Knowledge Base of Pronunciation Teaching: Staking Out the Territory

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Despite decades of advocacy for greater investigative attention, research into pronunciation instruction in the teaching of English as a second language (ESL) and English as a foreign language (EFL) continues to be limited. This limitation is particularly evident in explorations of teacher cognition (e.g., teachers' knowledge, beliefs, and understandings), an area emerging as a vibrant focus for grounded research on the development, preparation, and instructional behaviors of ESL/EFL teachers. This article provides a comprehensive review of teacher cognition literatures tied to ESL/EFL pronunciation instruction. The review's dual purposes are (a) to document the current knowledge base of pronunciation teaching, and (b) to propose future directions for classroom-based teacher cognition research in this area.

Malgré des dizaines d'années de réclamations visant une attention accrue de la part des chercheurs, la recherche portant sur l'enseignement de la prononciation dans les cours d'ALS (anglais langue seconde) et d'ALE (anglais langue étrangère) continue à être limitée. Cette limite se fait surtout sentir dans les études portant sur les acquis des enseignants (par ex. leurs connaissances, leurs croyances et leur compréhension), ce qui est un domaine de plus en plus actif autour duquel s'articule de la recherche empirique sur le développement, la préparation et les comportements pédagogiques des enseignants en ALS/ALE. Cet article présente une analyse documentaire complète de la littérature sur les acquis des enseignants en matière d'enseignement de la prononciation dans les cours d'ALS/ALE. Les deux objectifs de l'analyse sont les suivants : (a) documenter la base de connaissances actuelles sur l'enseignement de la prononciation, et (b) proposer des orientations de recherche sur les acquis des enseignants dans ce domaine.

Introduction

Studies of second-language (L2) teacher cognition contribute to an expanding and vibrant domain of contemporary applied linguistics research. Central to teacher cognition research are investigations of "the thought processes of teachers" (Ellis, 2006, p. 1). This tradition characterizes teachers as "rational professionals who … make judgments and decisions in an uncertain and complex environment" (Shavelson & Stern, 1981, p. 456). The aims of teacher cognition (TC) research are to illuminate what constitutes teachers' beliefs

and knowledge about teaching, how these beliefs and knowledge have developed, and how they are reflected in actual classroom practices (Andrews & McNeil, 2005; Basturkmen, Loewen, & Ellis, 2004; Borg, 2003b, 2006). Part of the promise of TC research is the effect it can have on prospective teachers' professional development as well as in expanding the awareness and expertise of inservice teachers. When we examine the specific domains of L2 teaching, the degree of attention given in TC studies to such varying domains as the teaching of listening, speaking, reading, writing, and grammar is noticeably uneven. By far the largest number of TC studies have explored teachers' ways of thinking and reasoning in the teaching of grammar (Borg, 1999a; Johnston & Goettsch, 2000; Phipps & Borg, 2009). Somewhat fewer studies have focused on the teaching of reading (El-Okda, 2005; Johnson, 1992) and writing (Burns, 1992; Farrell, 2006). Few TC studies have examined vocabulary teaching (Zhang, 2008), the use of instructional materials (Zacharias, 2005), uses of technology (Lam, 2000), the effects of either teachers' previous language-learning experience (Ellis, 2006) or their language-teaching experience (Gatbonton, 2008). Most striking to us as teacher-researchers interested in enhancing the pronunciation intelligibility of L2 speakers of English is that TC research is even less developed in the domain of L2 pronunciation instruction than in many of the other domains listed above. The few studies that have addressed pronunciation teaching have done so only in relation to teachers' reported cognitions and instructional practices (Baker, in press; Jenkins, 2007; Macdonald, 2002; Sifakis & Sougari, 2005). These studies, however, have not included any analysis of teachers' actual classroom practices (i.e., classroom-based data).

The limited amount of TC research in this area may reflect an overall neglect of pronunciation teaching that has been observed not only in teacher preparation programs (Breikreutz, Derwing, & Rossiter, 2001; Derwing & Munro, 2005; Gilbert, 2010), but also in classroom-oriented research overall. Aside from a few classroom-based studies (discussed below), the teaching and learning of pronunciation in classroom settings continues to be underrepresented (Derwing & Munro). As a necessary preliminary step to support subsequent research, this article provides a state-of-the-art review of the knowledge base of TC and related classroom practices as tied to the teaching of pronunciation to speakers of English as a second or foreign language. Designed for the purpose of better informing teacher educators, classroom teachers, and other specialists interested in teaching pronunciation, the review examines empirical research conducted in this specialized area that focuses specifically on classroom-based research. After introducing key elements of L2 teacher cognition (L2TC) and discussing their importance in L2 instruction and teacher education, we review empirical research that has examined relationships between L2 pronunciation instruction and TC specifically. Finally, based on TC research connected to other commonly

taught areas (e.g., reading, writing, and grammar), we propose an agenda for future research intended to expand the knowledge base of L2 pronunciation instruction.

