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Student Teachers' Cognition about L2 Pronunciation Instruction: A Case Study

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Abstract: In view of the minimal attention pronunciation teacher preparation has received in second language (L2) teacher education, this study examined the cognition (i.e. beliefs, thoughts, attitudes and knowledge) development of 15 student teachers during a postgraduate subject on pronunciation pedagogy offered at an Australian tertiary institution. Findings revealed that, as a result of taking the subject, student teachers' cognition shifted from teaching individual sounds (i.e. segmentals) to favouring a more balanced approach to pronunciation instruction. That is, teaching the melody of the English language (i.e. suprasegmentals) was seen as important as teaching segmentals. Non-native speakers' self-perceived pronunciation improvement, an increase in their awareness of their spoken English, and native/non-native collaboration played critical roles in facilitating participants' cognition growth. The findings also showed that cognition development is a complex process. The paper concludes with recommendations for preparing L2 teachers to teach English pronunciation in their classroom contexts.

Keywords

Second language teacher education, pronunciation, teacher cognition, language awareness, non-native English-speaking teachers

Introduction

Due to the rapid expansion of English as an international language (Jenkins, 2000), requiring non-native speakers (NNS) to communicate with other NNSs and native speakers (NS) alike, the demand for competent second language (L2) instructors has grown exponentially in the past two decades (Wright, 2010). This growth has led to the increase in importance of second language teacher education (SLTE) and consequently the L2 teacher is now commonly viewed as a learner who is situated in a particular context and affected by various external factors (Burns & Richards, 2009). Given the emphasis that is placed on effective SLTE, it is surprising that the preparation of pronunciation instructors represents a minor role in educating L2 teachers, and that relatively little is known about how pronunciation teachers are prepared (Baker & Murphy, 2011; Murphy, 2014). While this lack of attention is most likely a reflection of L2 instructors finding pronunciation difficult to teach (Foote, Holtby, & Derwing, 2011; Macdonald, 2002; Setter & Jenkins, 2005), it is problematic because clear pronunciation is considered to be essential for successful oral communication by many L2 teaching experts (Celce-Murcia, Brinton, & Goodwin, 2010).

Positioned in this particular context, the aim of the current study is to explore the preparation of pronunciation instructors in order to foreground this important, yet neglected area of SLTE. Drawing on the construct of second language teacher cognition (SLTC) – encompassing beliefs, thoughts, attitudes and knowledge (S. Borg, 2006) – the study investigates the development of student teachers' cognition about pronunciation instruction. Research has demonstrated that examining teacher cognition is crucial to more fully understand the nexus between teachers' mental lives and their practices (Barnard & Burns, 2012; S. Borg, 2006). Baker (2011b), for example, showed that postgraduate education can have a positive effect on experienced L2 teachers' cognition and their pronunciation teaching practices. As Baker's research was conducted (possibly several years) *after* the instructors' completion of their postgraduate work, it is unknown as to how their beliefs and knowledge about pronunciation pedagogy developed during their studies. To identify and determine the critical links between postgraduate education and critical moments in their education where cognition development may be initiated or experienced further growth, the present study encompasses an in-depth examination of native and non-native English-speaking student teacher's cognition development *during* a postgraduate subject on pronunciation pedagogy.¹ The study will, therefore, yield new insights into the process of prospective L2 instructors learning to teach pronunciation with subsequent findings having important implications for effective pronunciation teacher preparation.

Second Language Teacher Education and Pronunciation Pedagogy

Contemporary SLTE now encapsulates a strong emphasis on teacher candidates learning to teach (Wright, 2010); yet, a dominant theme in the literature on L2 pronunciation pedagogy is that many L2 instructors lack confidence and find pronunciation challenging – if not *the* most challenging element of a language (Setter & Jenkins, 2005) – to teach (Baker, 2011a; Macdonald, 2002). This is problematic because pronunciation is considered to be an important area of L2 learning (Celce-Murcia, et al, 2010) with intelligibility being regarded as the instructional target instead of native-like pronunciation (Derwing & Munro, 2005; Munro & Derwing, 2015). In fact, pronunciation research has shown that having an accent does not impede intelligibility (Munro & Derwing, 1995), and therefore mutual understanding through intelligible speech should be the aspirational model in the L2 classroom (Couper, 2006). In order to achieve L2 learner intelligibility, experts advocate a balanced approach to pronunciation instruction that includes the teaching of individual sounds (vowels and consonants) and prosodic elements such as stress, rhythm and intonation (Grant, 2014). Nonetheless, given the difficulties most L2 instructors have with teaching pronunciation, specialists believe that pronunciation pedagogy courses should feature a more prominent role in Teaching English to Speakers of Other Languages (TESOL) programs in order to better prepare instructors to teach English pronunciation effectively (Burgess & Spencer, 2000; Murphy, 2014). The call for more educational opportunities is justified by studies showing that L2 teachers generally do not possess adequate training in pronunciation instruction and that they often desire additional professional development opportunities in this area (Breitkreutz, Derwing, & Rossiter, 2001; Burgess & Spencer, 2000; Foote et al., 2011). Research conducted in teacher education contexts provides further support for this need to incorporate pronunciation into L2 teacher preparation programs. Golombek and

¹ Because of the negative connotation the term *non-native speaker* often encapsulates, the notion of *multilingual or multicompetent user* is used in contemporary literature (Kamhi-Stein, 2013). However, due to the study's objective of attempting to identify differences in cognition development, the more traditional distinction between native and non-native speakers is maintained throughout this paper.

Jordan (2005), for example, demonstrated how the use of professional literature on challenging the NS myth (i.e. the assumption that only NSs are effective L2 teachers) in a postgraduate pronunciation pedagogy subject assisted two non-native English-speaking teachers (NNEST) in their identity transformation as being legitimate English speakers and teachers. In addition, in Burri's (in press) study, a pronunciation subject had a positive impact on the development of teacher candidates' cognition, particularly on their perception about English accents and their beliefs about the pedagogical goal of pronunciation teaching. Similarly, Baker's (2011c) work revealed that postgraduate education can be beneficial to L2 instructors' knowledge growth and their ability to teach pronunciation. According to Murphy (2014, p.196), however,

there is little evidence concerning even the more general topics and experiential activities featured through coursework in MA TESOL and TESOL Certificate programs. This seems to be one of the more glaring gaps in the research literatures tied to the professional development of ESL/EFL classroom teachers.

