure especially developed by the authors, the 'Pairwise Variability Index' or PVI. Their data show that Singapore English speakers fail to reduce vowels in weak syllables to the same extent that British English speakers do, a phenomenon also found in the English of Hong Kong speakers by Setter (2000, 2003). This can be expected to contribute to the rhythmic differences between British English and the varieties studied, with the implication that both Singapore and Hong Kong English will be difficult for speakers of British English to understand. Although this is speculation as far as these two studies are concerned, various psychological studies of speech perception demonstrate that deviations from what may be considered normal English stress patterns can indeed cause difficulty in the correct parsing of a message. Cutler (1984) points out that, in English, "word stress patterns are an integral part of the phonological representations of words in the mental lexicon" (1984: 78), a statement which has far-reaching implications for English speech perception and production. What this means is that the listener has a model of any given lexical item held in the mental lexicon; that model includes its stress pattern. For the listener's correct retrieval of a particular item during the process of speech perception, something which comes rather close to approximating that model must be produced by the speaker. If, as Cutler (1984: 79) asserts, native English speakers draw "heavily on information about stress pattern" as a normal and efficient way of understanding speech, it is crucial that this close approximation to the model has correct stressing. If this is not achieved, the listener will at the very best have difficulty reconstructing the message, or, at worst, not understand it at all.

In a more recent work, Cutler & Norris (1988) investigate the importance of strong syllables in the parsing of English. They suggest that lexical access is initiated by the occurrence of a stressed syllable, and claim that the high frequency of English content words starting with a stressed syllable means that this strategy would work very well in English. The importance of stressed syllables in spoken word recognition is also supported by Grosjean and Gee, who claim that "stressed syllables (and only they) are used to initiate lexical search" (Grosjean & Gee, 1987: 144). They do not, however, offer much in the way of empirical evidence.

In fact, if the stressed syllables in a stream of English speech are incorrectly placed, native speakers may process the message as something completely different. Cutler (1984) gives the following as an example: "[. . .] a hearer who heard the word 'perfectionist' stressed on the first syllable, with the second syllable reduced, parsed it as 'perfect shnist', and only became aware of the error when no meaning could be given to 'shnist'"(Cutler, 1984: 79). Cutler (1984) also cites and old study by Bansal (1966), who presented listeners with English spoken by Indian speakers. It was found that, if words with an initial stress were produced with second syllable stress, 'atmosphere' was heard as 'must fear', 'yesterday' as 'or study', 'character' as 'director', and 'written' as 'retain', and when two-syllable words with stress on the second syllable were uttered with initial stress, hearers perceived 'prefer' as 'fearful', 'correct' as 'carried', and 'about' as 'come out' (Cutler, 1984: 79–80).

Although the above work is on word stress and not speech rhythm in longer stretches of speech, the point is clearly this: if the normally strong syllables are weakened and the weak syllables strengthened, the intelligibility is lost, or at least severely impaired. This strongly advocates the use of conventional patterns of English speech rhythm as an essential factor in the correct parsing of messages in NNS-NS interactions. In order to test the difference made in ease of perception among NNSs and NSs, Tajima et al. (1997) recorded phrases spoken in English by a native American English speaker and a Mandarin Chinese/Taiwanese speaker of English, and acoustically manipulated each according to the other's rhythmic patterns to see whether this had any affect on intelligibility. It was found that the intelligibility of the Chinese speaker's speech among NSs of American English improved by between 15% and 25% compared with unaltered speech, and that the American English speaker's speech became less intelligible by similar proportions. This leads them to conclude that "native listeners' ability to recognise English phrases is significantly influenced by whether or not the phrases have appropriate native-like temporal properties" (Tajima et al., 1997: 17).

Research on perception of stress and rhythm notwithstanding, Cauldwell, in a version of his 1996 article published on the web, concludes "The

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continued presence of the refuted hypothesis, that has become hard-wired into our thinking, is an obstacle to progress in understanding the nature of spontaneous speech: long-refuted, it should be now discarded. Life without the stress and syllable-timing hypothesis will be more difficult, but it should make possible real advances in the understanding of spontaneous speech" (Cauldwell, 2002a: 22). This conclusion is based on his own research, and, taking that and the findings of Roach (1982) and Dauer (1983) into account, he certainly has a point. But although the influence of research into the reality of the production of stress- and syllable-timed languages is growing, it would not be sensible to throw the baby out with the bathwater and fail to focus on the importance of appropriate stressing in order to make messages clear. Many teachers and especially teacher educators now qualify the claim by referring to stress timing as only a tendency and as occurring mainly in more formal speech. Marks (1999: 198) argues, meanwhile, that the use of rhythmical structures such as rhymes in the classroom is valid in so far as it "provides a convenient framework for the perception and production of a number of characteristic features of English pronunciation which are often found to be problematic for learners: stress/unstress (and therefore the basis for intonation), vowel length, vowel reduction, elision, compression, pause (between adjacent stresses)". This is a sensible recommendation that is likely to continue finding favour with teachers long after they have abandoned any belief in the existence of stress timing.

