What's age got to do with it? Accounting for individual factors in second language accent

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Abstract

Empirical research conducted over the past few decades suggests that the age at which an individual is first exposed to a second language affects long-term outcomes, in particular for phonology. The question that has occupied scholars of various bents is what, exactly, underlies the robust age effects observed. Does age imply immutable changes in one's ability to ever sound native-like? Are these changes neurological, cognitive, or socio-psychological in nature? What role do L2 use and contact play? Do age-related influences apply to all individuals, or can language learners actually chart their own course when it comes to accent?
This paper will outline basic assumptions of the critical period for phonology while suggesting a different approach to the age question that highlights the individual's role in both process and outcome. Constructs such as L2 experience, motivation, self-concept, learning approach, and willingness to communicate are discussed in depth in order to show the fundamental connection between cognition and affect so critical for late phonological learning. A re-orientation of the age research is suggested as a result, to prioritize contextual understandings of language use and learner agency.

Keywords: critical period hypothesis, individual differences, second language acquisition, phonology acquisition, motivation

1. Introduction

By now it is rarely questioned that younger learners have the advantage in second language (L2) learning as compared to their older peers, particularly regarding the acquisition of a new sound system. L2 learners beyond the age of about 9 or 10 years can exhibit native-like behavior in certain subdomains of language, for certain tasks, and under certain conditions (Hyltenstam & Abrahamsson, 2001), but it is particularly unusual to reach a level of pronunciation ability that qualifies as consistently "native" or "near native." In broad strokes, the possible reasons include: (a) real neurological and/or cognitive changes that reduce the capacity for, or adeptness of, phonological processing, or (b) shifts in attitude and motivation that essentially discourage individuals from acquiring an altogether "new sound," particularly if doing so would compromise an already well-established sense of self. As Munoz and Singleton (2011) point out, researchers are not in agreement concerning the precise nature of possible maturational constraints, and "insufficient attention has been paid to a range of potentially important factors, such as amount and quality of input, learners' orientations and attitudes, and the specific conditions under which the L2 is encountered" (p. 2). What is clear is that age is a potentially multi-faceted influence, intricately connected with social and psychological factors that shape the learner's overall approach to, and experience with, the target language. Findings from small and larger-scale studies suggest that a host of factors shape phonological learning and attainment, many age-related (see Moyer, 2013).

With this complexity in mind, this paper will first outline basic assumptions and critiques found in the age effects research, and then highlight several emerging issues that emphasize the late learner's role in both process and outcome. Given the inherent connections between cognition and affect evident in the factors discussed here, I suggest a reorientation of the age question in L2 phonology to account for a multiplicity of age-related factors in empirical work, incorporating neuro-cognitive, social-psychological, and experiential influences on L2 accent.

2. Assumptions (and weaknesses) of the critical period hypothesis

The idea of a critical period for language learning has a long history, brought to the fore in SLA research through seminal work by Lenneberg (1967). The basic premise is that after a certain age, roughly coinciding with puberty, language learning is less complete, less successful, and noticeably "non-native-like" due to some neurological or neuro-cognitive decline affecting the mechanisms essential for language acquisition. For phonological acquisition, the nature of this decline could correspond to auditory mechanisms responsible for the accurate

perception of new sounds, or it could correspond to some decline in memory or processing capacity, although these would generally be a concern well into adulthood, not before. According to a strict interpretation of the critical period hypothesis (CPH), all individuals experience a loss of neural "plasticity," that is, the capacity to engage various neural regions and connections to support the learning of new patterns. In the case of phonology, this could apply to both "higher order" analytical processes and "lower order" muscle control at the level of speech articulation. In other words, it is not simply auditory processing, perceptual acuity, knowledge reorganization, and the like, that affect phono-logical acquisition; control of the articulatory organs must also be flexible enough to produce new sounds and sound combinations and sequences.

