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Integrating Pronunciation Into the English Language Curriculum: A Framework for Teachers

Research provides evidence of effective factors in pronunciation teaching and learning. However, incorporating research into classroom practice is a challenge left to instructors, often without the help of a systematic framework for integrating pronunciation into a curriculum. This article, informed by work with international teaching assistants, offers such a framework. Developed over a 10-year period, the framework was tested in a pre-post classroom-based research study that indicated significant pronunciation improvement. The authors guide classroom instructors and teacher trainers through a 5-stage curriculum-design process for the integration of pronunciation, and they exemplify the use of the framework via the development of an English for Specific Purposes curriculum for international teaching assistants. Each stage includes guiding questions, related research, and demonstration of the outcomes through examples from a curriculum designed for international teaching assistants. The framework provides a practical approach to integrating fundamental building blocks of effective pronunciation instruction into the curriculum design process.

Adult learners of English pronunciation in English for Specific Purposes (ESP) contexts face demanding communicative interactions necessitating a high level of pronunciation skills. As Celce-Murcia, Brinton, and Goodwin (2010) assert, "Perhaps more than any other aspect, pronunciation is the salient feature of our language competence. It is the lens through which we are viewed in each interaction we have" (p. 279). To attain the level of pronunciation required for their targeted language-competence levels, ESP profession-

als need effective learning experiences. The responsibility for creating this successful journey typically falls on the instructor.

The decision-making process of curriculum design requires instructors to think through, factor in, and grapple with a seemingly infinite number of variables. This entire process relies on the teachers' cognition—that is, their knowledge, beliefs, and thinking about teaching and learning pronunciation (Baker & Murphy, 2011)—and poses at least two fundamental challenges. First, theory and research not within a teacher's knowledge may be unintentionally overlooked, and second, even with solid preparation, each teacher must translate knowledge into the creation of a curriculum tailored to a unique context and a specific group of students. Richards (2013) describes a curriculum as "the overall plan or design for a course and how the content from a course is transformed into a blueprint for teaching and learning which enables the desired learning outcomes to be achieved" (p. 6). Consequently, there is a need for a systematic framework based on theory and research to support instructors in creating blueprints for effective pronunciation teaching and learning.

This article offers a five-stage curriculum-planning framework that allows teachers to draw on research and theory to guide decision making. Developed over a 10-year period, the framework was tested in a pre-post classroom-based research study that indicated that participants made significant pronunciation improvement (Sardegna & McGregor, 2014). The framework includes five stages sequenced to systematically address key components involved in integrating pronunciation into a curriculum. Table 1 presents the framework, including each stage's guiding questions and target outcomes. Stages 1 and 2 pertain to pre-course planning. Answers to the guiding questions for these stages comprise the fundamental building blocks that situate the course within an institutional context and align pronunciation instruction with learner factors. Stage 3 provides guidance in planning and conducting a needs assessment with awareness raising followed by prioritization of the results. Stage 4 involves the determination of explicit information on pronunciation features and considerations for explicit feedback. Finally, in Stage 5, instructors consider elements of the curriculum related to scaffolding skill development and promoting learner autonomy. In this article, each stage will be described, supported with relevant theory and research findings, and illustrated through an example from an ESP course for international teaching assistants (ITAs).

Table 1
A Five-Stage Framework for Integrating Pronunciation Into a Curriculum

Stages	*Guiding questions*	*Target outcomes*
Stage 1 Consider institutional factors	What institutional factors will impact the course?	Consider instructional parameters (proficiency-level curriculum guidelines, learning-management system, class size, time allotted, etc.)
	How is pronunciation covered in the textbook or supplemental materials?	Analyze coverage of pronunciation in the textbook; determine need for supplemental materials
	What is the teacher's cognition about pronunciation?	Recognize strengths/weaknesses in knowledge of pronunciation and pedagogy for pronunciation instruction
Stage 2 Identify learner factors	What are the learners' short- and long-term goals?	Identify: contexts, most appropriate model(s), and tasks
	How will the learners' cognitions about pronunciation impact the learning process?	Determine students' motivations, interests, background knowledge, and beliefs about pronunciation
	What are the common pronunciation challenges related to each learner's first language (L1)?	Pinpoint potential and typical L1-specific pronunciation challenges
Stage 3 Design needs assessment	How will the needs assessment be conducted?	Plan needs assessment
	What process will raise learner awareness of their actual pronunciation needs?	Determine self-assessment activity as a strategy for raising awareness of needs
	How will results of needs assessment for individuals and the class be prioritized?	Prioritize target features (e.g., thought groups and consonant clusters)
Stage 4 Provide information and feedback	What explicit information is needed to explain target features?	Identify explicit information for target features
	What type of feedback will be used?	Consider explicit feedback
Stage 5 Build in skill development /Learner autonomy	How can effective skill development be promoted?	Identify levels of competence and structure to design activities that will scaffold skill development
	How can an autonomy-supportive environment be created?	Incorporate activities that will support autonomous learning

Stage 1: Consider Institutional Factors

- What institutional factors will impact the course?
- How is pronunciation covered in the textbook or supplemental materials?
- What is the teacher's cognition about pronunciation?