Another controversial area, related to speech rhythm in that it concerns itself with suprasegmental aspects of pronunciation, and one in which technology is becoming invaluable in pronunciation teaching, is that of intonation. In particular, studies have been carried out on intonation in yes/no questions, which, conventional wisdom and the majority of teaching materials tell us, always have a rising intonation. Both Levis (1999) in respect of American English and Cauldwell (1999) in respect of British English have arrived at similar conclusions about yes/no questions. Both constructed a corpus of naturally occurring speech samples from native speakers of the respective varieties of English (as opposed to the invented examples favoured by earlier pronunciation researchers) and analysed them for final pitch direction in yes/no questions. Neither researcher found that yes/no questions unilaterally have a rising tone. As yet, this finding has failed to have had much of an impact on materials writers, although an understanding of intonation in yes/no questions does seem to have filtered through to teachers and teacher educators. Thompson (1995), for example, suggests a simple binary approach, in which learners should be encouraged to use a rising tone if they are genuinely asking a question and a falling tone if they think they may know the answer, carrying on to say that "learners should be exposed to plenty of examples of yes/no questions" (Thompson, 1995: 240). Computer corpora recorded from naturally occurring speech could certainly be used to provide those examples in the development of listening activities.

3.7 Research into the potential for technology in pronunciation teaching

When one thinks of using computers in pronunciation teaching, the most obvious use is perhaps to focus on the identification and production of individual speech sounds, and this has indeed been the case. However, in recent years there has been a greater focus on suprasegmental aspects in materials produced for students to use on computer platforms, which clearly reflects the importance placed on these features in pronunciation teaching text books.

Programmes which deal specifically with segmental issues include SPECO, which combines advanced speech technology with user-friendly graphics to aid clinical remediation of children's speech pathologies. The programme has obvious applications in the field of L2 English pronunciation teaching (see Roach, 2002). PRAAT, an application developed for speech researchers by Paul Boersma and David Weenik of the University of Amsterdam, which has applications in speech analysis, synthesis, manipulation and labelling, among others, and offers a facility for phoneme identification and discrimination tests, has also been modified to teach vowel and diphthong production by means of formant plotting (see Brett, 2002). The PRAAT programme can be downloaded free of charge from www.praat.org.

Examples of this kind may lead to the conclusion that computers are making the teacher redundant, but this is an over simplistic view; at best programmes such as those described can only be used in conjunction with classroom teaching, and recent research urges us towards the careful evaluation of computer programmes for teaching pronunciation. PRAAT, for example, was designed to be used by serious speech researchers, and computer readouts of formant plots require a sophisticated level of understanding which may be lacking in many teachers and learners, or take too much classroom time to develop. Derwing et al. (2000) looked at popular automatic speech recognition (ASR) packages for ESL speech and found that they are still not able to perform as well as human listeners listening to non-native speech, concluding that "the possibilities for using ASR software in the L2 classroom are intriguing", but as yet still possibilities. Anderson-Hsieh (1992) points out that, useful though it may be, using electronic feedback "cannot carry out for students all the other work that goes into acquiring native-like speech", although it is useful as an awareness raising tool.

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The recent surge of interest in harnessing computers for teaching suprasegmentals has lead to the development of a number of programmes. Kaltenboeck, for example, has developed a CD-ROM for the teaching of intonation (see Kaltenboeck, 2002). Protea Textware have published three CD-ROMs focusing on connected speech in American English, Australian English and British English (see Westwood & Kaufmann, 2002). Cauldwell (2002c) has published a CD-ROM, *Streaming speech*, which deals with a range of aspects of British English pronunciation. The material on the CD-ROM is underpinned by extensive research, some snippets of which feature in pop-ups while the programme is running. For example, the section which deals with connected speech processes is informed by Shockey (2003), the section dealing with units of speech is based on the research of Brazil (1997), Halliday (1994) and Tench (1996), and that on the functions of level tone again links with Brazil (1997). The student is able to record him or herself speaking in some sections, and compare this with an English-speaking model. Fraser's (2001a) CD-ROM, *Learn to speak clearly in English*, is another which covers different aspects of English pronunciation. It starts by encouraging the student to think about communication in general, before moving on to sections on sentence stress and rhythm, the role of segmentals and suprasegmentals, and 'critical listening'. Again, students are able to record themselves and compare it with a speaker on the disk. For teachers, there is a companion disk (see Fraser, 2001b), which similarly makes uses of clever graphics and comparisons with other culture-specific ideas, like colour, to demonstrate how speakers of different languages categorise phonemes differently. Another interesting feature of the materials discussed in this paragraph is that they have clearly been designed with learner autonomy in mind; as Kaltenboeck (2002: 13) points out, this is particularly relevant to the acquisition of pronunciation. Students are encouraged to listen to themselves and think more about what makes a message clear, rather than focussing on the precise production of individual sounds. This may well make them more successful in producing effective communicators than the segmental speech recognition packages because of the shortcomings of the latter identified by Derwing et al. and Anderson-Hsieh (above). Although suprasegmental materials are still in their infancy, they point to an important teaching tool for the future, one which complements rather than supersedes written materials and classroom teachers.