There are several areas of ongoing debate in the CPH/age effects litera-ture. One centers on the question of the nature of age effects, that is, whether they are really linear—continuing in a consistent relationship from early in life through adulthood—or whether they peak with maturation (at about 15 years of age), after which individual variation predominates (e.g., Johnson & Newport, 1989; cf. Birdsong & Molis, 2001; Flege, 1999; see discussion in Birdsong, 2006). (A further point is that age effects linked to puberty may be confounded with the learner's chronological age at testing, which brings into the equation edu-cation and other background variables, as well as individual cognitive differ-ences; Muñoz, 2008, p. 587ff.) Singleton and Leśniewska (2012) critique a strict endorsement of the CPH since "any decline in L2-learning capacity that occurs at the end of childhood varies from individual to individual . . . it also appears that any decline in L2-learning capacity with age is continuous and linear, which is not in keeping with the usual understanding of the notion of critical period" (p. 102). Further complicating matters, there is debate over a definitive "offset point" for phonology, since even those with early childhood exposure to a sec-ond language may retain a foreign-sounding accent (Flege, MacKay, & Piske, 2002; see Bongaerts, 2005; Munro & Mann, 2005; Singleton & Ryan, 2004). This suggests that there is more to it than age-bound processing potential; the exist-ence of another language could be responsible for nonnative like features in L2 (Muñoz & Singleton, 2011, p. 4; see also Flege, 1999).

A strictly cognitive view of age effects in SLA posits that analytical mech-anisms dominate language processing by the age of puberty (some argue that this obscures the pathways by which infants process and acquire language; see Singleton & Leśniewska, 2012 for discussion). The emphasis is therefore on age-related difference rather than deficit. The articulatory corollary is that early flex-ibility in auditory processing, as evidenced by babbling across a seemingly infi-nite range of possible speech sounds, starts to wane as the sound patterns in the infant's immediate environment become salient and solidified, even within

the first year of life (Kuhl, 2007). As a result, sounds that are not part of the native language inventory become ever more difficult to perceive and to produce. By adulthood, this may be an insurmountable barrier for some; however, explicit training can mitigate the difficulties (e.g., Sereno & Wang, 2007).

At this time many questions remain about the mechanisms involved and how they might change. Unclear also is the nature of the perception-production interface, and whether certain processing abilities are necessary to overcome the challenges of late phonological learning. If young children have any specific advantage, its nature and neural location have yet to be identified (see Singleton & Ryan, 2004). Meanwhile, there is both short and long-term evidence that adults can and do acquire efficiently and expertly in this realm (Bongaerts, Planken, & Schils, 1995; Ioup, Boustagi, El Tigi, & Moselle, 1994; Moyer, 1999; Muñoz & Singleton, 2007). All of this has led some to express skepticism about the inevitability of age as a negative influence (e.g., Moyer, 2013; Muñoz & Singleton, 2011; Scovel, 2000; Singleton, 2005). Some points that support this skepticism include:

- Competence versus processing: Rather than addressing possible declines in linguistic knowledge or *competence*, scholars have focused on age-related declines in *processing* (e.g., speed, memory, etc.) (Mulder & Hulstijn, 2011). Yet little is known about "the exact functions of brain areas involved in language production and perception, or about . . . the relationship between the localization of neural substrates and language learning outcomes" (Muñoz & Singleton, 2011, p. 20). Furthermore, there is no clear indication that underlying mechanisms relevant to phonology are associated with age-related neural or cognitive decline before adulthood. Meanwhile, recent evidence reveals two interesting phenomena: (a) processing declines in language apply to native speakers just as they do to nonnative speakers, and certain factors seem to ameliorate them, for example education level (Mulder & Hulstijn, 2011); (b) neural functions seem to remain plastic, or flexible, well into adulthood (Dick, Pizzamiglio, Saygin, Small, & Wilson, 2005; Herschensohn, 2007), casting real doubt on the plasticity argument that is the basis for the CPH.
- Capacity to learn: Contrary to infants, adult learners are no longer a linguistic "blank slate," ready to absorb any and all primary data or input. Nevertheless, they can learn to distinguish new categories as a result of noticing certain features (Hancin-Bhatt, 2008), which may in itself forge new neurological pathways (see Sereno & Wang, 2007). Such pathways can even be sustained even after months of discontinued exposure to the language, regardless of whether they are forged under explicit training conditions or immersion-style implicit learning conditions (Morgan-Short, Finger, Greyand, & Ullman, 2012).