In Stage 1, instructors identify institutional factors influencing the design of a pronunciation-inclusive curriculum. Factors such as a required curriculum and/or textbook, mandated learning outcomes, and level-specific pronunciation targets will naturally influence decisions on topics, materials, and time allocation for pronunciation instruction. Additional considerations might include class size, amount of class time, and access to a lab or learning-management system.

In addition, the textbook and the teacher's cognition will critically impact pronunciation teaching and learning. In a study examining pronunciation activities in 12 ESL general-skills textbook series, Derwing, Diepenbroek, and Foote (2012) investigated overall coverage devoted to pronunciation, pronunciation foci (target features), and task type as well as the extent of explicit information provided in the teacher's manuals. The overall coverage of pronunciation in the textbook series ranged from 0.4% to 5%. The most frequent pronunciation foci included word stress, vowels, rhythm, and sentence stress. The authors concluded that "many textbook series provided inadequate support to either teacher or student by the limited range of task types, few clear explanations in the student texts or teachers' manuals and limited review of pronunciation features covered" (pp. 36-37). In addition, McGregor (2016) found a mismatch between the unit learning objectives of a textbook and the pronunciation foci embedded in the chapters.

Textbooks can be evaluated for the inclusion of (a) suprasegmentals (thought groups, prominence, intonation, rhythm, and linking) and segmentals (consonants and vowels); (b) variation in pronunciation task types; (c) explicit explanations of pronunciation rules and features; and (d) the linking of pronunciation to other language content (Derwing et al., 2012). More specifically, instructors need to identify the amount and consistency of overall coverage, the target features included, the types of tasks, and the adequacy of explicit information provided. They should also analyze the match between pronunciation targets covered and the desired learning outcomes.

Given that a textbook or teacher's manual might lack sufficient explicit information on pronunciation, teacher cognition becomes extremely important in designing curricula. Borg (2006) defines teacher

cognition as the instructor's knowledge, beliefs, and thinking. Teachers need knowledge of pedagogy, curriculum, learners, educational context, and educational ends (Shulman, 1987). In addition, they need content knowledge about pronunciation and the pedagogy of pronunciation. During the planning stages and throughout the course, the instructor may need to seek out additional information in order to make use of activities in the textbook and/or identify supplemental materials to compensate for what is missing from the text.

Stage 1 ITA Example

This example concerns an oral-proficiency course curriculum for ITAs at an American university. The course had no preestablished curriculum or textbook requirements, but the instructor had access to Blackboard, a learning-management system. The only requirement was to prepare students for an in-house exit test in speaking. Time allocated to pronunciation was limited since it was only one aspect of improving oral-proficiency skills, which also included fluency, spoken grammatical accuracy, and the formulaic language of academic discourse. There were 15 students from a variety of departments in the class, which met two times per week for 75 minutes during the period of 15 weeks. The students had limited time to dedicate to English and pronunciation training outside of class. Given the lack of a dedicated textbook, the instructor adapted activities from *Communicate* (Smith, Meyers, & Burkhalter, 1992) and *Exceptional Presenter* (Koegel, 2007). Supplemental pronunciation materials came from *Speechcraft* (Hahn & Dickerson, 1999), *Well Said* (Grant, 2010), and *Accurate English* (Dauer, 1993) or were instructor designed. In regard to teacher cognition, the course was taught by one of the authors, who specializes in pronunciation. She believed that short-term work with suprasegmentals would show a greater impact on intelligibility than short-term work targeting segmentals, although she also recognized the importance of students' ability to pronounce field-specific terms accurately on the segmental level.

The outcomes of Stage 1 highlight institutional requirements (or lack thereof) and other factors, such as the availability of a learning-management system. Limitations of the textbook, teacher cognition, and/or the instructor's capacity to address pronunciation may also emerge. ESP learners' vocation-specific needs render most standard textbooks insufficient in terms of the contexts addressed, instructional tasks incorporated, and pronunciation foci, placing greater demands on teacher cognition and the curriculum. As a result, we encourage instructors to identify textbook weaknesses and seek out supplemental materials and resources for both the learners and themselves.

Stage 2: Identify Key Learner Factors

- What are the learners' short- and long-term goals?
- How will learners' cognition (knowledge, beliefs, thinking) about pronunciation impact the learning process?
- What are the common pronunciation challenges for each learner's L1?