Dictionaries are another area in which technology is coming to the fore. Many of the major publishers have started to issue CD-ROMs with their dictionaries, promoting learner autonomy in pronunciation acquisition. Fortunately, what is now available on disk is far superior to the stilted speech of the electronic 'talking' dictionaries which first became available in the late 80s/early 90s. The new CD-ROMs offer learners a range of features such as the opportunity to hear words in isolation and, in some cases, in connected speech. There is also the possibility of recording and listening to themselves in order to compare their own pronunciation with the dictionary version. The only pronouncing dictionary to currently be accompanied by a CD-ROM is the latest edition of *Daniel Jones' English pronouncing dictionary* (Roach et al., 2003), providing the learner with a copious amount of information about American and British English pronunciation. However, in the current format, only the British English pronunciation of words can be heard on the CD-ROM.

Another electronic medium which hardly requires an introduction is the internet. As with any materials, however, caution is advised; transcription systems in particular vary from site to site, and this may be a cause of confusion for students. British-based and influenced sites tend to have the most consistency in symbols used for individual phonemes, although slight variations do exist. Many sites focus on pronunciation without the use of phonetic symbols, and these may well be best for students, depending on their aims. There are sites which test and train English phonemic transcription (see Tench, 2002; Luscombe, 1996; Cooke et al., no date), allow you to listen and identify intonation contours (see Maidment, 2000a, 2000b and 2001) or work on minimal pairs (Kelly 2001), offer pronunciation tips (see Maidment, 1999), and work with both teachers and students on a variety of issues (see Fraser, 2000; Widmayer & Gray, 2002). Widmayer & Gray's site is particularly good value, directing teachers and learners to all sorts of resources, including sites with authentic materials. Here we have given references to but a few of the many sites available on-line. It has to be said that these are all basically listening sites, but, as listening and pronunciation go hand in hand, awareness-raising of the kind offered on these sites is an invaluable addition to pronunciation learning and teaching.

4. Socio-political issues

As was pointed out in section 3.2 above, the vast majority of pronunciation research and classroom teaching is grounded on the premise that learners need to understand and be understood by native speakers (NSs) of the language in question. However, for an increasing number of learners, most particularly in the case of English but also in the case of other languages such as Spanish, pronunciation training is needed in order to facilitate communication with other non-native speakers (NNSs) from different first languages. A distinction can therefore be made between a *foreign* language, where interaction typically takes place between a NS and a NNS, and an *international*

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language, where interaction is more typically between a NNS and another NNS.

As far as English is concerned, research into the learning of the language for international purposes, i.e. English as an International Language (EIL), has demonstrated not only the critical part played by pronunciation in maintaining successful communication between NNSs from different L1s, but also the ways in which the pronunciation priorities involved in EIL differ from those of EFL.

The main EIL research approach to have been adopted to date focuses on the role of pronunciation in promoting and obstructing intelligibility. Building on earlier research (Smith, 1992; Smith & Bisazza, 1982; Smith & Nelson, 1985; Smith & Rafiqzad, 1979) in which listeners from a range of L1s were asked to rate the comprehensibility of speakers from different L1s, Jenkins (2000, 2002) identifies a number of pronunciation features which appear to be crucial, or 'core', in safeguarding the intelligibility of pronunciation for NNS listeners who do not share the speaker's L1. Her Lingua Franca Core targets these core features: consonant sounds other than the voiceless and voiced dental fricatives \θ\ and \ð\ and dark 'l'; vowel quantity; word-initial and word-medial consonant clusters, with deletion being more problematic than epenthesis (addition); tonic stress. Meanwhile, the remaining features of NS English pronunciation (vowel length; features of connected speech such as assimilation, elision, weak forms; word stress; pitch direction) were found in the research to be unnecessary for intelligibility in EIL communication contexts and are therefore designated 'non-core'. Jenkins argues that in cases where these non-core features are affected by transfer from the NNS's first language, the resulting forms should be described as regional (L2) sociolinguistic variation rather than pronunciation 'error'.