- Instruction matters: Persistent problems at the level of either perception or production could be a straightforward matter of insufficient practice or input. Here, the quality of practice is key; Werker and Tees (2005) assert that input and feedback which are consistent, interactive, and repetitive can successfully bridge any gap between a child's and an adult's language learning abilities. Second, the type of instruction matters. We have evidence that speech rate, pause, and intonation as well as rhythm, are statistically significant for overall accent ratings (Kang, Rubin, & Pickering, 2014; Nardo & Reiterer, 2009), and that those who have received some kind of suprasegmental training obtain closer-to-native accent ratings compared to those without such training (Derwing & Rossiter, 2003; Moyer, 1999).

- Difference versus deficit: The CPH is firmly rooted in a *deficit* view of late language learning, but late learning appears to be different, not necessarily *less than*. Let us consider L1 transfer or interference. As reliance on L1 grows over time (i.e., with age, for a monolingual), the stronger a foundation it becomes for subsequent language learning. Inevitably, comparisons are drawn between L1 and L2, some erroneously. New sounds and sound sequences are a common source of trouble for L2 learners (see Major, 2001). Examples include consonant clusters that are unfamiliar or that occur at unfamiliar positions in the words, syllable structures and stress patterns that defy L1 rules, and so on (Hayes-Harb, 2014). These inaccuracies may be a natural by-product of the learning process given a preexisting knowledge base; they are not necessarily indicative of neuro-cognitive, age-related *decline*.

- The experience issue: Age of onset has a significant relationship to experience, but the nature of that relationship has yet to be clarified. An older learner typically has fewer opportunities to engage with the language in meaningful ways (see below), while at the same time, an extended length of residence may allow the learner to fully utilize opportunities for language learning and use. At the level of phonological learning, it may be that certain aspects of sound are processed differentially, over time, in an immersion context, so that length of residence is more significant than age of onset for specific aspects of sound production (Jia, Strange, Wu, Collado, & Guan, 2006; Saito & Brajot, 2013).

The traditional age effects/CPH literature has been overwhelmingly concerned with universals, not with individual variation. Nor has it given real attention to the social dimensions of language learning. In the following sections, I suggest that language input and use interact with both cognitive processes and affective inclinations, and that these are interwoven concerns for late learners. Following on

few years, taking on a different language identity than their parents. Jia and Aaronson (2003) present a comparison of younger and older arrivals to the United States, for example, that illustrates how younger children and adolescents negotiate this differently, and the linguistic consequences thereof. By contrast, adult immigrants have greater difficulty establishing L2-based social networks, and may have no access to instruction in the target language. The result is that they may never achieve the kind of communicative fluency that would sustain such a network, and thus never establish a firm sense of self in the target language. (Of course, this may not be a goal for all late learners.)

Muñoz (2008) reminds us that age of onset in L2 is not an indicator of when significant, meaningful L2 input begins. Thus, focusing on age of onset without accounting for context has, more often than not, led to erroneous conclusions about age as a singular influence on L2 attainment (p. 585). Experience is one factor that illustrates this long-standing disconnect. As noted, adults and children are distinctive in terms of L2 access and use, which for those living in-country affects not just their linguistic lives, but their social ones as well (see Levelle & Levis, 2014). Recent L2 phonology studies support this view, bringing to light two predictors of accent in an immersion context: interaction with native speaker friends, that is, using the language within one's own inner circle (Moyer, 2004, 2011); and primary use of L2 relative to L1 (Flege, MacKay & Piske, 2002; Moyer, 2011). Both *interaction with native speakers* and *L2 use relative to L1* point us toward a new research agenda, one that explores the unique path by which language fluency evolves into possible L2 dominance, and the effect this has on accent at all levels: segmental, suprasegmental, and discursive. Qualitative analyses offer a view into how this process is mediated through active decision-making (see Moyer, 2004, 2014).