Goals affect performance in four ways: by directing attention and effort, by energizing the learner, by affecting persistence (Locke & Latham, 2002), and by influencing actions, including discovery and/or use of strategies (Wood & Locke, 1990). To connect such performance advantages to pronunciation skill development, instruction needs to align with the personal and professional goals of the learners. Instructors need to identify the learners' personal and professional goals to determine what linguistic context(s) they are in or will ultimately find themselves in—whether English as a second language (ESL), English as a foreign language (EFL), or English as an International Language (EIL)—as this factor will directly inform decisions about the most appropriate pronunciation model(s) for instruction. By considering General American (GA) or Received Pronunciation (RP) models, and/or the Lingua Franca Core (LFC)—a set of features proposed to promote intelligibility in interactions between nonnative English speakers (Jenkins, 2000)—instructors can select the most appropriate model(s) to align with the learners' goals and begin to consider pronunciation priorities. An international graduate student at an American university, for example, may have a short-term goal of passing an ITA speaking test with a long-term goal of attaining a tenure-track position in the US. In this case, a GA model is most appropriate for the level of competence required to meet the demands of the learner's immediate and future contexts. In contrast, an international business administration student targeting future employment in a global context would also require a high level of competence to thrive in the competitive two-year American academic environment but in the long run might want intelligibility for EIL contexts, making LFC prioritization appropriate.

Generally, pronunciation instruction should be guided by the intelligibility principle (Abercrombie, 1949; Gimson, 1962; Munro & Derwing, 1995), which advocates helping students to be understood but does not set an expectation of nativelike pronunciation. ESP professionals, however, will likely require more than just a minimum level of being understood. In order to effectively influence decision making, contribute ideas, persuade or educate others, and/or man-

age a team, they will require a higher-than-average level of language competence, including the pronunciation skills to accomplish their goals. Consequently, their goals will establish the criteria for the level of performance outcomes. Given the professional contexts in which most ESP learners function, sensitivity to their listeners' efforts to understand them will be quite beneficial in recognizing areas of communication in which to improve. Instructors will be better positioned to support these learners by understanding distinctions that have been made (e.g., by Derwing & Munro, 1997) among the overlapping yet independent constructs of accent (deviation from a local norm), intelligibility (the degree of understanding by a listener), and comprehensibility (a listener's effort in comprehending accented speech) and then focusing on the learners' self-selected goals with regard to being understood, reducing listener effort, and increasing overall communicative effectiveness.

In regard to learners, the typical ESP learner may or may not (a) believe that significant pronunciation change is possible; (b) have a realistic awareness of his or her actual pronunciation needs; (c) have effective strategies to improve his or her pronunciation; and/or (d) know about suprasegmental features such as lexical, phrasal, and sentence stress along with intonation; nor will he or she understand the importance of all of these areas to achieving intelligibility. Derwing and Rossiter (2002) documented that students are often unaware of their pronunciation needs and tend to attribute their pronunciation problems to segmentals alone. Also, as Derwing and Munro (2015) assert, "Many learners require guidance from their instructors in the selection of specific pronunciation foci to improve their overall communicative effectiveness" (p. 110). Students tend to choose poor and/or inefficient pronunciation learning strategies and lack agency over the process. In investigating the traits that seem to make good pronunciation learners successful, Moyer (2014) identified the following combinations: "… strong intrinsic motivation, extensive exposure to authentic spoken language, good phonetic knowledge, and a strong belief that one is in control of progress in learning" (p. 299). Consideration of these critical traits of learners will help curriculum designers select which areas need to be incorporated in order to bolster strategic pronunciation learning.

Ultimately, teachers need to identify learners' actual needs. The instructor can take a preliminary step toward needs assessment by first considering the L1 of the learners.[1] While there are limitations to the contrastive analysis approach (Chan & Brinton, 2016; see also Munro, 2018 [this issue]), recognizing which sounds or features do not exist in the student's L1 and/or which are produced in different

ways can serve as an informative starting point for teacher preparation and begin the narrowing process of deciding which speech features to prioritize in the initial assessment and in instruction. With their array of educational backgrounds, professional experiences, individual differences, and oral-proficiency levels, ESP adult learners will vary greatly, hence the necessity for assessing the learner factors addressed in Stage 3.

Stage 2 ITA Example

This example concerns an oral-proficiency course curriculum for ITAs at an American university in which most of the students were native Mandarin speakers whose goal was to pass an ITA speaking test and obtaining an academic job in the US. Accordingly, the instructor adopted an approach to intelligibility that was appropriate for high-level learners. The course also adopted a GA pronunciation model. The importance of pronouncing field-specific words, conducting instructional tasks (defining terms, proctoring labs or discussions), and interacting with American undergraduate students (including during office hours) informed the decisions on which tasks to include. From past experience, the instructor was aware that students often began the course feeling frustrated by the need to improve their English skills while at the same time not believing that it was possible to improve their pronunciation. The instructor predicted pronunciation challenges common to L1 Mandarin speakers, based on previous experience: placement and production of word- and sentence-level stress, intonation, challenging segmentals such as /ai/, /ʃ/ and /ʒ/, and dropped noun and verb final *-s* errors.

