Introduction

Purpose of the Book

This book argues that pronunciation is a central element in effective language teaching in all approaches, but especially in the teaching of speaking and listening skills. Although pronunciation is a servant skill, existing not on its own but in relation to other aspects of spoken language, it is far from being an optional, "add it on if we have time" language feature. Rather, pronunciation is essential because it has the greatest impact on speech intelligibility, dramatically affecting the ability of language learners both to make their speech understood and to understand the speech of others. In addition, pronunciation is an important element of comprehensibility, or the amount of work that listeners have to do to understand speech.

This book is intended for those who are interested in the teaching of pronunciation, and especially for those interested in the reasons that certain features of pronunciation should and should not be taught. Although I have tried to be practical, as this is how I tend to think, the book is not practical in the sense that it provides specific activities to use in the classroom. There are plenty of other books on the market to meet this need, and it was not my intention to duplicate them. I expect that the audience for this book will be professionals interested in the teaching of pronunciation and oral communication, and those interested in speech perception. The book will be appropriate to those teaching courses in applied phonology and related areas, because of its focus on intelligibility.

Intelligibility is important because spoken language is the heart of human interaction. According to a recent study, native speakers (NS) of English produce, on average, at least 16,000 words per day (Mehl, Vazire, Ramírez-Esparza, Slatcher, & Pennebaker, 2007). Assuming 16 waking hours, this is an average of 1,000 words per hour, or more than 16 words every waking minute, day after day after day. The

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ubiquity of spoken language is possible because of mutual intelligibility between speakers and listeners. Spoken communication is fast, flexible, and variable, yet it is also extremely efficient for most aspects of oral communication. The mutual intelligibility of speech clearly depends upon, among other things, shared norms in lexis, grammar, semantics, conversational structure, and phonological and phonetic form. Phonological and phonetic knowledge, this last factor, allows speakers and listeners to use their implicit knowledge of phonemic categories and allophonic variation, as well as the categorical and gradient aspects of suprasegmentals, to communicate varied levels of meaning, to interpret the information structure of discourse, to communicate nuanced pragmatic messages, to express attitudes, and to establish and express individual and group identity (Celce-Murcia, Brinton, Goodwin, & Griner, 2010). Such shared norms of pronunciation are essential to successful NS–NS communication, yet their power in facilitating communication is often hidden, noticed only when unexpected variations alert speakers and listeners to the existence of regional and social accents.

For nonnative speakers (NNS) of English, however, the lack of shared pronunciation norms with NSs means that spoken communication is sometimes unsuccessful when NS listeners cannot easily decode or interpret the pronunciation deviations of NNSs. As Hinofotis and Bailey said long ago, "there seems to be a threshold of intelligibility … up to a given proficiency level, the faulty pronunciation of a non-native speaker can severely impair the communication process" (1981, p. 124). In study after study examining factors that make nonnative speech unintelligible, pronunciation is overwhelmingly the dominant factor, with other errors, such as those related to grammar or lexis, playing a relatively minor role in loss of intelligibility (e.g., Gallego, 1990; Jenkins, 2000; Munro & Derwing, 1995).

Prosody appears to be heavily implicated in loss of intelligibility in some studies (Derwing & Rossiter, 2003), but other studies indicate that errors in vowels and consonant sounds dominate the causes of unintelligibility (Munro & Derwing, 2006). Yet other studies have found that combinations of prosodic and segmental errors are most likely to impair intelligibility (Zielinski, 2008). What all these findings have in common is pronunciation's power to either facilitate or impair communication.

Mismatches between the phonological systems of NSs and NNSs impact the ability of NS listeners to understand nonnative speech, but they also mean that nonnative speakers of English often cannot understand native speakers, indicating another source of unintelligibility.

Difficulties in NNS listening comprehension are frequently phonological in nature, and can only be remedied when learners are able to recognize and interpret details of phonological form that are produced by their interlocutors (Alameen & Levis, 2015; Field, 2003; Gilbert, 1995). Not only is pronunciation central to the success of NS–NNS interactions, it also appears to be the central factor in the intelligibility of NNS–NNS spoken communication (Jenkins, 2000). The spread of English as an international language means that many, if not most, interactions in English around the world take place without the involvement of a native speaker. Rather than diminishing the importance of pronunciation in international communication, current evidence (Lewis & Deterding, 2018; Low, 2014; Sewell, 2017) suggests that pronunciation, especially the pronunciation of word-based errors involving vowel and consonant sounds, are a major cause of unintelligibility in NNS–NNS interactions.

