“I feel like having a nervous breakdown”

Pre-service and in-service teachers’ developing beliefs and knowledge about pronunciation instruction

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Evidence on the impact of second language teacher education is inconclusive in the area of pronunciation pedagogy. This study explores how the cognition (knowledge, beliefs, thoughts, attitudes and perceptions) of 10 pre-service and five in-service teachers developed during a postgraduate course on pronunciation pedagogy. Questionnaire items, focus group meetings, semi-structured interviews, classroom observations and an assessment task were used to trace the development of participants’ beliefs and knowledge. Findings demonstrated that the development of the student teachers’ cognition was limited and the notion of integrating pronunciation into L2 lessons proved to be challenging for participants irrespective of their pronunciation teaching background. Also, while student teachers’ awareness about the benefits of kinesthetic/tactile teaching techniques increased, native English-speaking teachers without any pronunciation teaching experience appeared to be particularly susceptible to factors restricting cognition development. The paper concludes with a discussion about implications for language teacher educators preparing pronunciation instructors.

Keywords: second language teacher education, teacher cognition, pronunciation, pre-service teachers, in-service teachers

1. Introduction

Despite its relatively new status as a research area, second language teacher education (SLTE) has received considerable attention in the field of Teaching English to Speaker of Other Languages (Wright, 2010). Second language (L2) teaching requires specialized knowledge and skills typically achieved through an integral
combination of “practical experience” and “academic study” (Burns & Richards, 2009, p. 2). Besides the knowledge-base of student teachers (Freeman & Johnson, 1998), second language teacher cognition (SLTC) is an essential component of SLTE. By SLTC, we mean the knowledge, beliefs, thoughts, attitudes and perceptions of learning to teach language. SLTC is also called ‘cognition’. The term ‘cognitions’, on the other hand, refers to the various elements that comprise SLTC or cognition (Borg, 2006). Thus, student teachers may have different cognitions about language and how to teach it.

Experts have argued that effective L2 teacher preparation requires enhanced understanding of student teachers’ cognition (Barnard & Burns, 2012; Borg, 2009; Wright, 2010). One area of SLTC that is under-explored, however, is pronunciation instruction (Baker & Murphy, 2011; Foote, Holtby, & Derwing, 2011; Murphy, 2014). This is somewhat surprising given that the number of pronunciation studies conducted in L2 classroom contexts has steadily increased in the past decade (Thomson & Derwing, 2015), and that pronunciation is an important factor in achieving mutual intelligibility (Celce-Murcia, Brinton, & Goodwin, 2010).

This study explores the cognition development of student teachers with and without pronunciation teaching experience during a postgraduate course on pronunciation pedagogy in an Australian tertiary context. Student teachers without any pronunciation teaching experience prior to the commencement of this course were classified as pre-service teachers (PST), though two of them had either general mainstream (Lucy) or general EFL (Mai) teaching experience, whereas experienced pronunciation instructors were referred to as in-service teachers (IST).\(^1\) A course in which both PSTs and ISTs are enrolled provides a rare opportunity to compare the cognition development of both groups of student teachers, and subsequently contributes to SLTC by adding to our understanding of student teachers’ cognition about pronunciation. The findings help us understand the practices pronunciation instructors are likely to apply in their classrooms to help L2 learners become intelligible.

2. Background

2.1 Teacher learning and student teacher cognition development

In this study, teacher learning and student teacher cognition development are conceptualized as two different but intertwined processes. While teacher learning

\(^1\) This classification is based on responses participants provided in the questionnaire administered at the beginning of the semester.
entails all forms of growth, including identity, behaviour and practice, cognition development focuses specifically on changes occurring in the invisible dimension of teaching such as student teachers’ knowledge, beliefs, thoughts, attitudes and perceptions (personal communication with Simon Borg, November 23, 2015).

Cognition development appears to be an individual process, making it challenging to capture, and once instructors are in the classroom, inconsistencies between beliefs and practices often arise (Johnson, 1992). Factors such as institutional and curricular constraints can often cause a return to teachers’ previously held cognitions and practices (Tang, Lee, & Chun, 2012), highlighting the complex and inseparable relationship between teacher learning, cognition and classroom practices (Aslan, 2015; Basturkmen, 2012; Borg, 2003; Farrell & Tomenson-Filion, 2014; Woods, 1996).