Stage 2 considers learner factors in order to connect the curriculum to each learner's goal. Instructors use the learners' goals to select pronunciation model(s) and tasks that create a more motivating curriculum. Next, they identify critical cognitive factors that can promote successful skill development. Finally, a review of typical L1 challenges begins the narrowing process of identifying potential pronunciation needs to be addressed. In sum, analyzing learner factors connects a pronunciation-inclusive curriculum directly to the learners' needs based on their goals, cognitions, and L1s.

Stage 3: Design Needs Assessment and Prioritize Assessment Results

- How will the needs assessment be conducted?
- What process will guide the learners to raise awareness of their actual pronunciation needs?

- How will the results of the needs assessment for individuals and the class be prioritized?

According to Derwing and Munro (2015), a needs assessment should include multiple elicitation types (e.g., read-aloud speech samples and extemporaneous speech tasks), be recorded, and be quick to implement. It should also target issues known to affect intelligibility both for production and perception, such as prominence (sentence-level stress), word-level stress, and segmentals with high functional load, that is, those sounds that have been identified with higher relative importance in distinguishing the meaning of words (Brown, 1991; Munro & Derwing, 2006; Sewell, 2017).[2] In addition to production, speech perception (how well the learner perceives speech features) also needs to be assessed since being able to notice the characteristics of sounds is a critical stepping-stone to speech production.

One of the most important instructional steps to jump-start learners' pronunciation improvement is to address their lack of awareness of their actual pronunciation needs and/or knowledge about pronunciation features. ESP learners, even very advanced and professional individuals, are often unaware of their pronunciation needs (Dlaska & Krekeler, 2008) and may not even see the need to work on pronunciation. Consequently, a video- or sound-recording assignment that includes self-assessment with guided instructions on what to listen to and/or reflect on is one of the most critical tasks to trigger learners' awareness of their pronunciation skills. The Stage 3 ITA example below illustrates a needs assessment combined with an awareness-raising approach specifically designed to help learners recognize their pronunciation improvement needs and set goals with instructor guidance.

After the needs assessment, the instructor identifies and prioritizes individual and class pronunciation features to target improvement. These will likely include a combination of suprasegmental and segmental features. Baker (2014) shows how such decisions are influenced by the teaching context, especially the course, course book, and the extent to which a teacher has had previous pronunciation training. In the case of the ESP learner curriculum, prioritization must go beyond these aforementioned classroom factors because there are typically higher stakes involved than general English skill development. To a great extent, the overall efficiency and effectiveness of the pronunciation instruction will be due to the prioritization of features. Table 2 suggests additional approaches to prioritization for consideration.

Table 2
Pronunciation Prioritization Recommendations in the Literature

Prioritization approach	*General guidelines*
Zoom principle (Firth, 1992)	Begin with the widest focus and move to specific problems.
Suprasegmentals over segmentals (Hahn, 2004)	Work on suprasegmentals, which will have more impact than working with segmentals.
Functional load (Brown, 1991; Munro & Derwing, 2006; Sewell, 2017)	Target sounds that have the highest probability of differentiating meaning.
L1 prosodic hierarchy (Vogel, 1991)	Move step-by-step based on L1 acquisition principles, progressing from sounds to syllables, words, phrases, and, finally, intonational utterances.
Lingua Franca Core (LFC) (Jenkins, 2002)	Target those aspects that are most important for communication in a lingua franca context: for example, most RP and GA consonants except dental fricatives /θ/ and /ð/; word-initial consonant clusters; contrasts between long and short vowels; nuclear stress or prominence (i.e., the syllable that stands out in a thought group, also known as sentence-level stress).

The first two approaches in Table 2 recommend starting instruction from a global perspective. For example, instructors could begin with general speaking habits and then move on to more specific problems (Firth, 1992) or focus on suprasegmentals rather than on segmentals (Hahn, 2004). Another approach to prioritization for segmentals can be based on a list of sounds in order of functional load (Brown, 1991; Munro & Derwing, 2006; Sewell, 2017). By following an approach that uses the L1 prosodic hierarchy (referring to the prosodic stages that babies go through to acquire language), students develop their skills in scaffolded activities. The approach can be adopted more strictly by starting with sounds and then moving on to syllables, words, phrases, and complete utterances as skills improve or it can be applied more loosely, with the simple recognition that mastery of smaller features or units is needed before a learner can build up to utterance-level speech. Finally, research analyzing communication breakdowns in EIL contexts (see, for example, Jenkins 2002) supports an LFC prioritization—that is, targeting consonants (besides /θ/ and

/ð/) and consonant clusters, vowel length contrasts, and prominence or sentence-level stress. Prioritization based on a combination of the approaches shown in Table 2 is demonstrated in the following Stage 3 ITA example.