Those considered exceptional, that is, those who sound native-like despite a late start in the second language, tend to be L2 dominant in the home, which surely intensifies their desire and efforts toward native-like fluency. As noted, once one develops a strong reliance on, or even preference for, L2 over the mother tongue, L2 "performs not just instrumental, but emotional and social functions essential to a sense of self" (Moyer, 2013, p.78). This is an intriguing issue as it illustrates the connection between accent and identity, as well as agency. What role do learners play in this transition toward greater reliance on L2, and what are the implications for the authenticity of their accent? Specifically, do they concentrate more acutely on suprasegmental features once they reach a certain level of fluency? More investigation about how language shift is negotiated should be a priority in introspective phonology research.

As far as classroom language learning goes, the odds of attaining a native-like sound as an adult are certainly low, but not necessarily for any intrinsic

(neuro-cognitive) reasons. Input is reduced, and the learner finds himself in a far less "authentic" environment than do immersion learners, with fewer L2 models with whom to practice. Taking a long-term view, without ongoing opportunities to use the language in real-life contexts, any fluency gained is likely to fade away once the classroom experience comes to an end. On top of inherent input and practice limits, the effectiveness of the classroom experience also depends on individual receptivity to teacher and approach, as well as individual learning styles and strategies, motivation, attitudes, and the rest.

The experience issue underscores the fundamental connection between affective factors and cognitive ones, which is so essential for understanding age effects. Together, these intersecting factors may be described as learner *orientation* (Moyer, 2004), incorporating goals and goal-setting, desires, learning strategies, and one's sense of the likelihood of success for the endeavor at hand (aka *self-efficacy*). Their significance for accent is gaining greater prominence in the research. The following sections prioritize these and a few other learner-driven constructs.

3.2. Motivation, attitudes and self-concept

By all accounts, motivation in language learning is complex and difficult to capture, but two dimensions of it have been defined in the research: (a) *integrativeness*, or the positive inclination and openness toward the L2 community and culture; and (b) *instrumentality*, or the expected extrinsic benefits that will follow from learning the language well. Some scholars have sought to verify their differential impact on SLA, but for phonology, both seem to have significance (Bongaerts et al., 1995; Moyer, 1999, 2004). The distinction itself is somewhat arbitrary. For example, the desire to know more about target language culture really involves either/both, as pointed out by Clément and Kruidenier (1983). What matters most seems to be the depth of one's investment in the language, and the consistency of that investment over time (e.g., see Moyer, 2007).

Another way to look at motivation is proposed by Dörnyei (2005), who emphasizes an "ideal L2 self," an individualized concept driven by personal or professional goals. Csizér (2012) suggests that "without a pronounced (and perhaps idealized) self-image, the level of L2 motivation will be less strong and goals will be more immediate" (p. 242). Moreover, if the distance between the idealized and the actual self is too great "motivation . . . will not be sufficient to achieve long-term success" (p. 242).

Tangential to motivation, attitudes such as desire to sound native, concern with pronunciation accuracy, comfort with linguistic and cultural assimilation, and self-ratings of accent have long had a place in L2 phonology studies, with statistical tests of their significance generally supported by qualitative and

introspective data (see Piske, MacKay & Flege, 2001). Like motivation, attitudes can be both a priori and dynamic. Preconceived ideas about the language and its speakers can affect the willingness to take on a new cultural and linguistic identity, and thus affect one's approach to language learning, but at the same time, new experiences can lead to changes in attitude and approach. It is essential to ask L2 learners about their intended goals and approaches toward accent in order to put their actual attainment in context.

Exceptional learners often cite a deep commitment to, if not "love" for, the target language (Moyer, 2014), and perhaps seeing their "ideal L2 self" as attainable actually focuses their efforts in specific ways (see Muñoz & Singleton, 2007). The converse also has some supporting evidence: Baran-Łucarz's (2012) low-achieving learners cited a strong desire to sound native-like in English, but only as a function of instrumental motivation, for example, the desire for a better job, as opposed to a sense of "fascination" with the language (see also Moyer, 2004). L2 learners judged to sound most native-like have a few good (meta)cognitive habits in common in addition to an optimal orientation: They reflect on their progress, update their goals and approaches accordingly, take advantage of possibilities to use the language with native speakers, and practice and utilize feedback conscientiously (ibid.). In other words, their investment in the language is deep and well-defined. As shown in Moyer's (2014) analysis of exceptional learner case studies, those who reliably sound native-like actively "self-regulate" and approach fluency as an ongoing process. Whether their learning style precedes their deep sense of connection to the language, or is developed in response to it, is another interesting question for future work.