Despite these challenges, SLTC research has established that teacher candidates with minimal or no teaching experience generally commence their studies with strong, established beliefs about teaching and L2 learning, irrespective of their language background (Altan, 2006). These firmly entrenched perceptions are often a result of an “apprenticeship of observation” (Lortie, 1975, p. 65) that occurred subconsciously during the L2 learning process. Learning to teach is, therefore, frequently based on imitation and intuition rather than objective assessment of quality instruction. As a result, the cognition of inexperienced teachers is often resistant to change (Warford & Reeves, 2003). Cognition also is a filter in the perception and interpretation of new information intake during SLTE (Borg, 2006). Effective SLTE practice acknowledges that student teachers’ cognition helps them move beyond their apprenticeship of observation to enhance their pedagogical skills (Johnson, 1994).

2.2 Pre-service and in-service teacher cognition development

Most cognition development research with student teachers has been conducted in PST contexts (Kubanyiova, 2012). Some research has suggested that the cognition held by PSTs remains largely unchanged during the course of their studies due to student teachers’ previous L2 learning experiences and intricate knowledge of the local teaching context (Peacock, 2001; Urmston, 2003). Other research, however, has shown that SLTE can in fact have a positive impact on cognition growth. Johnson (1994) demonstrated that despite the powerful influence of previous L2 learning experiences and conflicting images about L2 teaching and learning, beliefs held by PSTs began to change during the course of a postgraduate TESOL program. Wyatt (2009) highlighted that practical knowledge of what teachers know and do can develop considerably during an undergraduate TESOL program. Overall, even though PST cognition growth tends to be highly individualistic with
“belief development [being] essentially cumulative and evolutionary in nature” (Cabaroglu & Roberts, 2000, p. 398), some studies have shown that SLTE can have a positive impact on PSTs’ knowledge and beliefs about L2 teaching and learning.

Unlike PST education, inquiries into IST cognition development are relatively scarce (Borg, 2011; Kubanyiova, 2012), but that research highlights some encouraging findings. Studies have shown that SLTE can enhance non-native English-speaking student teachers’ beliefs in their ability to teach English (Kurihara & Samimy, 2007) as well as positively impact ISTs’ beliefs, attitudes, and knowledge about English language teaching (Farrell, 2009). Similarly, Wyatt and Borg (2011) found IST education had a positive effect on student teachers’ practical knowledge. In their study, personal traits (e.g., student teachers favouring innovation) contributed to the growth of practical knowledge, whereas attitudinal, personal and contextual factors seemed to limit development.

Relatively few studies have compared PST with IST cognition development, even though research has shown that some components of PSTs’ and ISTs’ cognition, such as their beliefs and knowledge, can differ markedly. In Kourieos (2014), PSTs found the task of clearly articulating their beliefs about grammar instruction and communicative language teaching more challenging than their IST colleagues. In another study, Polat (2010) found that ISTs appeared to possess a higher level of competence in linguistic knowledge and pupils’ literacy development than PSTs. These studies suggested that classroom experience may play a vital role in cognition growth. This study extends this research to examine how PSTs and ISTs learn to teach pronunciation, and, at the same time, to identify elements that may contribute to or hinder cognition development during a postgraduate pronunciation pedagogy course.

2.3 Development of student teacher cognition about pronunciation instruction

In spite of growing interest in cognition development, pronunciation has received limited attention in SLTC research (Baker, 2014; Baker & Murphy, 2011; Borg, 2006). This is most likely a reflection of pronunciation being inconsistently addressed in L2 classrooms (Foote, Trofimovich, Collins, & Urzúa, 2013; Wahid & Sulong, 2013), as well as not featuring prominently in TESOL programs (Murphy, 1997, 2014). Nevertheless, studies on SLTC about pronunciation pedagogy have begun to emerge due to the crucial role pronunciation plays in effective communication.