L2 Teacher Cognition: Background and Definitions

The study of TC is a complex undertaking, requiring examination of multiple cognitive processes ranging from what some specialists characterize as more objective cognitions of diverese knowledge types (e.g., knowledge about language, knowledge about students) to more subjective cognitions of beliefs, perceptions, and attitudes. An essential feature that helps to define TC research is the commitment to investigate all such processes in the context of teachers' actual classroom practices. The cognitive processes mentioned above have all been studied to varying degrees in TC research. In a survey of such research, Borg (2006) summarized several recurring notions that are associated with the essence of what constitutes teacher cognition:

> These [notions] are (a) personal, (b) practical (though informed by formal knowledge), (c) tacit, (d) systematic and (e) dynamic. Teacher cognition can thus be characterized as an often tacit, personally-held, practical system of mental constructs held by teachers and which are dynamic–i.e. defined and refined on the basis of educational and professional experiences throughout teachers' lives. (p. 35)

Borg also noted that TC research is strongly connected to research in teacher education that has focused on understanding and improving processes of learning and development for both preservice (novice) and inservice (experienced) teachers. Freeman and Johnson (1998) commented further that teacher learning is a "socially negotiated" process. Both personal experiences (through communication with students, other educators, administrators, and parents) and "the acquisition and interaction of knowledge and beliefs about oneself as a teacher, of the content to be taught, of one's students, and of classroom life" are integral to the "socially negotiated" development of the process (p. 401). According to Borg (2003a), TC research explores four basic questions:

- What do teachers have cognitions about?
- How do these cognitions develop?
- How do they interact with teacher learning?
- How do they interact with classroom practice?

In addressing what teachers have cognitions about and how they develop, it is important to distinguish two main cognitive processes: knowledge and beliefs. Distinctions and boundaries between the related constructs of teachers' knowledge and teachers' beliefs are sometimes difficult to maintain. The following sections briefly describe and discuss these constructs.

Knowledge

Perhaps the most widely recognized conceptual scheme in the literature on both first language (L1), TC, and L2TC is that of Shulman (1986, 1987). Shulman posited seven overarching categories of teachers' knowledge:

- subject matter content knowledge (e.g., knowledge about language);
- general pedagogical knowledge;
- curriculum knowledge;
- pedagogical content knowledge (e.g., knowledge of how to teach particular subject matter using appropriate examples, explanations, illustrations, and techniques);
- knowledge of learners;
- knowledge of educational contexts;
- knowledge of educational ends, purposes, and values, and their philosophical and historical grounds.

Shulman's conceptual framework has been widely used in analyses of L2TC (Gatbonton, 2008; Gorsuch & Beglar, 2004; Johnston & Goettsch, 2000) and also in many L1 teacher education domains such as the sciences (Justi & van Driel, 2005), mathematics (Hill, Shilling, & Ball, 2004), and other areas of higher education (Mcalpine, Weston, Berthiaume, & Fairbank-Roch, 2006). Such researchers have applied Shulman's framework to analyze components of teachers' knowledge and how they develop. Due not only to its comprehensiveness, but also to its flexibility when applied in modified form by diverse researchers, Shulman's conceptual framework resonates with many TC specialists and serves as the standard against which alternative frameworks are compared. An essential premise of studies that apply Shulman's and other such conceptual frameworks is the assumption that the teachers' knowledge can be explored empirically. TC researchers believe that much of value can be learned by direct exploration of teachers' thinking and reasoning processes through interviews; questionnaires; stimulated-recall procedures; and tests of declarative knowledge about language, students, and educational contexts.

Beliefs

The dividing line between teachers' knowledge and beliefs is at best hazy. Knowledge may not always be articulated consistently by teachers, much less their beliefs. In one of the more extensive reviews of teachers' beliefs, Pajares (1992) pointed out that beliefs are rarely operationalized in studies and thus are difficult to separate from knowledge. To clarify this "messy construct," Pajares presented a characterization of belief:

> that speaks to an individual's judgment of the truth or falsity of a proposition, a judgment that can only be inferred from a collective understanding of what human beings say, intend, and do. The challenge is to assess each component so as to have confidence

that the belief inferred is a reasonably accurate representation of that judgment. (p. 316)

Relationships Between Cognitions and Pedagogical Practice

Possible connections (along with possible disconnections) between teachers' beliefs and knowledge and what teachers do in classroom settings is a topic of considerable interest among TC researchers and teacher educators. The effect of a wide range of influencing factors (e.g., teachers' formal/informal education, student motivation or L1 background, etc.) on teachers' classroom practices are frequent themes. Exploration of the effects of such issues necessitates some degree of investigation into the classroom practices of teachers. In fact, Borg (2006) questions the value of any study that fails to bridge the crucial link between TC and teaching practice. He argues that the main objective of TC research is to generate a deeper understanding of the reasoning that underpins what teachers do in classrooms. Such research requires exploration of connections between teachers' knowledge, beliefs, and their actual classroom behaviors. We find that Borg's position is particularly convincing; that is, that TC research calls for the inclusion of analyses of teachers' actual classroom practices in the research enterprise and that decontextualized accounts of perceived classroom practices will not suffice.