Self-concept and self-efficacy seem to have special prominence for learners with exceptionally good accents in a second language. Those who believe they are capable of improving their accent, and focus on aligning it with native-speaker norms, do come significantly closer to that goal (Moyer, 2007). There may be a moderately "self-critical" element at play as well. When reflecting upon gains made in accent, those who have attained to near-native or native-like levels rate themselves lower than actual listener ratings indicate, as shown in Muñoz and Singleton's (2007) study of native-like late learners, and in Baran-Łucarz's (2012) study of 65 teacher training students of English. Far less successful learners, by contrast, tend to overestimate their pronunciation skill, and to attribute difficulties to limited time available for practice. Of greatest interest perhaps is the belief cited by those with "excellent" pronunciation that relevant factors were within their control, with the opposite obtaining for those considered "poor" or "very poor" (Baran-Łucarz, 2012). In sum, preliminary work on attribution style and self-efficacy reveals that false self-concepts and beliefs about pronunciation learning

characterize those with lower levels of attainment, while those with closer-to-native accents have a strong sense of agency and self-efficacy.

Conscious reflection and continual reassessment of one's progress and approach appear to be key to acquiring an accent that sounds authentic across various kinds of speaking tasks (not just word or sentence-level recitation). Introspective data has shown that in order to sound native-like in a second language, any pre-existing "linguistic ego" or self-concept must make room for a new "voice," even if that involves a painful trade-off. Late learners who do achieve this have something in common; they are willing to pursue their goals at some social and psychological cost, for example through loss of connection to friends and family, or to an L1 community in the target language environment (e.g., Muñoz & Singleton, 2007). They persevere in the face of challenges and setbacks, including self-consciousness about accent, and the lack of a strong social network (as in Moyer, 2004). Clearly, their self-concept is malleable in certain respects, and continual goal-setting, reflection, and self-assessment guide its development (see Mercer, 2012).

3.3. Willingness to communicate (WTC)

As Levelle and Levis (2014) point out, "social involvement may be an important strategy for those who want to improve their pronunciation" (p. 103). Identifying with a target culture goes along with the willingness to engage with others, and to "gaining access to real speakers . . . [which] opens up opportunities to notice how people talk, how they interact, the ways in which they package their words and gestures, and the sociolinguistically marked variants that evoke comfort in interactions" (Lavelle & Levis, 2014; see also Gluszek & Dovidio, 2010, cited in Levelle & Levis, 2014). This is the essence of the *willingness to communicate* construct, defined by MacIntyre, Dörnyei, Clément and Noels (1998) as "a readiness to enter into discourse at a particular time with a specific person or persons, using a L2" (p. 547). As with other affective factors, *willingness to communicate* (WTC) is a "trait" or tendency, tied to one's prior experiences and personality, yet it is also reflects immediate communicative concerns depending on interlocutor, topic, function, and so on. WTC is perhaps most immediately influenced by perceptions about one's own language competence (Derwing & Munro, 2014; Subtirelu, 2014).

On a broader, societal level, WTC references perceptions of how nonnative speakers are valued and evaluated as members of the community. This is an important consideration because "[w]e are social beings," write Levelle and Levis (2014), "and communication and pronunciation live and develop within social contexts" (p. 103). Cultural beliefs or ideologies may guide its di-

rection, so for example, if nonnative speakers are expected to carry the "communicative burden" and to adhere to accent standards (Lippi-Green, 1997), this can feed their insecurities and lead them to communicate in circumscribed ways (Subtirelu, 2014). The effect on long-term phonological attainment is predictably negative, as shown by Hansen (1995). Alongside fear or embarrassment, factors such as political and ethnic affiliation can affect WTC within a given context. For example, one may have little interest in sounding native-like if one's ethnic identity differs from that of the dominant language (see Gatbonton, Trofimovich, & Segalowitz, 2011). These ethnolinguistic identity factors obtain in classroom settings also, as do considerations like receptivity to the teacher and pedagogical approach, group size and dynamics, and the opportunities to communicate that a given task provides (Cao, 2011, p. 468).