While intelligibility has been a central paradigm of pronunciation teaching for several decades, it has largely not been used to inform the teaching of listening and speaking. Effective teaching of these skills is central to communicative language teaching (CLT), yet pronunciation has historically been neglected within CLT (Levis & Sonsaat, 2017), as if one could speak without pronouncing or understand others without successfully decoding phonological form. Drawing on research into, and pedagogical treatments of, pronunciation, listening, and speaking, and building on discussions of intelligibility by Smith and Nelson (1985), Munro and Derwing (1995), and Derwing and Munro (1997), this book presents a case for pronunciation as a critical but badly neglected part of the teaching of spoken language skills in a communicative approach. It provides a framework for an intelligibility-based approach to oral communication by providing: principles for understanding intelligibility; specific discussions of the role of segmentals, clusters and syllable structure, word stress, rhythm, prominence and intonation; and discussion on teaching in an intelligibility-based approach.

Contents of the Book

The first two chapters frame the general need for intelligibility as the central principle for including pronunciation in language teaching. Chapter 1, "Intelligibility, Comprehensibility, and Spoken Language," defines the key terms used throughout the book. Intelligibility and comprehensibility, the two key terms, are used in varied ways throughout the research literature, but this book follows the operational definitions of Munro and Derwing (1995), in which intelligibility

refers to whether a listener understands a speaker, and comprehensibility is a judgment of how easy it is to understand. These concepts undergird the justification for using an intelligibility-based approach to teaching, in which pronunciation affects understanding of words and discourse, which is simply any kind of language beyond the level of the phrase or sentence.

Chapter 2 reviews priorities in pronunciation teaching. Implicit in any kind of teaching is the need for teachers and materials developers to emphasize certain features and deemphasize or ignore others. An intelligibility-based approach to teaching makes this practice explicit by describing how decisions about intelligibility are made, how such decisions vary according to the pronunciation features involved, and how decisions are context-dependent. For example, an intelligibility-based approach is likely to look quite different for beginning and advanced students, for a class of mixed L1 backgrounds and a class of the same L1 background, and for L2 speakers who are primarily likely to use English as a means of communication with other L2 speakers, as opposed to L2 speakers who will regularly communicate with L1 English speakers (i.e., native speakers).

The next section looks at intelligibility and word-based pronunciation features, focusing primarily on English. This is a limitation of the book, of course, as English is neither more nor less important than other languages. Instead, English pronunciation is both the area I know best, and the language that has been most researched. For example, Lee, Jang, and Plonsky (2015), in a meta-analysis of eighty-six pronunciation instruction studies, noted that eighty-three were on English. I look forward to future work that can remedy this limitation of my book.

Word-based pronunciation features primarily affect intelligibility in the most obvious way, in the difficulties that listeners have in identifying the word that was said. Chapter 3 is about segmentals and intelligibility. This chapter includes a discussion of research on vowels and consonants. While these categories have much that is distinct (e.g., vowels are largely continuous in nature whereas many consonants have distinct points and manners of articulation), both segmental categories also have much in common. Both vowel and consonant contrasts can be understood in relation to their functional load, that is, the amount of work the contrast does in the language. Both types have allophones that may be more or less important for understanding. Both can create loss of intelligibility at the word level, impairing lexical access for listeners. Errors early in a word are more likely to cause loss of understanding, and consonant and vowel errors in stressed syllables are more likely to create unintelligibility than errors in unstressed syllables (Zielinski, 2008).

The next chapter is related to segmentals, but also to suprasegmentals because of its connection to syllable structure (Cardoso & Liakin, 2009). It focuses on consonant clusters and grammatical morphemes with morphophonological variants (such as the [d], [t], and [əd] pronunciations for <ed> morphemes). Such morphemes, in addition to being interesting for issues related to L2 acquisition, are also connected to the pronunciation of final consonant clusters. English does not have the most complex syllable structure among the world's languages, but it is far more complex than many languages, allowing syllables to have at least three consonant sounds before and after the vowel (e.g., *sprints*), placing it at the more complex end for syllable structure. This complexity creates intelligibility problems for learners from different L1s. As a result, consonant clusters that are formed with and without grammatical morphemes are environments that are ripe for two types of adjustments in L2 speech: vowel epenthesis (such as when some Spanish speakers say sC words with an initial vowel; *school → eschool*; *speak → espeak*) or deletions of sounds (such as when Vietnamese speakers say *clasps* as *cas*). Any change to expected syllable structure is likely to affect intelligibility, making it important to account for the pronunciation of consonant clusters.

Chapter 5 discusses intelligibility related to word stress. Word stress is closely tied to questions about lexical access (how listeners identify words in the stream of speech). In pronunciation teaching, word stress has long held a central place, although this place has been questioned by Jenkins (2000) and others. I argue that word stress is central to intelligibility in both ESL and ELF (English as a lingua franca) contexts, although not all word stress deviations are important, including many that are included in teaching materials (such as noun–verb pairs – e.g., *INsult–inSULT* – and stress deviations that do not change vowel quality). Word stress also cannot be separated from segmentals in native Englishes, but even where other Englishes do not have such a tight connection between vowel quality and stress, word stress remains important to intelligibility.