Stage 3 ITA Example

In this oral-proficiency course, individual and class needs were assessed during the first weeks of the semester, using (a) a three-part academic introduction videotaped assignment, (b) a read-aloud pronunciation diagnostic, (c) in-class interactions, and (d) individual consultations with the instructor. Students were video-recorded on the first day of class performing an academic self-introduction in their native language and then again in English. To raise learner awareness of their pronunciation needs, a three-part assignment was developed that guided students in watching their own performance, transcribing and revising their oral English, reflecting on the differences between their L1 and English, and generating their own improvement goals. Students also recorded a pronunciation diagnostic adapted from Celce-Murcia et al. (2010) to assist the instructor in identifying students' segmental and suprasegmental needs. The instructor used information from in-class interactions and from individual consultations when establishing individual and class pronunciation improvement goals.

A high-advanced level of intelligibility and accuracy suitable for the American academic context was the instructor-selected course standard based on the students' goals. Prioritization of pronunciation features was influenced by the following approaches: (a) suprasegmentals over segmentals; (b) students' needs, based on both segmental and suprasegmental production that impeded intelligibility; and (c) an adapted L1 prosodic hierarchy approach beginning with word-level skill development. Given the course standards, work on field-specific and academic terms was prioritized both as a performance outcome but also as the source to create scaffolded practice; students practiced using a "break it down/build it up" approach to word-level work. In other words, if segmental or word-level stress (placement or production) problems existed, the teacher could identify them and offer explicit feedback on the problems. However, if the word-level pronunciation was accurate, the learner could "graduate" and build up to practice at the phrase and utterance level. Within words, the instructor focused first on evaluating the students' production of individual syllables, word-level stress, and stressed vowels (Zielinski, 2008), then on their production of word-level intonation and rhythm (including schwa for reduced syllables), and, finally, on their production of other

consonants and vowels. As an example, L1 Mandarin speakers in the class often struggled with accurate stress production and placement in multisyllabic words. This instructional approach allowed them to first develop accurate word-level stress before adding sentence-level stress at the phrase and utterance level. At the same time, it helped them to produce meaningful intonation patterns across thought groups. The semester-long word-level pronunciation project is further described in the Stage 5 ITA example.

After a lesson on suprasegmentals, the focus of class activities was on students' improving their production of suprasegmental features. These features were prioritized as follows: thought groups (chunks of speech created by pauses), sentence-level stress (emphasis in a sentence), intonation (patterns of pitch), rhythm (timing of stressed and reduced syllables), and linking (connected speech; see Table 3 for definitions). The rationale for starting with thought groups was that the other features cannot be applied accurately to a broken stream of speech. In addition, improvement of thought grouping has been found to enhance fluency (McGregor, 2007; Murphy, 2013) and overall intelligibility since, with greater accuracy, more precise meaning is conveyed. Since intonation encodes meaning and sentence-level stress is the peak of the intonation pattern, this feature came second, followed by the entire pattern of intonation across thought groups. Rhythm was of lower priority to the instructor because of a belief that it affects the perception of accentedness more than it affects overall intelligibility.

To summarize, the outcomes of Stage 3 include the identification of actual pronunciation needs by and for the learner with guidance and input from the teacher. This co-created process uses guided self-assessment as a tool to open learners' eyes to their needs. The primary objective of this stage is to raise learner awareness of needs and instigate a path to learner autonomy by helping students begin to monitor their speech features. Prioritization of pronunciation features can be based on support of oral-proficiency objectives (fluency and intelligibility), word-level intelligibility research, skill development, and an emphasis on suprasegmentals. Ultimately, we recommend letting needs (both in terms of features and tasks) and scaffolded skill development (easy to more difficult) drive prioritization to support ESP learners in reaching their next level of competence.

Stage 4: Provide Explicit Information and Feedback

- What explicit information is needed to explain target features?
- What type of feedback will be used?

Learning opportunities can be thought of as explicit, with direct delivery and focus on information to develop a skill, or implicit, whereby a skill is seemingly picked up without conscious effort. In a synthesis of second language research (Norris & Ortega, 2001), explicit instruction was found to be more effective than implicit. With explicit knowledge about pronunciation, adult learners are equipped to (a) know what L2 pronunciation features to attend to; (b) discover what articulatory gestures to add or modify; (c) self-monitor, assess, and reflect; and (d) understand feedback from the instructor.

Reed (2016) conceptualizes feedback as "coaching learners to recall and retrieve what they know and put it into practice" (p. 240). In this sense, feedback is conceived as an interface that bridges the gap between *knowing* (declarative knowledge) and *doing* (procedural knowledge). Research has shown the positive role that corrective feedback plays in pronunciation improvement (Lee, Jang, & Plonsky, 2015); it also shows that the more explicit the feedback, the more effective it is, ensuring that learners notice the error (Saito & Lyster, 2012). Finally, there is evidence that, while teachers may be reluctant to provide feedback (Cathcart & Olsen, 1976), students prefer a greater amount of feedback (Schulz, 2001).