Age of the learner is relevant to the WTC construct. Younger learners have been shown to be more willing to engage with native speakers socially, and to adopt (inter)active practice opportunities, while older learners tend toward more passive and solitary forms of practice (Victori & Tragant, 2003), possibly due to greater self-consciousness and reduced tolerance for risk-taking. This has an impact on long-term attainment since close personal contact with native speakers is crucial to developing a more native-like accent (Moyer, 2004, 2011). So, WTC is an obvious corollary to the age issue, and has real potential to affect ultimate attainment, but has rarely been mentioned in the L2 phonology research.

WTC has been examined primarily as a factor affecting immediate interactive situations, that is those where communication with others is a necessity. Seen from a long-term perspective, however, WTC is ultimately a strategic aspect of the learner's orientation; it shapes cognitive, metacognitive, and social strategies aimed at improving all aspects of language fluency. WTC is also a two-way street; it does not apply solely to the L2 user. Derwing and Munro (2014) discuss why it is so important to encourage native speakers to listen to accented nonnative speakers as a way to equitably share the communicative burden.

3.4. Self-monitoring and learning styles

Given the individual variability seen for both short and long-term attainment in SLA as a whole, and given that some L2 learners seem to have an advantage when it comes to phonological learning, we inevitably return to a decades-old question: What constitutes a "good language learner"? This familiar quandary can be updated to suit a more modern, dynamic, learner-centered view. To what extent does the learner herself guide the process and eventually arrive *intentionally* at an ultimate outcome (be that "successful" or not)? One way into

this quandary is to explore learning styles and strategies consciously directed at phonology, an area that has rarely been explored.

There is evidence that learners who undertake a range of practice and self-monitoring techniques end up sounding more native-like according to a range of tasks. Moyer's (2004) study analyzed the types and number of strategies reported by immigrants to Berlin, and found that those who engage in multiple strategies aimed at accent, including regularly imitating native speakers, enjoy significant advantage in ratings assigned by native speaker listeners. In terms of learning style, it is a characteristic of these participants that they seek out feedback beyond the confines of a classroom, that is, they are proactive, reflective, highly motivated, and have a metalinguistic approach to feedback.

Learners seem to understand that pronunciation is key to communicative fluency and the negotiation of meaning (Derwing & Rossiter, 2002), but this alone is no guarantee of progress. Cognitive, metacognitive, and even social strategies are significantly correlated with closer-to-native accent ratings (Moyer, 2004, 2014). Specific examples include focusing on tempo, volume, and clarity in real time (e.g., Osburne, 2003), reflecting and seeking out feedback and practice on specific problem features (e.g., Moyer, 2004), and initiating greater contact with native speakers with the explicit intention to practice and improve (Moyer, 2004, 2007).

Few L2 phonology researchers have directly addressed learning style, strategies and self-monitoring, so several questions could guide future work:

- Explicit versus implicit focus: What is the relative significance of an overt focus on suprasegmental features like tempo, pitch range, intonation, and the like as opposed to segment- and word-level practice for long-term phonological attainment? There is some indication that suprasegmentals are especially relevant to listener judgments of nativeness (see Anderson-Hsieh, Johnson, & Koehler, 1992; Derwing & Rossiter, 2003; Moyer, 1999), but this may not receive the greatest attention by either the learner or her instructor. Furthermore, Derwing and Rossiter (2002) provide evidence that learners connect comprehensibility to segmental precision, yet the repairs they make while speaking have to do instead with volume, tempo, and repetition (among other discourse-level features).

- "Stage" in context: Do learners at different proficiency levels self-monitor in different ways, for example, focusing on segmental accuracy in the early stages and gradually incorporating more awareness and practice on discourse-level features? Would their selected attention differ according to learning context? For example, immersion environments may encourage a heightened awareness of suprasegmentals, whereas

the classroom may invite more overt focus on segmentals if speaking tasks are more circumscribed and/or controlled.