Baker (2011b) demonstrated that prior L2 learning and teaching experiences can exert a powerful influence on postgraduate students’ learning to teach pronunciation. However, it remained unclear how cognition was shaped during
postgraduate studies and what factors affected this development. Other research has explored the cognition development of native English-speaking (NS) and non-native English-speaking (NNS) student teachers in a postgraduate course on pronunciation pedagogy (Burri, 2015b). The study revealed that NNSs’ self-perceived pronunciation improvement and increased awareness of their spoken English had a strong impact on their cognition growth about pronunciation instruction, specifically their beliefs about teaching suprasegmentals (stress, rhythm, intonation) and their confidence in their ability to teach pronunciation effectively. Yet no differentiation was drawn between inexperienced and experienced pronunciation teachers. Because of the potential difference in cognition development based on teaching experience, this paper may not only generate new insights into how the cognition of PSTs and ISTs develops during the process of learning to teach pronunciation, but it may also lead to recommendations for preparing pronunciation instructors. The following research questions guided the study:

- To what degree do pre-service and in-service teacher cognition develop during a postgraduate course on pronunciation pedagogy?
- How and to what extent does this development differ between pre-service and in-service student teachers?
- What factors contribute to or restrict the development of pre-service and in-service student teacher cognition about pronunciation instruction?

3. Research design

Our objective was to obtain an in-depth understanding of the development of participants’ cognition about pronunciation instruction. In order to achieve this aim, the study followed a qualitative case study design (Duff, 2008; Stake, 1995) triangulating data using a questionnaire, focus groups, classroom observations, one-on-one semi-structured interviews, and an assessment task.

3.1 Participants

Of the 15 postgraduate students participating in the study, 10 were PSTs and five ISTs. Seven PSTs were female and three were male. The ISTs consisted of three female and two male student teachers. The PSTs ranged between the ages of 20 and 50 while the ISTs were between 26 and 60; the average age of all participants was 31. Although none of the PSTs had any experience teaching pronunciation, two indicated that they had formal teaching experience prior to the pronunciation course. The five ISTs had taught pronunciation previously and their formal
teaching experiences ranged from 5 to 20 years. All 15 participants reported studying an L2, although the length of their studies varied considerably (Appendix B). Participants self-selected a pseudonym to ensure their privacy was protected (only the first author knew who the participants were during the research).

3.2 Research context

This study took place in a postgraduate course on “Teaching Pronunciation and Prosody” offered at a tertiary institution in Australia. The second author was the lecturer of the course and Celce-Murcia et al. (2010) was the core text. At the beginning of the semester, in the absence of the lecturer, the first author explained the purpose of the study to the class. 15 of the 24 teachers volunteered to participate. They choose pseudonyms for the study to ensure confidentiality.

The pronunciation course included 13 three-hour lessons held once a week (Appendix A). Each lesson followed a similar structure with the first hour being dedicated to technical aspects of English phonetics and phonology (e.g., vowels, consonants, rhythm, intonation etc.). The second hour was used to train student teachers in controlled, guided and free activities (Baker, 2014), especially kinesthetic/tactile pronunciation teaching techniques, including the use of rubber bands (Gilbert, 2012) and batons (Acton, 2001) to attend to sentence stress, jazz chants for teaching rhythm (Graham, 1986) and haptic techniques (i.e., a systematic combination of movement and touch) to teach segmental and suprasegmental features of the English language (Acton, Baker, Burri, & Teaman, 2013). This was done to enhance student teachers’ knowledge of how to address different types of learning styles. In the final part of the lesson, student teachers analysed L2 learner speech samples, allowing them to practice for the third assignment.

Three assessment components were implemented in the course: (1) a paper discussing pronunciation pedagogy in the students’ home countries; (2) an in-class quiz testing declarative knowledge of various phonological aspects of the English language; and (3) a paper including pedagogical recommendations to address pronunciation problems that were derived from an analysis of an L2 learner’s speech sample. Each student presented a 5-minute summary of this paper at the end of the semester.