It is important that teachers understand the role of explicit instruction in promoting students' understanding of pronunciation features. Equally important, however, is that students are able to understand the corrective feedback provided. To facilitate this, when the language of instruction matches the language of feedback, a process is created to turn knowledge into a skill. Reed (2016) proposes two mechanisms to support this process: "Teaching Talk" and "Tell Backs." She defines Teaching Talk as "the succinct language of instruction used to introduce segmental or suprasegmental concepts" (p. 239). The explicit information provided in Teaching Talk should be presented both before and after explanations and examples. It can take the form of short rules, simple questions, or a combination thereof. For example, the teacher query "Is the final sound /t/ or /d/?" serves to call student attention to whether to "add the extra syllable" to pronounce the *-ed* ending on regular verbs. Student Tell Backs are verbatim or reformulated restatements of Teaching Talk by students to assist them in internalizing the concept.

In sum, explicit pronunciation instruction offers students a clear blueprint on what to do or change as well as the language to use to talk about the process. The information in Teaching Talk and Tell Backs gives students a tool to understand speech features, ask questions, and request and understand explicit feedback. Explicit corrective feedback will help ESP learners shift their attention from meaning to form and,

through this increased attention to form, promote the development of pronunciation skills.

Stage 4 ITA Example

To provide explicit information about suprasegmental features, the instructor designed an activity to include Teaching Talk explanations of these features along with perception practice to help students discover the features. To reinforce the learning process, the activity involved the use of shadowing, guided self-assessment, and reflection. Table 3 lists Teaching Talk explanations of suprasegmental features adapted from Grant (2010). Note that these explanations were intended to help students grasp the concepts readily with a minimum of technical language.

Table 3
Teaching Talk Explanations for Suprasegmental Features

Features	***Explanations***
Thought groups	Chunks of speech created by a pause; typically, 1-7 syllables but could be up to 15 syllables in length; a prerequisite for other features
Sentence-level stress	Pitch change and length (like word-level stress) within content word to highlight meaning; peak of the intonation pattern; prerequisite of intonation (the peak)
Intonation	Syllable-by-syllable movement of pitch across the thought group or sentence; encodes meaning
Rhythm	Combination of short and long syllables created through stress and reduced syllables
Linking	Connected sounds inside the thought groups; blurred word boundaries due to connection of sounds in rapid speech

In Table 4, the multistep activity demonstrates how first establishing declarative knowledge of pronunciation features facilitates the learning process. After a minilecture introducing suprasegmentals, students used the information provided to guide them as they listened to an excerpt from a recorded speech by Yo-Yo Ma. While listening, they were encouraged to notice and discover suprasegmental features. In addition, the instructor provided explicit instruction on how to shadow, a technique in which the students mimic a speaker after hearing a recording and attempt to match the speaker's pronunciation.[3] The instructor provided explicit feedback on the shadowing activity via a simple rubric. The rubric consisted of three 5-point scales to

Table 4
"This I Believe": Yo-Yo Ma Activity

Teacher actions	*Activity components*	*Activity description*
1. Provide explicit instruction	Prepare and deliver lecture on suprasegmentals and linking phenomena	Instructor defines, describes, and illustrates suprasegmental features.
2. Facilitate the learning process	Design in- and out-of-class practice	Instructor provides a recorded speech and partial transcript for training.
a. Raise awareness	Guide students to listen and use explicit information about suprasegmentals to identify and analyze features	Instructor helps students discover features by listening to specific pronunciation targets in the recording.
b. Model strategies	Demonstrate shadow practice technique and speech monitoring	Instructor demonstrates how students should practice using shadowing out of class and how they should record and use noticing and/or monitoring to self-assess.
c. Provide opportunities for guided output, speech monitoring, and self-assessment	Assign out-of-class practice and speech monitoring	Instructor assigns homework tasks for students to do using marked script to record their own version.
3. Assess	Provide opportunities for self-assessments and explicit instructor feedback via a rubric	Instructor asks students to compare and contrast their own recorded version of the model and then gives feedback on their self-selected best version.
4. Reflect	Facilitate guided reflections	Instructors post a reflective prompt on a learning-management system such as CANVAS or Moodle to stimulate students to reflect about what they practiced and learned.

Note. From NPRs *This I Believe* archive: https://www.npr.org/templates/story/story.php?storyId=87960790

rate performance accuracy of thought groups, sentence-level stress, and intonation. It also contained feature-specific comment boxes for individualized observations or explanations. Thus, explicit information was used not only to explain pronunciation features but also to describe how to practice and self-assess, what to change, and what to reflect on in order to promote high-level thinking about strategy choice and its impact on pronunciation improvement. This approach supports autonomous learning as described in Stage 5.