- Matching ability: How effectively do L2 learners use targeted feedback? How well do they gauge their own performance against the model provided? Students should be guided by their instructors to notice the various levels involved in accent: segmental and suprasegmental; and word-, sentence-, and discourse-level features that affect comprehensibility. In this way, self-monitoring could be enhanced and practiced to greater effect (see Smith & Beckmann, 2010 for examples).
- Self-critique as impetus: Do those who are not quite satisfied with their accent end up reaching greater levels of fluency (see discussion in the previous section)? Is the exceptional learner's tendency toward slight discontent with accent key to his perseverance?

These questions beg further questions about memory, selective attention, perceptual acuity, risk-taking tolerance, motivation, and desire to sound native. A well-rounded instrument design is needed to put these factors into perspective, and to test their respective strength for an age effects model.

Pawlak (2011) maintains that older learners use "a greater number of more sophisticated strategies in a more general manner," and those who are more motivated employ "a wider range of strategies more frequently than less motivated ones" (p. 23) (see also Moyer, 2004, 2007). Of course, the strategies chosen by any individual depend on the nature of the learning goals. We should also remember that the ability to adapt to (sometimes challenging) circumstances is a factor underlined by analyses of exceptional learner accent studies. All of this suggests the need for longitudinal approaches to the relationship between accent, self-regulation and learning approach.

4. Directions for future research: Bringing cognition and affect together

All the issues discussed above, namely experience, motivation, attitudes, WTC, self-concept and self-monitoring, and so on, point to the complex connections between cognition and affect, an area just coming of age in SLA research. Many relevant issues could not be accommodated in this short paper, including aptitude, identity, and the like. Here, I have selected a few possible priorities for future L2 phonology research in order to contextualize the age factor, and to operationalize a deeper understanding of individual differences. Phonology is an especially exciting area for this agenda given its inherent complexity, processing-wise, and its essential connections to self-concept and self-efficacy. I highlight below two thought-provoking studies that speak to the cognition-affect interface emphasized throughout this paper, approached from very different angles:

- Empathy was first brought to light decades ago as an influence on accent (Zuengler, 1988); however, researchers are beginning to look at it in new ways. Rota and Reiterer's (2009) study sheds light on how empathy may connect to various cognitive abilities relevant to accent, particularly at the more advanced stages of fluency. The authors used a range of psychometric aptitude batteries, psychological and nonverbal intelligence assessments, reaction-time tasks, memory span tests, and questionnaires on subjects they separated into "highly talented," "average," and "anti-talented" groups for pronunciation fluency (and for some of these tests, as "high," "average" and "low" talent for overall L2 proficiency). Within their advanced group, empathy correlated to phonetic coding ability, imitation ability, perception of suprasegmental features, and the degree to which one enjoys imitating novel accents. This raises intriguing questions about how empathy connects to: (a) memory (e.g., through the phonological loop, perhaps); (b) selective attention to tone, pitch range, and so on; (c) the willingness to articulate new sounds and patterns. It makes sense intuitively that those who strive to sound as authentic as possible have a greater tolerance for risk-taking, and a greater predilection to self-monitor and gauge their accuracy against a native speaker model. They also appear to enjoy experimenting with new accents and voices. A new picture of "optimal orientation" could emerge from a combination of neural imaging data, various test batteries as mentioned, and survey instruments that are introspective in nature (see also Hu & Reiterer's 2009 discussion of neuro-imaging perspectives on personality and extraversion as related to SLA and pronunciation talent).

- It is Blommaert's (2013) view that language and identity is "iterative work . . . a repetitive routine or ritual in which we engage in creative constructions of ourselves and our partners . . ." (p. 620). Thus far, few L2 phonology studies explore this new territory. An exception is the study by Magnusson and Stroud (2012), who present a longitudinal analysis of 20 multilinguals, born and raised in Sweden, of Assyrian-Syrian background. All come from multilingual families, and all have a repertoire of different oral and written languages for home, school, work, and so on. Style-shifting and code-switching are part of their everyday linguistic performance, in other words. The authors propose a new view of *focus on form* as a self-aware, situationally-adaptive strategy that evolves out of these participants' "struggles with ethnic and linguistic discrimination and censorship, factors that . . . impact how they focus on form across their linguistic lifespan" (p. 327). The authors present introspective data to show how these young adults, all customer service