In short, for more than a decade scholars have advocated increased empirical research into pronunciation teacher education; yet, this call has been inadequately addressed. Hence, the study discussed in this paper aims at providing an in-depth examination of how L2 instructors learn to teach pronunciation. To achieve this, the development of student teachers' beliefs, attitudes and knowledge about pronunciation instruction is explored during a 13-week postgraduate subject on pronunciation pedagogy.

The Development of Second Language Teacher Cognition about Pronunciation Pedagogy

SLTC, defined as L2 instructors' beliefs, perceptions, attitudes and knowledge about the subject matter, has attracted considerable attention and research in the past two decades (S. Borg, 2012). As Borg (2006) argues, the rapid growth of SLTC can be attributed to a desire to attain a holistic picture of L2 teaching, which requires greater understanding of and research into teachers' mental lives and knowledge (i.e. cognition). Subsequently, a great number of studies conducted in a wide variety of L2 teaching contexts have emerged. These studies have focused mainly on L2 instructors' cognition about grammar, reading and writing, highlighting the richness and complexity of L2 teaching and the many factors that are typically involved in L2 teaching (for comprehensive overviews of these studies see Barnard & Burns, 2012; S. Borg, 2006). However, even though pronunciation is considered to be an essential element for effective oral communication (Celce-Murcia et al., 2010), pronunciation has received relatively minimal attention in SLTC research (Baker & Murphy, 2011; S. Borg, 2006). The few studies that have explored pronunciation issues have generally focused on teachers' beliefs about pronunciation instruction (Baker, 2011a; Burns, 2006; Macdonald, 2002), and the relationship between SLTC and pronunciation teaching practices (Baker, 2014). Somewhat astonishing, considering that approximately 80% of English teachers in the world speak a first language (L1) other than English (Braine, 2010), only limited research has been conducted on NNESTs' cognition about pronunciation pedagogy. Wahid and Sulong (2013), for instance, demonstrated that some NNESTs consider NSs to be better pronunciation teachers, while Jenkins (2005) and Sifakis and Sougari (2005) found that most NNESTs tend to favor a NS accent as the appropriate model for teaching pronunciation. Nevertheless, Murphy (2014) claims that, in spite of often being reluctant to teach pronunciation possibly due to insecurity "about the quality of their own pronunciation" (p.205), NNESTs can in fact be effective pronunciation teachers. Murphy posits that the strength of NNESTs is that they have gone through the process of learning the English sound

system themselves and therefore have the ability to empathize with L2 learners' challenges of acquiring English pronunciation. Murphy's opinion resonates with recent work on NNEST issues suggesting that speaking English as an additional language does not entail a pedagogical disadvantage, but rather the opposite (e.g., Braine, 2010; Ma, 2012; Mahboob, 2010).

While these studies have made valuable contributions to the field of pronunciation instruction, what is missing from the literature is a crucial focus on the development of SLTC about pronunciation pedagogy. Researching this development is not only important to better understand how teachers' knowledge and beliefs develop, but it could provide us with a better understanding of why L2 instructors find pronunciation challenging to teaching. Baker (2011b) seems to be one of the few studies examining how the cognition of pronunciation teachers advanced over time and how this progress related to their teaching practices. As mentioned earlier, Baker's research also demonstrated that a subject on pronunciation pedagogy had a positive impact on five experienced teachers' beliefs and knowledge about pronunciation instruction. Yet, her work examined the cognition development of instructors several years *after* it had taken place, thus revealing some uncertainty about cognition growth *during* a SLTE context. The present study, therefore, builds on Baker's work in that it explores the development of native and non-native student teachers' cognition as it takes place during a postgraduate subject on pronunciation pedagogy. Exploring the development of NNS cognition and comparing it with the process experienced by NS student teachers should provide invaluable insights into how student teachers learn to teach pronunciation. This research focus is particularly relevant in view of the increasing influx of non-native student teachers in Western-based TESOL programs (Carrier, 2003). Consequently, newly gained understanding obtained through this study will allow for recommendations to be made that could be used to improve the preparation of pronunciation instructors irrespective of their L1. It is important to note, however, that the objective of comparing NNS and NS cognition development is not to identify elements that favor a particular group, but rather to improve the preparation of all pronunciation teachers (Murphy, 2014). Accordingly, derived from the literature and research discussed above, the study is guided by the following research questions:

- How does NNS and NS student teacher cognition about L2 pronunciation instruction develop during a postgraduate subject on pronunciation pedagogy?
- To what extent does the development of cognition about L2 pronunciation instruction differ between NNS and NS student teachers?
- What factors contribute to or restrict the development of NNS and NS student teacher cognition about L2 pronunciation instruction?

Theoretical Framework

This study is underpinned by the notion that L2 teachers need to be knowledgeable about pronunciation pedagogy to teach it effectively (Murphy, 2014), particularly since research has shown that L2 instructors tend to possess limited knowledge about pronunciation instruction and the English sounds system (i.e. phonology) (Baker, 2011c). The knowledge base is expected to be acquired in SLTE programs, and it comprises student teachers learning about segmentals (individual sounds such as consonants and vowels), their articulatory features (i.e. how these sounds are pronounced), sound-spelling correspondence and suprasegmentals. Suprasegmentals, also called prosody, include stress, rhythm, thought groups, connected speech (i.e. blending of words), and intonation. These elements are important because they "stretch over more than one sound or segment" (Grant, 2014, p.16)

and therefore characterize the melody and flow of the English language. Maintaining a balance between segmentals and suprasegmentals is considered to be best practice in pronunciation instruction (Crowther, Trofimovich, Saito, & Isaacs, 2014) with the objective being to achieve intelligibility (i.e. ease of understanding a speaker) rather than native-like pronunciation (Derwing & Munro, 2005; Thomson & Derwing, 2015). Other important components of the knowledge base of pronunciation pedagogy (and were included in the subject in which this study was conducted) are teaching techniques (Baker, 2014), fluency development (Gatbonton & Segalowitz, 2005) and the integration of pronunciation into ESL curricula (Levis & Grant, 2003; Trofimovich & Gatbonton, 2006)