Pronunciation Instruction and L2 Teacher Cognition

As mentioned above, the role of pronunciation in TC research has commanded little attention to date. Even in studies reporting on TC and the teaching of either general or specific aspects L2 oral communication, attention given to a pronunciation component has been minimal at best (Cathcart & Olsen, 1976; Cohen & Fass, 2001). The following review focuses on the few studies that have explicitly examined teachers' cognitions, and to some extent students' beliefs, as related to pronunciation issues in English as a second language (ESL) and English as a foreign language (EFL) contexts. For the purposes of this article, ESL refers to instructional contexts located in countries where English is spoken as the primary language, e.g., traditionally, countries belonging to Kachru's, 1990, *inner circle*, but may also include *outer circle* countries. EFL, alternatively, refers to instructional contexts located in countries where English is not typically used as a primary language for communication by most of its inhabitants (e.g., countries belonging to Kachru's *expanding circle*).

A study conducted by Cohen and Fass (2001) at a Colombian university investigated the beliefs and classroom behaviors of 40 teachers and 63 students regarding oral language instruction and assessment. The study featured a component of classroom observation, but findings related to pronunciation instruction were based on teachers' reported practices only.

Here the teachers seemed to agree that pronunciation and grammatical accuracy were given greater attention in the assessment of students' language production than features considered more communicative such as fluency and comprehensibility.

In a study that has been widely cited for over 30 years, Cathcart and Olsen (1976) examined teachers' and students' beliefs about methods that they considered the most appropriate for correcting grammar and pronunciation errors in classroom conversation. Questionnaire results showed that students held a strong preference for error correction, especially in regard to pronunciation and grammar (in order of preference), with most voicing a preference for such correction most of the time. These students also felt that teachers tended to pay more attention to pronunciation and grammar than to vocabulary and word order. The students' beliefs matched their preferences, although they felt that grammar probably received somewhat more attention in the classroom overall. Generally, students believed that teachers frequently used the students' preferred approaches to grammar and pronunciation correction. In addition, a comparison between the teachers' and students' questionnaires revealed that students wanted teachers to correct them even more frequently. In relation to pronunciation errors, both teachers and students favored a *correct* (e.g., native-speaker) model approach.

Focusing solely on the area of pronunciation instruction, Macdonald (2002) researched the perspectives of eight ESL teachers in language centers in Australia who reported that they were at least somewhat reluctant to teach pronunciation to ESL students. Interviews with teachers revealed a lack of motivation to teach pronunciation due to poorly articulated center policies and curriculum objectives, on which teachers reported that they depended to know how to address pronunciation in their classes. As Macdonald discussed, these teachers appeared to have little useful knowledge of how to assess students' pronunciation. Many teachers addressed pronunciation issues only when intelligibility was compromised. Furthermore, teachers appeared hesitant to take on a monitoring role of students' speech. Most relied on ad hoc approaches to teaching pronunciation, typically dealing with pronunciation issues as the need arose in class or as stand-alone activities disconnected from the rest of a lesson. Finally, several teachers commented that in comparison with other skill areas, pronunciation was a relatively neglected area with respect to appropriate resources.

Also in an ESL context, Baker (in press) explored teachers' beliefs and reported practices in relation to the teaching of discourse prosody (e.g., intonation, rhythm, stress) in their classes. She interviewed five teachers from Canada and the United States and analyzed a journal that she kept of her experiences while teaching pronunciation in an oral fluency class. The purpose of the interviews was to determine whether research that showed the importance of discourse prosody in the development of intelligible English had an

effect on the teachers' classroom practices. Findings revealed that this research did influence how the teachers prioritized diverse features of pronunciation in their courses. However, findings also showed that despite taking a course on pronunciation pedagogy as part of their graduate education (where they learned about the relevant research), teachers still seemed to lack confidence in teaching certain aspects of English pronunciation.

In the sphere of EFL instructional contexts, a few researchers have also examined teachers' cognitions about pronunciation. Sifakis and Sougari (2005) explored the connection between pronunciation instruction and the emerging theme of teaching English as an international language (EIL). Specifically, EIL refers to communication that takes place between two (or more) speakers of English whose primary language is not English. It is important to note, however, that although Sifakis and Sougari, Jenkins (2000), and other specialists at times seem to refer to EIL as if it were an identifiable language variety and propose emerging constructs such as EIL norms, EIL models, and EIL accents; such usage seems problematic at present, particularly when associated with classroom instruction. Although preliminary work in this area is available (Jenkins, 1998, 2000, 2002, 2005), research is far from codifying an EIL variety and may never be able to do so. Although the related classroom instruction model that Walker (2005) provides certainly merits teachers' attention, there are few other instances of explicit EIL pronunciation teaching to date. When reviewing the contributions of such specialists, in this article we maintain EIL specialists' use of the EIL label with the caveat that characteristics and properties of EIL may not be as fully developed as their research reports might suggest.