3.3 Data collection

Data was collected over 16 weeks, comprising a questionnaire, focus group interviews, classroom observations, semi-structured interviews, and an assessment task. Figure 1 provides an overview of this process, including the data sources used in the study.
A questionnaire completed at the beginning of the semester captured participants’ background information to gain insights into pre-existing L2 pronunciation learning and teaching experiences (see Appendices B and C for student teachers’ previous L2 learning and teaching experiences).

The first author used ethnicity and teaching experience to divide participants into four focus groups of three to five members. This was expected to provide insights into the cognition development of certain groups of student teachers (Krueger & Casey, 2000). Richards and Farrell’s notion of a “critical incident” (2005, p. 117) – entailing the sharing of a memorable, unexpected or challenging moment – was used to obtain the student teachers’ perspective on key moments they experienced during the course. Focus group interviews were conducted three times during the semester (in weeks 5, 9, and 12), and a digital voice recorder recorded the conversations.2

Non-participatory observations of all weekly lessons of the pronunciation pedagogy course were conducted to obtain additional stimuli for the focus groups and semi-structured interviews (Baker, 2011a; Borg, 2003). A non-participatory role was chosen for the first author to sit “inconspicuously at the back of the room” (Kanno & Stuart, 2011, p. 241), take field notes and videorecord the lecturers unobtrusively (Creswell, 2013). The lessons were videorecorded so that they could be reviewed multiple times to gain a thorough understanding of classroom interactions, instructional procedures and content.

Based on preliminary themes identified during the semester, purposeful sampling was applied in selecting 7 of the 15 participants to join a one-on-one semi-structured interview at the end of the semester (Creswell, 2013). Of the seven interviewees, four were PSTs and three were ISTs. Participants were chosen based on availability and issues that arose during the data collection process. Among several clarification questions, a scenario-based question (Borg, 2006) was asked to elicit student teachers choice of pronunciation activities and techniques they may use to

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2. Due to scheduling/personal reasons, Rio was unable to join the week 9 and 12 focus group meetings, and Mai and Alizhe missed the focus group interview in week 12.
teach pronunciation in their classrooms. All of the interviews were audio recorded and lasted between 30 and 45 minutes.

Last, participants were asked to submit their third assessment tasks to the researcher on a voluntary basis. Seven of 12 participants chose to submit this assessment task (the three students from Hong Kong were auditing the course and therefore did not complete the assessments). For the other five students, their 5-minute presentation (delivered in the last lesson of the course) was used as a data source. We considered the final presentation to be an equivalent data source because it was an oral delivery of their written assignments. Both provided insights into the student teachers’ choice of pronunciation teaching activities.

3.4 Data analysis

Focus group, observation and interview data were transcribed verbatim. Member checking involved emailing transcripts from the focus group and semi-structured interviews to the participants to check for accuracy (Mertens, 2010). Participants were given the option of altering the transcripts if they disagreed with content reflected in the documents (none of them asked for content to be modified). Once participants confirmed that the transcripts were accurate, the data were coded with the assistance of NVivo 10. The third assessment task (or transcript of the 5-minute oral presentation) along with answers to scenario-based questions asked during the semi-structured interviews were coded according to Baker’s (2014) taxonomy of pronunciation teaching techniques to examine student teachers’ knowledge of pronunciation pedagogy. NVivo 10 allowed the data to be coded thematically, which reduced the large amount of data so an in-depth understanding of the participants’ cognition development could be achieved.

4 Findings

The findings are divided into three parts. The first section outlines the development of student teachers’ cognition, the second summarizes differences between the development of PST and IST cognition, including factors that contributed to cognition development, and the third part discusses factors which restricted student teachers’ cognition development.