Drawing on teacher knowledge theory (e.g., Shulman, 1986, 1987) and the knowledge-base of pronunciation instructors, however, provides only partial insight into the preparation of NSs and NNSs to teach English pronunciation. Thus, to obtain an insider perspective on participants' learning to teach pronunciation and factors that facilitate and/or hinder this process, the research is grounded in Borg's (2006) theory of SLTC, encompassing teachers' thoughts, beliefs, attitudes and knowledge of how to teach pronunciation (e.g. how to teach consonants, intonation, etc.). An additional reason for using the construct of SLTC is that, according to Borg, knowledge, beliefs and thoughts are interwoven and virtually impossible to be separated. Using SLTC as an overarching framework enables the researcher to capture and, ultimately, illustrate the complex nature of learning to teach pronunciation. At the same time, it allows for the notion of teacher language awareness (TLA) to be incorporated into the study (Andrews, 2003). Being able to draw on TLA is important for a study exploring student teachers' cognition about pronunciation instruction because, according to Andrews (2007), TLA is seen as "a core component of the L2 teacher's knowledge base" (p.200). It is expected that as student teachers progress through a pronunciation subject, their language awareness increases and subsequently they begin to notice certain features of the English sound system. TLA is thus a crucial component that complements the theoretical framework of this study. In light of the context in which this research is situated (pronunciation teacher preparation), student teachers' phonological awareness (PA) signifies TLA. PA is defined in this research as an L2 teacher's intuition, insight and understanding of how phonology works, and is therefore seen as a key element in pronunciation instruction (Venkatagiri & Levis, 2007).

Lastly, following previous research on language teacher education and SLTC, the terms 'change' and 'development' are used interchangeably in this study, "referring to the process whereby teachers come to alter aspects of their cognitions and practices in response to their encounter with new input" (Kubanyiova, 2012, p.7). This alteration, taking place within the time frame of a university subject, then allows the researcher to capture and identify the growth of student teachers' awareness and knowledge (i.e. cognition) about pronunciation instruction.

Overview of Research Context

The study was conducted in a 13-week long postgraduate subject on pronunciation pedagogy offered at an Australian tertiary institution. The content of the subject was divided into a range of themes that are commonly discussed in the literature and research on pronunciation instruction and learning (see Appendix A for an overview of the themes). *Teaching pronunciation: A course book and reference guide* (Celce-Murcia et al., 2010) featured as the core text. A collaborative approach to learning was chosen in which group work and discussions were used prominently throughout the semester. The lecture content, assigned readings and discussion tasks reflected a contemporary approach to pronunciation

teaching which constituted the teaching of both segmentals and suprasegmentals to enhance the English pronunciation of L2 speakers (Crowther et al., 2014; Grant, 2014). The integration of pronunciation instruction into other skill areas of L2 teaching, such as reading and grammar, as well as several class discussions about the use of different English varieties in the L2 classroom were other noteworthy components the lecturer incorporated into the subject.

The lectures were held once a week for a 3-hour session, and each lesson followed a similar pattern.² The first hour was typically devoted to student teachers' learning about technical aspects of the English sound system (e.g. articulation of vowels and consonants, characteristics of intonation patterns, principles of connected speech etc.); in the second hour, the lecturer usually trained the participants in a haptic (e.g., kinesthetic/tactile) approach to pronunciation teaching (Acton, Baker, Burri, & Teaman, 2013), and in the third hour, the students participated in a whole-class phonological analysis of English learner or NS speech. The purpose of this last part was to improve the student teachers' general PA.

Methodology

Participants

Fifteen out of 24 postgraduate students enrolled in the pronunciation pedagogy subject provided written consent to participate in the study. The 15 participants varied in regards to their first languages, ages and teaching experience. The majority ($n=10$) of participants identified themselves as NNSs (Ellis, 2004), indicating that they grew up speaking a language other than English, such as Japanese ($n=6$), Cantonese ($n=3$), and Persian ($n=1$). The remaining participants ($n=5$) were native English speakers. The NNSs were between 20 and 45 years of age, whereas the NSs ranged between the ages of 20 and 60. The gender was equally divided among the NNS participants, whereas the NSs were all female. Four of the 10 non-native student teachers (Aoi, Mio, Ken and Rio) and one of the native-speaking participants (Georgia) reported having between five to 20 years of pronunciation teaching experience in their home country. Appendix B provides an overview of participant information relevant to the study. Pseudonyms are used for all of the participants to protect their privacy.

Research Design

A qualitative case study design was chosen for the researcher to triangulate multiple data sources (Creswell, 2013) and to conduct an in-depth analysis leading to a thorough understanding of the development of participants' cognition about pronunciation pedagogy (Duff, 2008). Employing multiple sources was important since relying on questionnaires alone is generally seen as being insufficient to attain insights into the cognition of language teachers (S. Borg, 2006). Consequently, drawing on research that has investigated SLTC (Baker, 2014; Barnard & Burns, 2012), data from focus group interviews, questionnaires, classroom observations and semi-structured interviews were collected over a period of 17 weeks. The data collection from semi-structured interviews took place within four weeks of the completion of the 13-week subject.

To yield insights into the cognition of NNSs and NSs, focus groups were arranged as homogeneously as possible according to ethnicity and pronunciation teaching experience

² It should be noted that the researcher was not involved in the teaching of the subject.

(Krueger & Casey, 2000). The researcher organized the focus groups based on biographical information participants provided in the first questionnaire (see below). Each group consisted of three to five members and interviews were held in Weeks 5, 9 and 12 at the participants' convenience. At the beginning of each meeting, the groups were asked to share a key moment – or what Richards and Farrell (2005, p.117) call a “critical incident”, reflecting a memorable, challenging or unexpected event – they experienced during the weeks leading up to the focus group interview. All of the focus group meetings were recorded using a digital voice recorder.