In an effort to advance research in this area, Sifakis and Sougari (2005) focused on the beliefs of 421 Greek teachers of EFL. Questionnaire results indicated that most of these teachers, especially those who taught in primary schools, felt that native speaker (NS) norms were important models. The teachers seemed to prioritize NS norms although some of them, most notably some in upper secondary schools, believed that intelligibility was the most appropriate goal. Moreover, the secondary school teachers reported using practices that generally conformed to an NS-oriented approach (e.g., using real-life conversations among NSs; role-plays emphasizing NS roles). Furthermore, most teachers (more than 70%) responded that ownership of English lay in the hands of NSs or at least those who spoke English competently. The authors concluded that the beliefs of Greek teachers of English appeared to support the primacy of NS models, thus demonstrating little teacher awareness of specialist attention to the effects and potentialities of EIL. Nevertheless, it is worth noting that a classroom component was absent in their research design.

Jenkins (2005), who is a research-active advocate of local varieties of English pronunciation in the teaching of EIL, conducted a study of non-native speaker (NNS) teacher accent and identity. In the study, Jenkins examined

the beliefs of eight NNSs teachers (from Italy, Japan, Malaysia, Poland, and Spain) about (a) their attitudes toward NS and NNS accents, (b) their perceptions of the effect of educational and social experiences on their attitudes toward accent, and (c) their considerations toward teaching EIL.[1] Jenkins was interested in exploring whether NNSs who served as EFL teachers were open to the possibility of including the teaching of EIL pronunciation norms (e.g., NNS speech patterns) in their classrooms. Interviews with the eight teacher-informants revealed that although some of the teachers preferred to maintain their L1 identity through an EIL accent, most of the participants perceived the prospect of adopting EIL pronunciation norms as unlikely and unworkable in their educational contexts. Findings from both Jenkins and Sifakis and Sougari (2005) caution not to assume that teachers from an EIL community will be comfortable maintaining an NNS accent or with working within EIL pronunciation standards in classroom settings. Realistically, it seems important to recognize that non-native English-speaking teachers who work in EIL or EFL settings may have little choice in the accent reflected in their own classroom speech because factors such as age when learning English, length of residence in an English-dominant environment, and even gender can influence the nature and quality of L2 accents (see Flege, Munro, & MacKay, 1995, for a more detailed discussion). That is, as speakers of English, we are who we are. It would be unrealistic to think that non-native English-speaking teachers could intentionally turn alternative speaking styles on and off at will given the incredibly complex natures of both language use and life in language classrooms. More research is needed to support the efforts of language teachers and other specialists interested in encouraging NNSs to learn to be more comfortable with what constitutes their own EIL accents.

Another study investigating teachers' beliefs that addressed this issue is outlined in a chapter from Jenkins' (2007) book. Here Jenkins reports on an interview study of the EIL identities of 17 NNES teachers from nine countries. Jenkins examined their attitudes and beliefs about accents, perceived effects of accent-related experiences, and the teaching of EIL accents. In relation to teaching EIL accents, the teachers appeared to respond favorably to using EIL models, at least in theory. The same teachers, however, characterized the practice of moving in the direction of modeling EFL accents for teaching pronunciation as impractical to accomplish in their classrooms, citing negative pressure from higher levels of administration—government, educational institutions, and parents—who preferred the modeling of NS English accents. Most of the teachers, however, hoped that EIL accents eventually would become more accepted, thereby increasing teachers' confidence in using their local accent. At the same time, other participants felt that such a change would take considerable time due to teachers' strong opinions about upholding the NS standard.

Related to the theme of beliefs about EFL accents, a final study examined teachers' and students' beliefs about adopting native-speaker norms. Timmis (2002) surveyed more than 180 teachers from 45 countries and 400 students

representing 14 countries (the surveys were further supported by 15 student interviews). The researcher asked both groups whether they would prefer (a) to pronounce English "just like a native-speaker," (b) to produce clearly spoken English that is mutually intelligible to both NSs and NNSs, or (c) "no preference," an option given to the teachers only. Of the students, most indicated a preference for the first option ("just like a native-speaker"), except for those from India, Pakistan, and South Africa who instead favored the second ("mutually intelligible"). As for the teachers, a slightly higher percentage favored the second option regardless of whether they were NS or NNS teacher respondents. It is worth noting that the questionnaire responses also showed that many teachers considered the second option as the more "realistic" although not necessarily the more "desirable" (p. 243).