The next section is about discourse-based features and intelligibility. Some pronunciation features rarely affect the identification of individual words, but instead affect intelligibility at the level of the message being communicated or at the level of the intentions of the utterance (i.e., its illocutionary force). Chapter 6 addresses rhythm and intelligibility. This is the chapter I had not wanted to write, hoping to hide its recommendations in the chapter on word stress. In this, I had been affected by my agreement with Jenkins' (2000) recommendations for her LFC, which argues that elements related to rhythm are as unimportant for production yet essential for perception. But there are

reasons to question such a black-and-white judgment of rhythm. Like other phrase-level suprasegmentals, rhythm is unlikely to affect intelligibility at the word level, but this is only the most basic level of speech understanding. Research indicates that rhythm is essential to how listeners process speech and segment the stream of speech into identifiable words and messages. This, then, indicates that rhythm is likely to be critical for intelligibility, but that rhythm alone will not be a direct cause of unintelligible words. Rhythm shapes words in discourse, and the vowels and consonants that make them up (that is, it affects connected speech). Different rhythmic structures across languages almost guarantee that rhythm will affect how listeners and speakers understand each other. In other words, rhythm will be important for intelligibility, though perhaps not in the ways that we typically think of intelligibility.

The next chapter addresses the role of intonation in judgments of intelligibility. The chapter first describes what intonation is, then addresses the connection of prominence and intelligibility. Prominence is perhaps the most studied suprasegmental in regard to intelligibility, and there is abundant evidence of its importance in ESL, EFL (English as a foreign language), and ELF contexts. Prominence is the only suprasegmental feature included in the LFC. Its placement in phrases is tied to how information is structured in discourse, and to how categories are implicated in the use of contrasts. After prominence, the chapter addresses the connection of tune, or final intonation, to intelligibility, arguing that the beliefs that intonation is unimportant are due largely to our word- and sentence-based way of teaching pronunciation.

The last section of the book addresses teaching issues. The primary purpose of the book is to offer a strong justification for an intelligibility-based approach to teaching spoken language, and to argue for why this is important. The last three chapters describe what is meant by such an approach. The first of these chapters addresses principles for intelligibility-based teaching. Teaching for intelligibility can never ultimately be a recipe with all features measured out carefully, but is instead heavily dependent on the context in which learners learn and teachers teach. The principles in Chapter 8 are meant to provide a kind of policy statement of what to look for in a teaching/learning context. The set of six principles is unlikely to be complete, but they are based on both research and experience.

The next teaching chapter imagines what an intelligibility-based classroom might look like, and as such is an attempt to put flesh on the principles presented in Chapter 8. Pronunciation, while long neglected in language teaching, is making a comeback, but the way it has

traditionally been taught – with a heavy emphasis on minimal pair exercises, on segmentals that mark nonnative accents, and on trying to develop native-like pronunciation – all continue to influence our pedagogy. All of these elements should be questioned in a classroom meant to promote intelligibility, and Chapter 9 explores what such an approach to teaching might look like.

The final chapter is perhaps the antithesis of the six principles in Chapter 8, in that it summarizes how features are both important for, and peripheral to, teaching for intelligibility. My recommendations are likely to be contentious (such lists are always a source of contention), especially in that many of the features listed in Chapter 10 are both important and unimportant. My reading of many of the studies discussed in this book, and my experience, convinces me that every general feature (such as consonants or word stress) includes both important and unimportant aspects. For example, /l/ is an important consonant in English, but initial /l/ (as in *lot*) is more important than final /l/ (as in *tall*). Part of this is a matter of initial consonants being more important than final consonants, since they define the universe for the words that are activated in the listener's mind. Part of it is related to the allophonic variation of the final /l/ being less critical for intelligibility. The final /l/, or dark [ɫ], is not a phoneme and does not carry contrastive meaning, and in final position may even lose its identity of sounding like /l/ at all. It may also be that my list will be compared to influential lists of "core" features, like the LFC (Jenkins, 2000). That would be an honor, quite frankly, since Jenkins' LFC has influenced me greatly in my thinking, in how I consider pronunciation issues, and in many of the arguments in this book.

What the Book Does Not Include

This book also does not address some important issues, such as an extensive discussion of the research on intelligibility, comprehensibility, and accentedness. Fortunately, this is far more expertly addressed by Derwing and Munro (2015), who offer an essential and clearly written book for anyone interested in pronunciation research and teaching. Second, this book does not address the importance of intelligibility for the assessment of spoken language. I originally planned to include this, but in the time since this book was planned, Isaacs and Trofimovich (2017) recruited assessment experts to write chapters on this very topic. Rather than do an inadequate job of the same topic, I recommend that readers interested in intelligibility and language assessment read their book, which can be either purchased or

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downloaded under Open Access licensing at http://discovery.ucl.ac.uk/
1528781/1/Isaacs-TrofimovichOA.pdf. Finally, the book does a
cursory job of treating the two concepts of comprehensibility and
accentedness, the first because it includes many features beyond pro-
nunciation (my focus), and the second because, while it is closely
related to pronunciation, it is relatively unimportant for the teaching
of L2 pronunciation because of its inability to distinguish more
important from less important features.