The questionnaire the lecturer typically administers at the beginning of the pronunciation subject was used to collect biographical data from participants, including accounts of their previous L2 learning and teaching experiences. The questionnaire also contained 17 multiple choice questions asking students about their beliefs, attitudes and knowledge about pronunciation instruction. To identify potential cognition development related to pronunciation instruction, a shorter version with the multiple choice items, a question about homework and an open-ended question about additional thoughts on pronunciation teaching was given to the participants at the end of the semester.

Classroom observations of the lectures – a vital component in SLTC research for they generally complement interview data effectively (Baker, 2014; S. Borg, 2003) – were conducted weekly. This included observations which provided data on classroom dynamics (e.g. participants' interaction and reaction to class content) that were then used as a stimulus for focus group and semi-structured interview meetings. When a particular occurrence was identified during an observation, key words rather than complete sentences were noted down in order for the researcher to remain focused on classroom dynamics. After an observation was completed, the key words were expanded into more detailed field notes. In addition to the observations, all of the classes were video recorded using a Canon Vixia HFR21 camcorder positioned in the back corner of the room. Using video recordings allowed the researcher to review certain sequences multiple times during the data analysis, and therefore gain an in-depth understanding of any occurrences that were identified in the observations.³

Towards the end of the semester, four non-native student teachers (Mark, Rio, Mio and Hiro) and three native-speaking participants (Georgia, Lucy and Grace) were invited to take part in a 30-45-minute one-on-one semi-structured interview to attain additional perspectives of individuals (see Appendix C for sample interview questions). The participants were selected based on emerging themes the researcher felt needed further exploration to achieve a thorough understanding of student teachers' cognition development. Also, since the focus groups were arranged homogenously, interviewing 1-2 members per group was considered to be sufficient to collect additional data representative of participants' beliefs and knowledge about pronunciation pedagogy.

The video recorded observations, and audio recorded focus groups and semi-structured interviews were transcribed verbatim following the completion of the semester. Based on a collection of codes that Baker (2011c) developed in a study exploring SLTC and pronunciation instruction, Nvivo 10 was used to code all of the collected qualitative data thematically. Baker's set of codes was then expanded and conceptual displays were generated that reflected participants' cognition and subsequent factors affecting the development of student teachers' beliefs and knowledge about pronunciation instruction. This allowed the researcher to reduce and manage the large amount of qualitative data effectively (Miles & Huberman, 1994), and, at the same time, gain a more detailed understanding of participants' cognition growth.

³ Only video data of students that provided consent to participate in the study were considered and transcribed.

Findings

Coinciding with some of the SLTC literature (e.g., M. Borg, 2005; S. Borg, 2006; Mattheoudakis, 2007; Phipps, 2007), the study showed that cognition development is a complex research area. Nevertheless, the findings clearly demonstrated that student teacher cognition can develop significantly during the course of a pronunciation subject. To highlight the most prominent themes emerging from the data analysis, this section is divided into three parts. The first one focuses on the development of student teacher cognition about suprasegmentals,⁴ which was most evident; the second section summarizes factors that impacted the development of participants' cognition about suprasegmentals; and the third part outlines factors which stimulated the development of NS cognition about pronunciation instruction.

Development of Student Teacher Cognition about Suprasegmentals

As was evident during the focus group meetings, classroom observations and final interviews, the awareness of all of the participants about the different aspects involved in effective pronunciation pedagogy increased gradually during the subject. It must be noted, however, that this development in cognition was an individualistic process (M. Borg, 2005; Murray, 1995) with the level of each participant's growth varying considerably. What stood out was that, in general, all 15 of the student teachers became more aware of the importance of suprasegmentals. This particular area of growth was the result of participants' acquisition of subject content that encapsulated a balanced-approach to pronunciation pedagogy. As was observed, the lecturer advocated contemporary principles of pronunciation teaching by frequently emphasizing the importance of teaching both suprasegmentals and segmentals (Celce-Murcia et al., 2010; Crowther et al., 2014; Grant, 2014). The emphasis on a teaching approach encompassing segmentals and suprasegmentals was also reflected in regular classroom discussions and in the assigned readings students were expected to complete as homework. Lucy, a native speaker, for example, noted that prior to commencing the semester she did not know what prosody (i.e. suprasegmentals) was. At the end of the subject, however, when asked about whether she would emphasize segmentals or suprasegmentals in her classroom, she responded: "I see the benefit of both, but I'm actually more of a suprasegmentals person..." (FI).⁵ Georgia, a native speaker with almost two decades of teaching experience in the L2 classroom, indicated that the course helped consolidate her knowledge, and, at the same time, increase her understanding of suprasegmental features such as prominence:

all these years I've been teaching various things and to actually get a term, as simple as the word 'prominence', which I probably should have known, but I had never come across before ... so for me it's like putting together a jigsaw puzzle. (FG2-1)

Additionally, at the beginning of the subject Hiro (L1 Japanese) held strong beliefs about segmentals, but his cognition shifted to recognize the role of suprasegmentals in pronunciation instruction towards the end of the semester:

Before I studied this subject, my interest was on segmentals. I wanted to learn segmentals and how to teach native-like sounds, [but] my

⁴ The analysis revealed other less prominent areas of student teachers' cognition change, but including them is beyond the scope of this paper.

⁵ The annotation system used for quotations is as follows: FI = final interview; FG1-3 = focus group 1, interview 3; OW4 = observation/week 4.

focus shifted into suprasegmentals and sentence stress and prominence and rhythm and intonation. Those sounds I think should be focused on more. (FG1-3)

Similar to Hiro’s evolving cognition, Kirsten (L1 Cantonese), who was unsure about suprasegmentals in the first questionnaire (Q1), expressed her newly gained perspective about the importance of teaching suprasegmentals towards the end of the semester: “I think [suprasegmentals] are important for Hong Kong students. I think it’ll make a great difference to their spoken English...” (FG4-3). These findings are important because, contrary to some of the literature discussing that L2 instructors, especially NNESTs, favor the teaching of segmentals over suprasegmentals (Foote, Trofimovich, Collins, & Urzúa, 2013; Wahid & Sulong, 2013), the present study demonstrated that over the course of the semester, the participants’ awareness of suprasegmentals increased. This growth then led to a shift in their cognition about the need for a more balanced approach to pronunciation instruction.