In summary, the findings outlined above demonstrate that no studies to date have investigated the relationship between teachers' cognitions and actual pronunciation in teaching practice. Even in relation to reported practice, only a few issues have been explored, and these are divided unevenly among ESL and EFL contexts.

Knowledge Base of Pronunciation Teaching

The literature reviewed above reveals that limited research has explored the cognition of teachers of English pronunciation and that no studies have examined TC in relation to teachers' actual pronunciation instruction practices. Nevertheless, the past decade has witnessed an explosion in the number of teaching resources in this area (classroom textbooks; teachers' manuals; classroom-based research reports; teacher training books, book chapters; journal articles; CD-ROMs; videos; computer software; Internet resources), most of which are geared directly toward ESL/EFL teachers. Probably such resources have considerable influence on the formation of teachers' knowledge and beliefs about what English pronunciation is and how best to teach it. However, how far these resources are in fact informed by classroom research is uncertain given that empirical, classroom-based research is nearly nonexistent in relation to pronunciation pedagogy. The few studies that have been conducted are surveyed below. From the perspective of TC research, given that no TC studies involving investigations of actual pronunciation teaching practices have been conducted, these resources may lack the contextual and pedagogical content knowledge that teachers, especially preservice teachers, need in order to construct a sufficiently well-informed knowledge base for teaching pronunciation. As Freeman and Johnson (1998) argued,

> To thus articulate [a] knowledge-base [of language teacher education], we as teacher educators must begin with the activity of language teaching and learning; the school and classroom contexts in which it

is practiced; and the experience, knowledge, and beliefs of the teacher as a participant. (p. 413)

The quality of pronunciation teaching resources, therefore, would be greatly enhanced if more empirical, classroom-based research emerging from the beliefs, knowledge, and classroom practices of experienced pronunciation teachers were available.

Although the increasing number of pronunciation teaching resources available to teachers may lack grounding in TC research specifically, some of these resources do seem to be informed by other types of empirical research as we outline below. It is likely that such resources influence the pedagogical reasonings of at least some teachers of pronunciation. By surveying the most relevant findings from classroom-oriented research along with some of the more salient themes from teacher resources, a better informed foundation may be generated. By including such information, we believe that a more reliable foundation may be constructed that will serve to underpin later investigations into (a) what constitutes teachers' knowledge and beliefs in pronunciation teaching, and (b) which practices are more effective when teaching pronunciation to NNSs of English. Below we examine three particular types of knowledge that teachers may possess.

Knowledge about Classroom-Based Research

As noted above, only a few classroom-based research studies of pronunciation teaching and learning have been published. Their limited number reveals a troublesome gap in relevant literature. The need for increased empirical, classroom-based research that investigates multiple dimensions of pronunciation instruction has been commented on by other specialists (Derwing & Munro, 2005). To the best of our knowledge, only six such studies have been conducted in classrooms or related settings in the past few decades. Findings from these studies suggest that: (a) instruction has a positive effect on phonological improvement (Couper, 2003, 2006; Saito, 2007); and (b) explicit pronunciation instruction can lead to improvements in either comprehensibility or intelligibility although the degree of improvement can vary (Derwing, Munro, & Wiebe, 1997, 1998; Macdonald, Yule, & Powers, 1994).

Although classroom-based research is limited, it is important to acknowledge that there is considerable experimental (e.g., laboratory) research that could serve to inform the knowledge base of language teachers on pronunciation and its acquisition in general. Numerous research studies have been conducted on issues related to the intelligibility of non-native speech based on the perceptions of native and/or non-native listeners. In particular, these studies have investigated how the intelligibility and/or comprehensibility of L2 speech has been affected by the following: phonological elements (Munro & Derwing, 1995, 2006; Hahn, 2004), L2 experience (Trofimovich &

Baker, 2006), L1 background (Deterding & Kirkpatrick, 2006), familiarity with dialect or an individual's style of speech (Bradlow & Bent, 2008; Matsuura, 2007), phonological awareness (Venkatagiri & Levis, 2007), and speech rate on the intelligibility and/or comprehensibility of L2 speech (Llurda, 2000). A problem with such publications when considering their effect on the knowledge base of pronunciation teaching, however, is their relative lack of accessibility to ESL/EFL instructors. As Derwing and Munro (2005) have commented, ESL/EFL teachers typically do not constitute the targeted readership of such experimental research:

> An extensive, growing literature on L2 speech has been published in journals that focus on speech production and perception … Yet this work is rarely cited or interpreted in teacher-oriented publications. Researchers [much less classroom teachers] may not be aware of this literature in part because it is inaccessible to those without specialized knowledge of phonetics. Moreover, some of the research may not be perceived as practical because it has been carried out under strict laboratory conditions, so that it is not immediately clear how the findings apply to the classroom.… Levis [1999a], for instance, presents the disturbing observation that "present intonational research is almost completely divorced from modern language teaching and is rarely reflected in teaching materials" (p. 37). The problem can be resolved only if applied linguists take responsibility for interpreting technical research for pedagogical specialists and incorporating pertinent findings into teacher training materials and student texts. (p. 382)

With respect to this review, the genre of L2 speech production and perception literature to which Derwing and Munro (2005) and Levis (1999a) refer will continue to have little if any effect on L2 teachers' cognitions about pronunciation or pronunciation teaching as long as they continue be unrecognized and underappreciated by applied linguistics/TESOL readerships.