Overall, Stage 4 focuses on the role of explicit information about pronunciation features and explicit feedback. Without explicit information, learners lack information and guidance in what to improve and how to improve, making Stage 4 a critical building block for pronunciation improvement. With explicit information about suprasegmentals, the learner is equipped to (a) understand characteristics of features so as to notice and produce them, (b) ask questions about the features using the language of instruction, (c) execute modeled and/or guided practice strategies, and (d) understand explicit feedback on his or her level of accuracy.

Stage 5: Build In Skill Development and Autonomy

- How can effective skill development be promoted?
- How can an autonomy-supportive environment be created?

One source of frustration for both teachers and learners is when students in their spontaneous speech neglect to use a pronunciation feature they have practiced in class. This raises a fundamental question about facilitating the process of learning a new skill. Reed and Michaud (2005; see also Reed, 2016) propose a model adapted from Burch's hierarchy of competence model (Adams, n.d.; Exceptional Learners Lab, n.d.) to characterize the four stages of learning competence in L2 pronunciation acquisition. As shown in Table 5, there is a four-stage learning progression: (a) being unaware and unable to make a feature before instruction (unconscious incompetence); (b) gaining understanding of how to make a feature with explicit instruction yet still being unable to produce it (conscious incompetence); (c) being able to make the feature with conscious effort given structured activities and practice (conscious competence); and finally (d) with ample practice, being able to make a feature seemingly without effort (unconscious competence).

To help learners progress through the four stages of learning competence, it is critical that teachers design activities not only with the four stages in mind but also with the level of structure or instruc-

Table 5
Learning Competence Stages for Pronunciation

Stages of instruction	*Stages of progress*
Preinstruction	Level 1: Unconscious incompetence Students make errors unwittingly/ unconsciously.
Explicit instruction	Level 2: Conscious incompetence Students gain conceptual grasp; still make errors.
Structured activities and practice	Level 3: Conscious competence Students self-monitor and self-correct.
Ample practice	Level 4: Unconscious competence Students produce features automatically.

tional support needed for each stage. By level of structure, we refer to how controlled an activity is (i.e., highly structured, semistructured, or unstructured). For example, a highly structured activity could be minimal pair practice, a semistructured activity might be an information gap (in which two students have different content and must communicate to resolve the difference), and an unstructured activity could be a spontaneous speech, for example, "How was your weekend?" or a discussion on differences in educational systems. Table 6 (adapted from Reed, 2016) provides guidance for teachers on the ap-

Table 6
Level of Structure for Skill Development

Level	*Stage*	*Level of structure for skill development*
Level 1	Unconscious incompetence	Start with awareness raising through discovery, provide explicit information about target features as needed, and use highly structured activities to help raise awareness.
Level 2	Conscious incompetence	Focus on highly structured activities but move to semistructured and, subsequently, unstructured activities if accuracy of performance can be sustained; support with monitoring and self-assessment.
Level 3	Conscious competence	Focus on semistructured activities and move to unstructured activities; provide extensive practice in a variety of tasks.
Level 4	Unconscious competence	Move to unstructured activities and increase degree of difficulty to ensure competence in a variety of contexts.

propriate level of structure needed to promote the development of pronunciation skills. The appropriate level of structure not only helps learners progress from stage to stage but also reduces learner frustration because it promotes incremental improvement that motivates them to continue to engage in the process.

Two important factors in adult L2 pronunciation learning are learner autonomy (the ability of learners to independently practice pronunciation skills) and self-regulation (the ability of learners to make decisions and take proactive steps to improve their pronunciation on their own). It has been established that students' autonomous and self-regulated efforts are key factors in their degree of pronunciation improvement (He, 2011; Ingels, 2011; Sardegna, 2012). A key tool in self-regulation of pronunciation is the ability to self-assess, which aims to "promote student centered learning, to increase insight into the learning process and to encourage active learning" (Dlaska & Krekeler, 2008, p. 507). Self-assessment enhances learners' awareness of their own performance, increases their motivation, and shifts the responsibility for decision making from the teacher to students (Kissling & O'Donnell, 2015). According to the self-regulation theory of motivation, adult learners respond positively to autonomy, competence, and relatedness (Deci & Ryan, 2008). Consequently, when adult learners can autonomously and competently engage in pronunciation improvement, they take advantage of their adult learner capability by having a sense of control over their own skill development. ESP professionals are ideal candidates to be autonomous and self-regulated learners and can be effectively guided when these skills are built into a curriculum.

Stage 5 ITA Example

To scaffold skill development and support individual needs, a semester-long pronunciation project was assigned. Students did the following:

1. Identified 10 terms in their academic self-introduction (ITA Example 3) and subsequently collected 40 academic and/or field-specific words;
2. Followed a 10-step guide on how to practice their pronunciation (including how to use their cell phones for word-level practice);
3. Submitted a top-10 word list biweekly for feedback; and
4. Received feedback from the instructor.