It is important to point out, however, that there was a notable difference in the level of increase in participants’ awareness about suprasegmentals. As Table 1 illustrates, the shift experienced by NNSs from a focus on teaching segmentals towards a more balanced approach to pronunciation instruction was more noticeable than the one reported by NSs. That is, in the second questionnaire some of the NNSs appeared to have become more aware about the existence of suprasegmentals and about the need for a balance between teaching segmentals and suprasegmentals, whereas the NSs seemed to be more uncertain about this matter (see Q2 column). Thus, the fact that NNSs’ awareness about suprasegmentals increased more in comparison to their NS peers needs to be examined further. In what follows, factors which stimulated and/or restricted the growth of student teachers’ cognition about suprasegmentals are described.

	Native speakers		Non-native speakers	
	Q1	Q2	Q1	Q2
Strongly agree / agree	50% (2)	50% (2)	44.5% (4)	11.1% (1)
Maybe	25% (1)	50% (2)	33.3% (3)	33.3% (3)
Strongly disagree / disagree	25% (1)		22.2% (2)	55.6% (5)

Table 1: Learning English pronunciation means learning how to pronounce individual vowel and consonant sounds

Notes: Raw figures (number of participant responses) are in parentheses; Q1 = questionnaire 1; Q2 = questionnaire 2; Alizeh and Mai’s answers were excluded from this analysis as they did not complete the second questionnaire

Factors Impacting the Development of Student Teachers’ Cognition about Suprasegmentals

Data obtained through focus groups and semi-structured interviews demonstrated that two main factors played a crucial role in the development of non-native student teachers’ cognition about suprasegmentals. These factors were NNSs’ self-perceived improvement of their own pronunciation and increased awareness of their spoken English ability. Overall, eight of the 10 NNSs reported that they felt the subject had helped them to enhance their pronunciation skills as well as to increase their awareness of their own speech. This sense of improvement was then often connected to participants’ emerging cognition of

suprasegmental features occurring in the English language. Hiro, for instance, described his progress as follows:

...actually I could see the progress in my pronunciation and it was fun
... It was very deep for me. Before taking this [subject] and during
this [subject] I learned the importance of suprasegmentals. Of course I
knew it was important, but I didn't know it was this important to be
intelligible. (FI)

Hiro felt that taking the pronunciation subject helped him improve his pronunciation. At the same time, he mentioned a shift in perception about the importance of suprasegmentals, indicating that a relationship existed between self-perceived pronunciation progress and an increased understanding about teaching suprasegmentals. A similar connection was observed in Kirsten's development. While she began to see value in teaching suprasegmentals (as shown above), in the third focus group interview she explained that she enjoyed some of the kinesthetic/tactile teaching techniques because they enabled her to personally experience prominence (i.e. phrasal stress); something she had not experienced prior to taking the subject. In other words, the kinesthetic/tactile techniques the lecturer introduced in class helped her attain a better feeling for the rhythm of the English language. Therefore, the findings suggest that the pronunciation pedagogy subject increased some of the NNSs' awareness of their spoken English and provided others with a sense of pronunciation improvement with both of these factors then facilitating NNSs' cognition growth in the area of teaching suprasegmentals.

The combination of self-perceived pronunciation improvement, increased awareness of their own spoken English and a growing understanding of suprasegmentals appeared to be a powerful symbiosis that provided several NNSs with confidence in possessing the ability to teach English pronunciation in their classrooms. Hiro, for example, who reported progress in his own pronunciation and growth in cognition about suprasegmentals, mentioned (in response to being asked to describe a key moment experienced during the subject) an increase in belief that he had the ability to teach pronunciation: "...before I started taking this subject, I was thinking of how I could teach pronunciation now, and my pronunciation is not perfect ... but I kind of got confidence" (FG1-3). The data, therefore, revealed that personal pronunciation improvement and an increased understanding about suprasegmentals empowered Hiro in gaining confidence in possessing the necessary skills to teach pronunciation. Similarly, at the beginning of the semester the beliefs held by Mio revolved around the need for teaching native-like pronunciation, but during the subject she reported that she began to notice some of the subtle differences in phonological features used in spoken English (FG2-3), suggesting that her language awareness had developed (Andrews, 2007). Subsequently, in the final interview, echoing Murphy's (2014) argument of NNSs being in a powerful position to teach pronunciation, she considered NNSs to be potentially more effective pronunciation teachers than NSs because NNSs were more aware of their own speech production and therefore better able to empathize with their students' challenges. Furthermore, Rio felt that his awareness of English speakers' use of intonation had improved during the subject (FI). An analogy he made in his final interview captured his emerging beliefs upon the completion of the pronunciation pedagogy subject: "if a person knows just one language ... he cannot feel everything. It's like ... a person who just was born in Sydney, lived in Sydney for 22 years, he doesn't have any idea about snow" (FI). This analogy about someone from Sydney not knowing snow reflected Rio's newly found assurance that he was a capable pronunciation teacher. In other words, the pronunciation pedagogy subject appeared to increase his awareness of phonological aspects of the English language (such as intonation). Consequently, he began to believe that he in fact possessed a higher awareness of the English language than NSs (i.e. they don't know what snow is), which resulted in

growing confidence that he had the ability to teach pronunciation effectively. In the same way, even though Aoi mentioned that she was “still struggling with making correct intonation” (FG2-3), towards the end of the semester she thought the subject had increased her confidence in being a capable pronunciation teacher:

this subject provides me [with a] new perspective on teaching pronunciation because before doing this subject, [I thought] non-native speakers cannot teach pronunciation properly but now I have a little bit confidence ... I know how to teach even I'm non-native.
(FG2-1)

The NNSs' expression of confidence in their ability to address pronunciation in L2 classrooms is an intriguing finding because previous literature indicated that NNESTs' often lacked confidence in teaching spoken English (Hiramatsu, 2005; Jenkins, 2005; Llorca, 2005; Park, 2012; Tang, 1997). The findings, therefore, illustrated that the pronunciation pedagogy subject had a powerful impact on these NNSs in that it facilitated a perceived increase in their own pronunciation and heightened their awareness of their own oral English. Subsequently, their cognition about suprasegmentals developed, instilling in these student teachers confidence and a strong belief about being legitimate and capable English pronunciation teachers.