Knowledge about Students' Perceptions

As featured in Schulman's (1986, 1987) framework, another critical component of TC about pronunciation teaching is teachers' knowledge about students. To date, several studies have focused on students' perceptions of pronunciation learning and teaching. Overall, it appears that many students aspire to achieve a native-like accent (Derwing & Munro, 2003; Kang, 2010; Scales, Wennerstrom, Richard, & Wu, 2006; Timmis, 2002) and that they have a strong desire for pronunciation instruction (Couper, 2003) although they report dissatisfaction with the limited amount of explicit pronunciation training they receive (Derwing & Rossiter, 2002). Derwing and Rossiter argue that on occasions when pronunciation is taught, segmentals (individual vowel

and consonant phonemes) receive greater attention than suprasegmentals (elements of stress, rhythm, and intonation). Results from their study reveal that learners identify segmentals as the leading cause of their pronunciation problems, a finding that may signal just how large a role segmentals play in current instructional models.

More than 30 years ago, Cathcart and Olsen (1976) reported that students voiced a preference for a "correct" model approach to correction of pronunciation errors. Although it is uncertain whether contemporary students would voice a similar preference, the Timmis (2002) questionnaire study of 400 learners and more than 180 teachers cited above provided some indication. As part of his findings, Timmis learned: (a) that there is considerable support among students to conform to NS norms; (b) that such support is not restricted to learners who anticipate using English primarily with NSs; and (c) that teachers seem to be moving away from NS norms faster than students.

An important issue missing from research into students' perceptions is how students studying EFL might perceive the role and importance of pronunciation instruction. With the exception of the Timmis (2002) survey, the other studies reported above took place in Canada, New Zealand, or the US, a research limitation that suggests the need for comparable studies to be conducted in other non-English-dominant parts of the world. Additional and even more carefully designed studies that target students' perceptions in a range of EFL instructional contexts would certainly be welcome.

Perspectives of Teacher Educators and Pronunciation Specialists

Unlike many of the research paradigms explored throughout this article, considerable information has been offered by past and present ESL pronunciation specialists and teacher educators about what might constitute the key components of pronunciation instruction and learning. Our review of relevant literatures reveals more than 100 discussions published over the past half century. Because it is beyond the scope of this article to provide a complete overview, we focus on three of the most frequently recurring topics from the past 20 years: learner factors, curriculum factors, and teacher factors.

Learner Factors

Encapsulated in the mind and body of the learner are a variety of factors that can affect the student's ability to learn and sufficiently produce the phonological features of an L2. Numerous pronunciation instruction specialists have highlighted several of these factors, including the speaker's age (Kenworthy, 1987; Pennington, 1996), linguistic factors such as the influence of the learners' L1 on L2 acquisition (Avery & Ehrlich, 1992), sociocultural factors such as the desire to maintain an L1 accent or acquire a native English accent (Scarcella & Oxford, 1994), affective factors such as the learners' attitudinal and emotional states (Brown, 2008), and learners' choice or involve-

ment in instructional decisions (Jenkins, 2004; Levis, 1999b). Whether in EFL or ESL contexts, students' choice with respect to accents or learning processes is a vital consideration when addressing the variety of factors that affect the learning of English pronunciation. Taken together, learner factors represent the essence of teachers' knowledge about students (Shulman, 1986, 1987) and are thus a valuable part of L2TC research.

Curriculum Factors

Curriculum considerations also play a critical role in the teaching and learning of pronunciation. Five themes recur most frequently in relevant literatures: (a) integration of pronunciation in the English language-learning curriculum (Brown, 2008; Derwing & Munro, 2005; Levis & Grant, 2003); (b) assessment of speech intelligibility (Levis, 2006); (c) a shifting list of phonological hierarchies that alternate between either suprasegmentals or segmentals as priorities (Jenkins, 2002, 2007; Levis & Grant, 2003; Murphy, 2004); (d) target pronunciation models such as providing learners with a variety of NS and/or NNS models (Pickering, 2006; Scales, Wennerstrom, Richard, & Wu, 2006); and (e) setting realistic goals for learners (Goodwin, 2001). Determining teachers' understanding of these curriculum factors embodying teachers' knowledge about curriculum (Shulman, 1986, 1987) is another important area to consider in exploring L2TC.