representatives, modify style, accent, and register to position them-
selves as native, non-native, or near-native speakers of Swedish during
customer service calls, depending on the caller's perceived identity. In
the course of interaction, they choose whether or not to adhere to "ex-
pected" levels of correctness, authenticity, and allegiance. It may be a
function of their youth, not just their multilingual backgrounds, that
leads to these playful permutations on accent, also attested by other
studies on "passing" among adult L2 learners (Marx, 2002; Moyer, 2004;
Piller, 2002). These kinds of studies underscore the fluidity of accent as
a conscious practice, less as a potential "deficit" and more as a resource.
Along these lines, Cutler (2014) has both reviewed and undertaken re-
search on "racialized" identities adopted by immigrant youth in the
United States. Their remarkable proficiency requires being able to (a)
perceive how the racialized dialect (e.g., of African American English)
varies from the standard, and (b) reproduce those differences convinc-
ingly as part of their stylistic repertoire (p. 158). L2 learners make
choices at the phonological level in order to highlight aspects of their
identities in interaction, signal degrees of alignment with other groups,
and shape how others see them. Most importantly, new evidence shows
that speakers possess a greater degree of agency over their phonology
than was previously imagined, allowing for the expression of a greater
range of identities and alignments through language (p. 149). An obvi-
ous question is *why*, what are the motivations for doing so? (p. 158).
Given these new insights, the cognition-affect conundrum would best
be approached via a full appreciation for context and agency.

Based on the above discussion and the studies cited therein, those whose
abilities defy expectations for late phonological learning seem to share two as-
pects of orientation, one quite personal, or intrinsic, and one outwardly di-
rected. First, their self-concept is inextricably tied to advancement in the target
language. Second, they pursue new avenues to connect socially with native
speakers. They also tend to describe themselves as outgoing and socially moti-
vated, which could indicate extraversion, possibly related to greater WTC, lower
anxiety, and superior short-term memory, according to Dewaele and Furnham
(1999; see also van Daele, Housen, Pierrard, & Debruyn, 2006). At some point, a
pivot toward L2 dominance occurs for some, with consequences for fluency and
processing abilities in both languages. Up to now, the relationship of L1 to L2 has
been seen simplistically (as hours of weekly use, for example), rather than as a
reflection of language choice, meaning, in accordance with the individual's in-
tended expressive ability within defined contexts. Turning our perspective in

favor of learner agency and context would more clearly reveal conscious intentions vis-à-vis L2 use, and thus, long-term attainment.

5. Conclusion

Age effects research has traditionally failed to capture the complexity and dynamism of the experience of language learning, and the myriad factors that influence its course of development. It has also ignored context, by and large. What drives some to pursue a native-like sound, while others do not engage in the same ways? What are the ultimate consequences of sounding foreign? Even many current studies of bilingualism are notably devoid of context, focused instead on neurological responses to language processing without accounting for language experience that is socially grounded. This can provide insights on L1-L2 processing differences, no doubt, but tells us nothing of the active, reasoned choices made by L2 users. Furthermore, Harrison (2012) points out that bilingual speakers are rarely equally competent in both languages because they "use their languages for different purposes and social contexts" (p. 3). This kind of orientation would put a new spin on brain imaging studies, to be sure. Prioritizing context could underscore the real consequences when "linguistic competencies are defined and evaluated in relation to monolingual standards" (p. 3). In Harrison's study, for example, bosses espoused tolerance for their employees' different accents, but in reality those with the strongest foreign accents sensed that they were not perceived as "legitimate" (p. 7), and that their professional qualifications were, in some cases, overridden by judgments of their English proficiency (p. 10). Attaining functional fluency may not be enough, in other words; knowledge of how to use L2 in socially desirable ways, in accordance with "standard" norms for accent, can constitute a gateway to fair treatment and equal access (Harrison, 2012). With this in mind, the research needs to open up to the relative "messiness" of introspective methods if we are to understand the social implications of accent. Such a focus would move us from the what of age effects, to the (all but unspoken) why-does-this-matter question, and place the factors that are within the learner's control above those that are not.

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