In light of the NSs' cognition growth, the study findings suggested that student teachers speaking English as an L1 did not gain the same understanding of the role of suprasegmentals in pronunciation instruction as their NNS peers. Not experiencing improvement in their own pronunciation due to their native proficiency was possibly a factor limiting their cognition development. However, the focus group data indicated that, even though participants' PA was not explicitly measured in this study, NSs began the subject with weaker PA than their non-native counterparts. Lucy (FG3-2) and Alizeh (FG3-1), for instance, both said that they had never considered pronunciation to be important in L2 teaching, while Charlotte and Grace (FG3-3) reported linking (i.e. blending of words) to be one of the most beneficial components of the subject as it had never occurred to them that English speakers connect words together. Insufficient PA was then most likely a factor that forced the NSs to learn much more content before they were able to achieve the same level of cognition as their NNS peers. Overall, therefore, one could be inclined to assume that the pronunciation pedagogy subject had minimal impact on NSs' cognition about pronunciation instruction. The findings, however, demonstrated that this was not the case. The following section outlines factors contributing to NS cognition development.

Factors Contributing to the Development of NS Cognition about Pronunciation Instruction

Observation and semi-structured interview data revealed that in contrast to NNSs' own pronunciation and language awareness contributing to cognition development, NSs' cognition growth was stimulated by learning subject matter alongside non-native student teachers. As a result of learning with NNSs collaboratively, all five NSs then began to see value in NNSs teaching pronunciation. Lucy, for instance, pointed out that having NNSs in class enabled her to acquire a better understanding of some of the difficulties L2 learners typically encounter with certain aspects of English pronunciation (e.g. vowel sounds): “Just being in this class makes me realize how difficult it must be for international students to feel the differences; we just take it for granted, and it's a bit of an eye-opener” (OW4). For Lucy, studying with NNSs not only enabled her to realize some of the challenges that are involved in learning an additional language, but over the course of the semester it seemed to have

contributed to a change in Lucy's cognition about NNS being capable pronunciation instructors as well:

At first I was a bit, you know, 'you can't teach English if that's not your native language, or you shouldn't be teaching English if you've got a heavy accent' ... Then I came to see that this isn't really actually that relevant, because English is a world language; it's a lingua franca and therefore there's going to be many varieties of English. (FI)

It was evident from the above quote that Lucy's cognition shifted from being uncertain about NNSs teaching pronunciation to considering nativeness to be rather irrelevant when it comes to English language teaching. Lucy's change in cognition about nativeness being a relatively trivial factor in pronunciation instruction then helped her construct knowledge and facilitated her overall understanding of subject content. That is, she began to recognize that English was a lingua franca, consisting of many different yet legitimate English varieties and accents (Jenkins, 2000, 2007). Although this development of Lucy's knowledge and beliefs was most likely a reflection of her internalizing subject matter the lecturer covered in the subject, interacting and learning alongside NNSs appeared to play an equally important role in changing Lucy's cognition, especially since other NSs reported similar development. Georgia, for example, mentioned that she "could see how much the non-native speakers were getting out of [this subject]" (FI), which occurred to facilitate her cognition about NNSs being well positioned to teach pronunciation:

I thought all this time that the best result was a native speaker teaching pronunciation, but of course that's not always possible ... [the NNS] have the experience of learning another language and learning about pronunciation ... so in some ways they're better equipped. (FI)

It was clear that being in class with non-native student teachers helped Georgia understand that L2 instructors do not need to be NSs to teach pronunciation. As a matter of fact, similar to the beliefs held by some of her non-native peers, at the end of the semester she viewed NNSs to be in a strong and perhaps even better position than NSs to address English pronunciation in their classrooms because NNSs had gone through the process of acquiring English pronunciation as L2 learners. Having learned English pronunciation explicitly was also seen by Alizeh to be a major advantage held by NNSs: "I think [the NNSs] are doing better ... with the whole subject ... they've come through this process and I don't remember learning it myself, so it's very difficult for me ... I don't remember how it happened" (FG3-2). The findings, therefore, suggested that regular interaction with NNSs during the pronunciation pedagogy subject contributed significantly to the development of native-speaking participants' cognition about NNSs' ability to teach pronunciation effectively.

Thus, whilst data collected in this study showed that NS *and* NNS cognition about pronunciation instruction developed during the subject, the growth was achieved through different pathways. Whereas the change experienced by NNSs was stimulated by their self-perceived pronunciation improvement and increased awareness of their spoken English, NS cognition was enhanced by learning about pronunciation pedagogy together with their non-native classmates. These findings are important because some of the previous work on NNESTs has tended to focus on NNSs benefiting from a collaborative environment (Matsuda & Matsuda, 2001; Yeh, 2005); yet, this study supports Kamhi-Stein's (2000) proposition that NNSs *and* NSs benefit from this type of classroom configuration.

Discussion

This research showed that the postgraduate pronunciation pedagogy subject had a strong impact on both non-native *and* native student teachers' cognition; particularly, it facilitated the development of participants' cognition about the existence and importance of suprasegmentals as well as their perspective on NNSs being capable pronunciation instructors. As Figure 1 depicts, student teachers' own pronunciation and awareness of their spoken English were important factors that exerted a powerful influence on the development of NNSs' knowledge and beliefs about pronunciation pedagogy. NSs' cognition growth, specifically their beliefs about NNSs' ability to teach pronunciation, on the other hand, was enhanced through learning to teach pronunciation alongside their non-native classmates. In line with previous research showing that L2 instructors' cognition about pronunciation can develop (Baker, 2011b), the findings of this study are important for they identified and demonstrated how two specific components belonging to SLTC about pronunciation instruction developed over the course of a postgraduate subject.