Teacher Factors

The knowledge teachers bring to the endeavor (teachers' knowledge about curriculum and learners, pedagogical content knowledge, subject matter knowledge) is a vital area emphasized in the literature on teaching pronunciation. In essence, teachers are encouraged to have a firm understanding of each of the curriculum and learner factors discussed above if they are to be adequately prepared to teach English pronunciation. In addition to these factors, two others that specialists consider especially important are knowledge of phonology (subject matter knowledge) and knowledge of techniques and approaches for teaching pronunciation (pedagogical content knowledge). This need for a solid foundation in linguistic knowledge of phonology has been advocated by numerous specialists over recent decades (Celce-Murcia, Brinton, Goodwin, & Griner, 2010; Morley, 1991; Murphy, 1997; Parish, 1977). Similarly, an understanding of how to give students feedback, demonstrate to students what they are actually doing, set pronunciation priorities, plan activities, evaluate learners' progress, and enable students to both hear and produce sounds are all stressed in specialist literatures (Kenworthy, 1987; Morley, 1994). To date, however, scarcely any research has been conducted that explores pronunciation teachers' knowledge of phonology or the characteristics of contemporary pronunciation methodology.

Research into Other Skill Areas and L2TC

As reviewed above, L2TC research of the past few decades has focused on the teaching of grammar, writing, reading, and vocabulary. L2TC research has also examined other relevant concerns such as language-teaching experiences, language-learning experiences, and how teachers work with instructional resources. Some of the more pertinent questions and conclusions from L2TC studies are relevant to the study of pronunciation instruction and can be useful in designing parallel investigations into this. The most frequently researched questions are: What cognitions do teachers possess about language teaching and how do these cognitions converge with or diverge from their classroom practices? (Collie Graden, 1996; Johnson, 1992; Ng & Farrell, 2003). Through research into L2TC and the area of grammar instruction, for example, we have learned that teachers' stated beliefs and their actual teaching practices often differ (Collie Graden; Farrell & Lim, 2005; Ng & Farrell). To illustrate, Ng and Farrell found that Singaporean teachers of English adhered strongly to accuracy-oriented approaches to teaching, as evidenced by their correcting all students' errors in compositions and by using traditional practice drills despite the same teachers' clearly articulated belief in using a communicative approach to teaching. Would similar inconsistencies be found between the beliefs and instructional behaviors in relation to teaching pronunciation? To date, we do not know. An equally important question is why such differences (and possible tensions) between teachers' beliefs and actual practices exist. Ng and Farrell found that teachers' practices seemed to be responsive to the examination culture of the nation in which the research was conducted in that instructors tended to use methods that they considered optimal for enabling students to succeed in examinations. Similarly, how might teachers' institutional contexts interact with their beliefs and practices in teaching pronunciation in ESL or EFL contexts? Sifakis (2009), for example, made the point that existing sociolinguistic and educational conditions in expanding circle countries led many EFL teachers to prefer to teach a variety of English that conformed to standard inner-circle norms. A second set of questions frequently researched in L2TC focuses on the development of teachers' cognitions and/or pedagogical practices. In this research, the influence of the following factors on teachers' cognitions and/or practices have been investigated: teachers' education/training (Bigelow & Ranney, 2005; Borg, 1998, 1999b; Burns & Knox, 2005; Tercanlioglu, 2001); prior learning of another language (Eisenstein-Ebsworth & Schweers, 1997; Ellis, 2006); experience in teaching (e.g., novice vs. experienced teachers, Farrell, 1999; Gatbonton, 2008); collaboration/knowledge-sharing with other teachers (Sengupta & Xiao, 2002); and personal time spent in reflection (Meijer, Verloop, & Beijaard, 1999). As an example, Popko (2005) examined relationships between teacher training and teachers' knowledge about language and found that despite graduate education that featured coursework on how to teach

grammar, graduates of the program (new teachers) rarely employed their formal knowledge about language when teaching ESL classes. Would similar findings be found with new teachers who begin to provide instruction in English pronunciation? Again, we do not know. If similar findings were to emerge, what effect might this realization have for preservice and inservice teacher development practices and ESL teacher preparation in general? The more information available to teacher educators about the influences underlying teachers' practices, the better informed teacher education programs will be to address such issues.

An additional set of questions that has received limited attention examines the beliefs and perceptions of students in relation to teachers' cognitions and practices. Relevant studies might ask: What relationships exist between teachers' cognitions, their classroom practices, and students' beliefs and perceptions of teachers' practices? To date, learners' beliefs and perceptions have been investigated in few studies (Diab, 2005; Hawkey, 2006). Diab, for example, looked at the intersection between one ESL teacher's feedback on students' writing and two students' responses to the teacher's feedback. Selected findings suggested an accord between the teacher's and students' views on error correction and feedback strategies. Students confirmed the teacher's belief that grammar and error correction were important to students. The students also believed that all the comments provided by the teacher were essential for improving their learning. With pronunciation research, examinations of relationships between teachers' and students' perceptions on pronunciation feedback have also been conducted (Cathcart & Olsen, 1976). As mentioned above, however, Cathcart and Olsen's findings are not only outdated, but limited in scope. Even the more recent study by Timmis (2002) surveyed only teachers' and students' preferences for pronunciation proficiency and not their views on pronunciation feedback. Other issues of interest that could be investigated include connections between (a) students' perceptions, and (b) teachers' beliefs and practices with the following: the varied types of pronunciation models that are available and could be featured in classroom settings (NS and NNS models); the amount of pronunciation actually taught in the classroom; how pronunciation is integrated in more broadly focused oral communication courses; and the prioritization given to diverse elements of English pronunciation (e.g., vowel clarity, word stress, prominence, and intonation) to name but a few possibilities.