To integrate the learning-competence stages and the level of structure deemed necessary, the project progressed as follows. Students engaged in awareness raising by identifying 10 pronunciation challenges from their video-recorded academic introductions. They then received a step-by-step guide with explicit information to understand the importance of: (a) accuracy in syllable structure (division of words into syllables; not having extra or deleted syllables in words), (b) correct placement and production of stress at the word level, and (c) vowel quality in stressed syllables. The guide also provided explicit instructions on how to strategically practice and troubleshoot word-level pronunciation. The difference between a Mandarin tone and English word-level stress (pitch change, duration/length, and intensity) was explained and contrasted. Feedback on the 10 words submitted was provided via written feedback or audio and/or video recording and was designed to be simple yet clear. Priority in the feedback was on the overall intelligibility level with an assessment of the production and placement of stress, word-level intonation, and stressed vowels, followed by other segmental issues. The level of structure was created by asking students to revise words that did not meet the standard and put them on the next top-10 list, and, when word-level pronunciation was mastered, students "graduated" and were tasked with putting the words into a phrase or simple sentence while maintaining accuracy in the practiced features. In this semester-long pronunciation project, students from various L1s practiced pronunciation targets and field-specific terms in scaffolded steps that progressed from word to phrase and then to sentence level.

Additionally, the 15-week curriculum consistently built in activities to promote learner autonomy and self-regulated efforts. Table 7 indicates instances across the semester when students engaged in these respective activities. The autonomy-supportive components were geared for students to:

- Raise awareness of their current skills, set their own goals (ITA example, Stage 3), and track their progress;
- Gain explicit knowledge about pronunciation features and the pronunciation learning process (ITA example, Stage 4);
- Compare and contrast their own pronunciation with a model;
- Follow guidelines to select and use appropriate strategies;
- Monitor their pronunciation and the learning process; and
- Reflect on the effectiveness of their pronunciation learning process.

Table 7
Integrated Components to Promote Learner Autonomy

	Week														
Components	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Awareness raising	✓	✓		✓	✓	✓									
Goal setting		✓	✓				✓								✓
Explicit knowledge	✓		✓	✓	✓	✓	✓		✓						
Comparing and contrasting		✓		✓	✓			✓	✓			✓			
Guided practice			✓	✓		✓		✓	✓			✓			
Strategy choosing			✓	✓	✓		✓			✓					✓
Monitoring				✓	✓	✓		✓	✓		✓				
Reflecting	✓		✓	✓	✓	✓	✓			✓	✓		✓		✓

In sum, Stage 5 involves instructors' taking steps to create a curriculum that supports scaffolded skill development and learner autonomy. Teachers can promote accuracy and automaticity by (a) helping students become conscious of their errors, (b) providing explicit information for them to build knowledge, and (c) engaging them in practice activities that move from highly structured to semistructured to unstructured. Learner autonomy can be built in through multistep activities as well as throughout a course. By integrating scaffolded skill development with the promotion of learner autonomy into a curriculum, instructors can support English learners as they embark on their own pronunciation improvement journey.

Conclusion

This article has presented a framework that helps teachers integrate pronunciation into the curriculum by guiding their decision-making process. Stages 1 and 2 ask instructors to consider institutional and learner factors in order to align the intelligibility levels, models, and tasks in the curriculum with learners' goals, taking into consideration institutional requirements and parameters. Stage 3

helps instructors conduct a needs assessment with awareness raising and subsequent prioritization of features for improvement. In Stage 4 instructors learn to draw on their knowledge to provide explicit information about pronunciation features. This information builds a foundation for the learners' skill-development process by increasing learners' knowledge and establishing a common language for understandable and precise feedback. Finally, Stage 5 helps instructors promote learner autonomy and self-regulation in their adult learners. The stages presented here are by no means exhaustive, nor are they static. They will need to be revisited throughout a course based on the pronunciation gains and needs of the learners as well as repeated through time to develop a pronunciation-inclusive curriculum. Instructors are encouraged to work systematically through the stages, take risks to experiment, and reevaluate pertinent guiding questions as they strive to create successful pronunciation experiences for their learners.

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Notes

[1]See *Learner English* (Swan & Smith, 2001) for a comparative look at English and 23 languages.

[2]Functional load is "the respective importance of a given phoneme in making a distinction in meaning" (Celce-Murcia, Brinton, & Goodwin, 2010, p. 108). Derwing and Munro (2015) recommend pronunciation-assessment focus on segmentals with high functional load (Munro & Derwing, 2006); see also Sewell (2017) for a review of functional load in lingua franca and non–lingua franca communication.

[3]Similar imitation-type techniques include tracking, voice-overs, echoing, and mirroring, which includes mimicking body language. See McGregor, Zielinski, Meyers, and Reed (2016) for a four-week mirroring lesson plan.

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