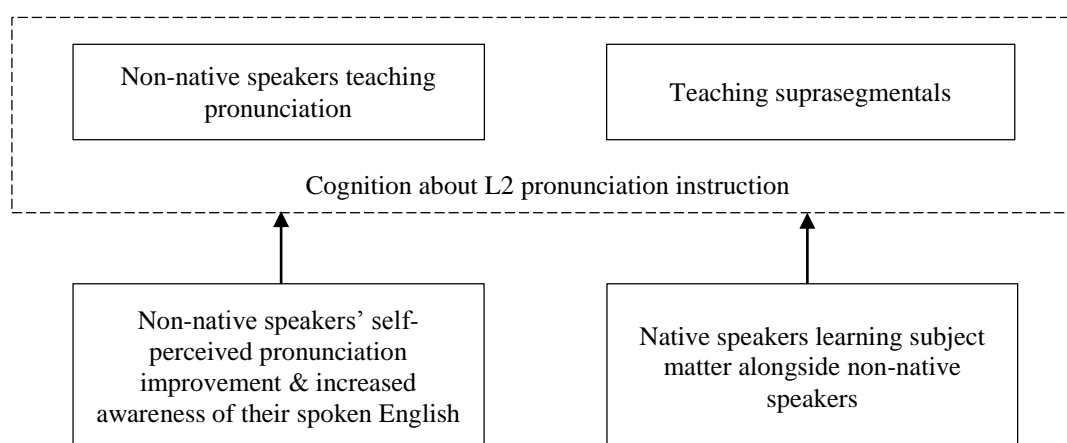


Figure 1: Cognition development of NS and NNS student teachers

The growth of NNS cognition about pronunciation instruction and the subject instilling in these teachers a sense of improvement of their own pronunciation and awareness of their spoken English in relation to phonological features learned during the subject are also important findings in light of the NNEST literature advocating language support for NNSs in Western-based TESOL programs (Braine, 2005; Carrier, 2003; Snow, Kamhi-Stein, & Brinton, 2006). That is, a pronunciation pedagogy subject appears to provide implicit support to student teachers speaking English as an L2 by possibly enhancing their spoken English while learning to teach pronunciation. This is a promising discovery because student teachers' self-perceived improvement in English oral competence may ultimately help NNSs excel in postgraduate TESOL programs. At the same time, the study substantiates empirically what has been suggested in some of the NNEST literature: if NNSs' language competence improves, their confidence increases (Kamhi-Stein, 2000; Murdoch, 1994). Therefore, given that the subject instilled in NNSs *and* NSs the belief and confidence that NNESTs can in fact teach pronunciation effectively supports the notion that being a NNS does not imply a deficiency but rather a strength that could contribute substantially to the improvement of pronunciation practices in the field of English language teaching.

Another important aspect revealed by the study is that NNSs personally experiencing a sense of pronunciation improvement led to a more substantial increase in their awareness of suprasegmentals than their NS counterparts. In contrast, NSs entering the subject with a relatively low level of PA placed the native-speaking student teachers in a disadvantageous

position regarding cognition growth and the internalization of subject content, such as the teaching of suprasegmentals. This then raises the question about how to prepare student teachers to teach pronunciation in their future L2 classroom, especially since the present study demonstrated that differences exist between the development of NS and NNS cognition about pronunciation teaching. The findings have, therefore, some important implications for preparing future pronunciation instructors.

First and foremost, NNSs' own pronunciation improvement must be considered in TESOL programs. In other words, NNSs need to be provided with opportunities to experience a sense of pronunciation improvement in order for their cognition to develop. As was done by the lecturer in the second hour of the lecture, this could be achieved by training non-native student teachers in the usage of various pronunciation teaching techniques. Such practical experience is not only key to teacher learning and cognition growth in SLTE (Wright, 2010), but may also enhance NNSs' own pronunciation. Additionally, for NNSs to experience certain techniques and the effects they may have on their own spoken English, short peer-teaching sessions could be implemented. The combination of teaching and being taught a variety of pronunciation techniques could result in NNS attaining a sense of pronunciation progress. Experimenting with pronunciation techniques could also boost the confidence of student teachers' ability to teach pronunciation, regardless of their English being an L1 or L2. Increasing the assurance of L2 instructors that they can teach pronunciation is a vital and urgent need, because according to research, the lack of confidence is a major reason L2 learners' pronunciation is not addressed in many classrooms (Burns, 2006; Foote et al., 2011; Macdonald, 2002).

Yet, perhaps equally important, incorporating peer-teaching sessions also adds a collaborative element to a pronunciation subject. As the findings demonstrated, drawing on collaboration is essential for L2 teacher educators because it enhances native-speaking student teachers' cognition about the value of NNSs as pronunciation instructors. To facilitate further cognition growth of native speakers, such as their PA, tasks requiring student teachers to work in small, ethnically diverse groups to compare particular varieties of English could be incorporated (Ellis, 2004). As previous research on preparing pronunciation teachers showed, this form of collaboration in which accents are compared not only facilitates student teachers' awareness of English varieties and accents, it can also lead to a shift in beliefs about the pedagogical goal of pronunciation instruction (Burri, in press). Hence, assuming NNSs possess a higher awareness of English phonology, using NNSs as "sources of knowledge" (Kamhi-Stein, 2014, p.598) in a collaborative environment could help NSs unpack the various features of English phonology by comparing the sound systems of different languages present in class. This type of collaborative learning would most likely provide NSs with important insights into English phonology, fostering the growth of student teachers' language awareness and subsequent cognition development; something that might be particularly beneficial to student teachers speaking English as an L1.