Conclusion

Having completed what we believe to be the first literature review of teacher cognition in the teaching of English pronunciation to speakers of other languages, we are left with many questions and some future research directions. Over a decade ago, Freeman and Johnson (1998) stated, "Much of the work in language teacher education has been animated more by tradition and

opinion than by theoretical definitions, documented study, or research understandings" (p. 398). We find that little has changed when it comes to teaching pronunciation in language-teacher education. In particular, empirical research that analyzes the knowledge and beliefs of teachers in connection with their actual teaching practices is sorely needed. Such efforts will probably result in thick descriptions of complex relationships between experienced, less experienced, and/or inexperienced teachers' cognitions and their observed pedagogical practices. Further research might explore possible connections between teachers' knowledge of students and students' self-perceptions of their instructors' efforts to teach pronunciation and of their own efforts as learners of pronunciation. Investigations of both teachers' and learners' perceptions will enhance the knowledge base of teaching English to speakers of other languages by incorporating the under-studied area of pronunciation teaching in TC literatures.

There are several potential benefits for pursuing a research agenda in this area. First, for teacher education programs, findings from research involving experienced teachers will better illuminate experienced ESOL teachers' reasonings, knowledge, and beliefs about the teaching of pronunciation. This information should represent valuable source material for teacher education programs. For example, preservice teachers could be provided with detailed and in-depth illustrations of more experienced teachers' perspectives. Through the process of examining illustrations of how more experienced teachers think, novice teachers would be more likely to develop relevant insights and deeper understandings more quickly. To cite another example, findings from such a research agenda may better enable program supervisors to explore how teachers' beliefs and knowledge affect instructional decisions in local settings. Supervisors would then be better positioned to support their teacher colleagues (especially novice teachers or experienced teachers who are less experienced in this particular area of teaching) in addressing students' pronunciation needs. Also, just as early investigations of TC and the teaching of grammar have led to sustained interest in expanding research in this same area (which in turn led to better informed and more realistic appreciations for the effect, possibilities, and limitations of formal teacher education practices), initial projects focused on TC and teaching pronunciation may lead to later and better informed investigations of teachers' teaching of pronunciation cognitions and practices. A particularly welcome outcome for better preparing teachers in this area would be case illustrations of pronunciation teachers and learners at work (e.g., both well-constructed written cases grounded in ethnographic research and video-recordings of pertinent interactions between teachers and learners) that could be used as prompts for case-based discussions among either preservice or inservice teachers. Discussion prompts such as these might also be complemented by parallel case illustrations of learner-learner interactions. Eventually, comparative explo-

rations may be conducted of pronunciation teaching as it takes place in a wide range of conditions and settings, including some of the learner populations that Morley (1987) and Celce-Murcia et al. (2010) identifed as in need of focused assistance with pronunciation. Such explorations might examine the work of preservice or novice teachers; teachers who work with older learners, young adults, adolescents and children in both public and private school settings; EFL teachers; teachers of foreign-born technical, business, and professional employees in English-dominant parts of the world; teachers who work with international business people and diplomats who may not live in English-dominant parts of the world but who need to use English as their working lingua franca during interactions with business and diplomatic associates; teachers who work with refugees in resettlement and vocational training programs; teachers who work with students in non-English-speaking countries who aspire to serve as tour guides, waiters, hotel personnel, customs agents, and others who use English for dealing with visitors who do not speak their native language; and teachers of high-stakes ESL learner populations such as medical personnel, air traffic controllers, call-center personnel, university lecturers, and teaching assistants.

Of particular interest will be investigations that explore connections between TC, students' perceptions, and students' learning (Borg, 2006). From the literature review, we are convinced of a pressing need for investigations into diverse aspects of pronunciation instruction. We trust that this article will serve to motivate not only ourselves, but others to pursue research agendas designed to expand the knowledge base of this important, yet underexplored area in the teaching of English to speakers of other languages.

Note

[1]In this study by Jenkins (2005) as well as in several other EIL studies discussed here, we use the term *English as a lingua franca* (ELF), which refers to communications in English between speakers of other first languages. For the purposes of this article, the term EIL is synonymous with the term ELF and is used instead of ELF to avoid any unnecessary confusion.

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