Subsequently, Lin's (2003) research into the simplification of word-initial consonant clusters, building on Weinberger (1987), has demonstrated that simplification by epenthesis is communicatively less harmful to intelligibility for an NNS listener than simplification by deletion. By preserving more of the underlying form, Lin points out, epenthesis limits ambiguity, whereas consonant deletion leads to non-recoverability and greater ambiguity. Lin's research thus supports the Lingua Franca Core claim regarding consonant clusters. On the other hand, Peng & Ann's (2001) research into word stress demonstrates that there may be common patterns of stress across L2 varieties of English. If further research supports their finding, the Lingua Franca Core will need to be modified so as to incorporate word stress, though with stress patterns being determined by NNSs rather than by NSs.

Research into pronunciation in EIL contexts has also begun to show the importance of accommodation. For example, Jenkins's research draws on Speech (later 'Communication') Accommodation Theory (Beebe & Giles, 1984; Giles et al., 1991) to demonstrate that intelligible pronunciation in EIL communication is not a monolithic construct, but that it requires constant negotiation and adjustment in relation to speaker-listener factors specific to the particular context of the interaction (see Jenkins, 2003).

5. Implications for pronunciation teaching

From a broad point of view, pronunciation needs to lose its isolated character and be treated pedagogically as part of communication and discourse. This would mean focusing on what will help a learner make meaning in communicative situations at the same time as learning about other aspects of language in general language teaching textbooks; pronunciation practice should be incorporated at as early a stage as possible. In line with research conducted within an SLA framework, the notion of the teachability of various pronunciation features should be taken into account, along with factors such as age, motivation and the influence of L1. Aspects which require focus from the perspective of discourse and communication include appropriate use of discourse intonation, the understanding of how sentences break down into tone units and lexical phrases, the ability to highlight stressed syllables in a stream of speech, and production of the segmental elements.

Approaches to pronunciation teaching should also be willing to adapt, and not continue to be influenced by old fashioned notions. Where research identifies the mythical nature of beliefs, such as rigid stress-timing and the use of specific intonation patterns on questions, for example, teachers, teacher trainers and materials developers should be ready to take this on board and develop curricula which make use of this information. Also, the notion of 'error' needs to be readdressed in the light of the NVEs which are emerging, and of EIL. The implications for models and goals include a change of emphasis from accent reduction to accent addition, and, in parallel, the development of accommodation skills, in order to make spoken messages clearer to all speakers/listeners. However, a learner should not be discouraged from using an OVE as a model, if that is what is desired by the learner.

There should also be an enhanced role for listening in pronunciation teaching. Learners need to be exposed not only to OVEs but also to other varieties of English, particularly those of speakers of local L2 Englishes with whom they are likely to communicate. Learners need to be trained to be able to pick out the salient information in a stream of speech, so that they do not feel left behind, and also need to be introduced to pitfalls arising from the use of connected speech features by proficient users of English.

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As far as resources are concerned, pronunciation (and listening) resources should be made more readily available to teachers and students, and these resources should be introduced and demonstrated positively during teacher training, rather than being treated like poor relatives to general teaching texts and materials, or, worse still, regarded as rather scary and too difficult. Updated printed pronunciation materials which take into account World Englishes and EIL need to be developed. The extent to which technology can be exploited is enormous; as with all materials, teachers should be judicious in what is actually being taught via computers and the internet, in order to make sure the materials have taken research into account and are not just rehashing old ideas through technological means. Computer applications have a great potential as use in learner independence and self-access situations; it is the job of the teacher to be able to evaluate these materials and ensure the learner has made the best selection for his/her level and needs.

We have highlighted the need to take research into account when devising curricula for teaching pronunciation. Research into pronunciation clearly needs to go on, and the obvious area is research into NNS-NNS interaction. As much as possible of this research should be driven and completed by teachers, who are in the position to see the difficulties encountered and use their own research to inform their teaching. This can only strengthen the position of the teacher with respect to pronunciation teaching and learning.

6. Conclusion

To conclude, we would like to finish by stating the obvious: pronunciation is the major contributor to successful spoken communication, and how anyone learning a language can expect to be understood with poor pronunciation skills is outside of our comprehension. Teachers must take a step back from current practice and evaluate their own pronunciation skills and teaching methodologies, and also have accessible to them current research, so that they are able to look at how they can improve not only the communicative skills of their students, but also their own. The onus is on the teacher educator, teacher and student to learn to listen, both to themselves and other speakers, and address features of their speech which may make it difficult for communication to take place. If we are going to use English as a world language, then let's use it for mutual understanding.

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