Concluding Remarks

Even though the findings indicate that student teachers' cognition about pronunciation instruction developed during a postgraduate subject on pronunciation pedagogy, they need to be viewed with some caution because of the challenges involved in capturing and generalizing the process of 15 participants' cognition growth. It could be argued that the beliefs of experienced (i.e. in-service) student teachers developed differently in comparison to their inexperienced (i.e. pre-service) peers. Future research will need to examine carefully whether there is a difference in the development process of cognition based on previous

pronunciation teaching experience and what this could mean for teacher educators preparing pronunciation instructors. Nevertheless, the insights gained from this study make a significant contribution to the existing literature and research on NNESTs, SLTE and SLTC, in that – even though cognition development is generally a complex and inconsistent process (M. Borg, 2005; Mattheoudakis, 2007; Phipps, 2007) – the present study illustrated that the cognition held by postgraduate students about pronunciation pedagogy can undergo a significant transformation irrespective of their native language. Therefore, given the overall findings of this research, preparing pronunciation teachers seems to be deserving of a much more prominent role in TESOL than has been the case to date.

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Appendix A

Overview of Themes Covered in the Pronunciation Pedagogy Course

Week	Topic	Assignments
1	Overview of pronunciation instruction	
2	Teaching pronunciation through multimodalities	
3	Vowels (1)	
4	Vowels (2)	Task 1 due
5	Syllables, word stress and phrasal stress	
6	Tone units, sentence stress and rhythm	
7	Intonation	
8	Consonants (1)	
9	Consonants (2) and connected speech	
10	Teaching techniques	Task 2: In-class quiz
11	Fluency development and integrating pronunciation into the curriculum	
12	Pronunciation and spelling	
13	Presentations	Task 3 due

Appendix B
Background of Participants (obtained through questionnaire 1)

Participants	Gender; Age	First Language	Pronunciation Teaching Experience	Second Language Studied (Years)	PR Model used in Class	Did your PR Improve?	Did you Enjoy Learning PR?	Did you Want to Learn PR?
NNS Participants								
Koki	M; 20-25	Japanese	No	English (10)	NNS and NS	Unknown, but poor PR of teachers motivated him to improve his own	No, but he started enjoying it once he realized NSs were able to understand him overseas	Yes, because he wanted to be cool and his PR to be perfect.
Mai	F; 31-35	Japanese	No	English (10)	NNS (teacher) and NS model (audio recordings)	Yes	Yes. Practicing PR was fun	Yes, in spite of teacher's focus on reading and listening preparation for university entrance exam
Hiro	M; 20-25	Japanese	No	English (10)	Mostly NS	No. PR of junior high school teachers was poor	Yes, at university. Improved PR resulted in improved comprehensibility	Yes, to make himself better understood in L2
Aoi	F; 26-30	Japanese	5 years at HS in Japan	English (15)	NNS (teacher) and NS model (audio recordings)	Yes. Copying movement of mouth was helpful	Yes. Learning about movement and sound patterns of L2 was interesting	Yes
Mio	F; 41-45	Japanese	6 years at HS in Japan	English (10)	NS model (audio recordings)	Yes, because of high intrinsic motivation	Yes. Recognizing PR improvement as a result of practice was enjoyable	Yes, because poor PR hinders communication and results in misunderstandings
Ken	M; 36-40	Japanese	14 years at HS in Japan	English (10)	NNS (teacher)	Yes. It helped him acquire	Yes. He had the desire to attain	Yes

Rio	M; 26-30	Persian	8 years at tertiary level in Iran	English (7)	NS	native-like PR No, even though PR of teachers was excellent	perfect, native-like PR No, but he started seeing value in it once he started teaching	Yes, because it helped him sound native and provided him with new insights into PR
Hayley	F; 20-25	Cantonese	No	English (since kindergarten)	NNS and NS	Yes	Yes. Pronouncing words correctly was enjoyable	Yes, because it enhanced her speaking ability
Mark	M; 20-25	Cantonese	No	English (since kindergarten)	NNS	No, because focus was on memorizing PR of words	Yes. Knowing the basic units of sounds of L2 was enjoyable	Yes, because accurate PR minimizes misunderstandings
Kirsten	F; 20-25	Cantonese	No	English (since kindergarten)	NNS	No. Too much emphasis was placed on spelling	No. Too much memorization of complex patterns	Yes, because it feels good to speak like a NS and have high proficiency in L2

NS Participants

Grace	F; 20-25	English	No	Indonesian (1)	NNS (teacher)	Yes	Yes. Making efficient progress in learning L2 was enjoyable	Yes, because PR is an important aspect of learning L2
Charlotte	F; 20-25	English	No	Spanish (2)	NNS and NS	Yes. Hearing native speakers helped	Yes, but process was frustrating occasionally	Yes, to sound more proficient and accurate
Lucy	F; 46-50	English	No	German (since high school)	NS	Yes	Unknown	Yes, to sound authentic and comprehensible
Alizeh	F; 31-35	English	No	Italian (since age 11)	NNS	Yes	Yes. Living in Italy was helpful.	Yes, because PR is an integral part of learning L2
Georgia	F; 56-60	English	15-20 years at tertiary level in Australia	French (4)	NNS	Unknown, but teaching felt artificial	Yes. Hearing the sound of L2 was enjoyable	Yes, because she wanted to sound like a NS

Notes: PR = pronunciation; M = male; F = female; NNS = non-native English speaker; NS = native English speaker; HS = high school

Appendix C

Semi-Structured Interview – Sample Questions

1. Imagine you were asked to teach an English language course to adults at an institution in your home country. Think about the techniques that were discussed throughout this subject. How would you teach English pronunciation and how much time would you spend on teaching pronunciation?
2. Please explain why you chose that particular method of teaching pronunciation.
3. How important do you think teaching pronunciation is in this particular context?
4. What are some potential challenges you foresee when you teach pronunciation in the future?
5. What do you think are the main difficulties in teaching pronunciation?
6. What linguistic aspects should be focused on when teaching pronunciation (e.g. vowels, consonants, rhythm, intonation)?
7. How should pronunciation be assessed?
8. What can students do to improve their own pronunciation?
9. Would you like to make any other comments?