4.1 Student teachers’ cognition development and contributing factors

SLTC research has provided inconclusive evidence on the impact educational programs have on student teachers’ cognition (Baker & Murphy, 2011; M. Borg,
2005; S. Borg, 2006). This study, by and large, confirmed this. The comparison of student responses provided in the questionnaire with data derived from assessment task #3 suggested that PSTs and ISTs’ cognition developed relatively little during the semester. Obtaining a pre-course count on pronunciation techniques was not the purpose of the questionnaire, but the survey revealed that the majority of PSTs (nine out of 10) reported learning L2 pronunciation through drills and repetitions/imitations, while all of the ISTs indicated that their pronunciation-oriented teaching practice almost exclusively comprised these types of controlled techniques (Appendices B and C). At the end of the course, the types of activities chosen by PSTs and ISTs in the third assessment task consisted of predominantly controlled activities (Figure 2). Of the 65 activities selected, 52 were controlled (PST = 25; IST = 27), 10 guided or semi-structured (PST = 4; IST = 6) and three free or student-centered (PST = 3; IST = 0). This suggests that student teachers’ cognition about pronunciation instruction developed only marginally, because the teachers chose the same controlled activities in assessment task #3 as in the questionnaire. It also confirms previous work showing that L2 instructors most often employ traditional teacher-centered activities when teaching L2 pronunciation (Baker, 2014; Buss, 2015; Foote et al., 2013; Murphy, 2011; Tergujeff, 2012; Wahid & Sulong, 2013).

Qualitative analysis of assessment task data revealed that PSTs and ISTs’ cognition did in fact develop; more than one third of the 52 controlled activities shown in Figure 2 (18 out of 52) represented a kinesthetic/tactile element. In the questionnaire, none of the student teachers mentioned learning or teaching pronunciation through kinesthetic/tactile means. Thus, while student teachers chose controlled activities, their cognition developed in how modeling English pronunciation can be achieved. Additional evidence from the semi-structured interviews and focus group meetings supports this finding. The two types of interviews showed that kinesthetic/tactile pronunciation teaching was new to the participants, regardless

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3. See Baker (2014) for a discussion of categories of controlled activities.
of their pedagogical background. Aoi (IST), for example, mentioned that she had never used body movement in her classes in Japan:

> When I was in Japan no one taught me systematic English pronunciation way ... we never use body movement ... Everything is new to me and I found it interesting because touching hand is creating power memory. I never learned it before in Japan (FG2-1).

Similarly, Mark (PST) said that he was surprised about having “a lot of movements in that course” (FG4-1) and Hiro (PST) indicated that he had been unaware of using movement to teach pronunciation: “Kinesthetic exercises were very new things to me and I didn’t have [any] idea of those practical exercises, so it was very innovative for me” (FG1-3).

A substantial amount of class time was devoted to student teachers experiencing such techniques. Subsequently, after having experienced several sessions, the student teachers’ understanding of these techniques developed, as Kirsten’s (PST) statement illuminates:

> at first…it make no sense to me because I don’t know what’s going on and I don’t know what’s the point to teach…how does it effectively teach pronunciation? But later, after a few weeks, I find it … works. It is interesting (FG4-1).

As Kirsten exemplifies, at first the participants perceived the training to have little value. But these sessions gradually began to have an impact on student teachers’ cognition about pronunciation pedagogy, reflected in their new beliefs about the use of kinesthetic/tactile pronunciation techniques, evident in a statement by Hayley (PST) during the third focus group:

> I think the ways [to] teach stress and intonation, including the ball, the rubber bands and the chopsticks … I think it’s very practical for me to teach the students in the future. And I think the students will enjoy it, too because they don’t need to just sit on the chair and listen to me … they can really have opportunities to practice … I think this kind of way can make them easily to memorize how they have to stress and make the intonation (FG4-3).

Hayley began to believe that using kinesthetic/tactile elements allowed for enhanced learner involvement, enjoyable L2 learning and improved pronunciation teaching. In the same way, Rio (IST) thought that “stretching the rubber band [was] a good thing...” (FI) to teach pronunciation to L2 students. Thus, participants including kinesthetic/tactile elements in their third assessment task signified an

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4. The following codes identify data sources: FG1-3 = focus group 1 – interview 3; FI = final semi-structured interview; OW7 = observation/week 7.
uptake of pedagogical course content and subsequent cognition development for both PSTs and ISTs.

As the lecture data indicated, the opportunity to observe a real-life pronunciation teaching session in a local ESL program also contributed to some student teachers’ beliefs that the use of movement can be effective in pronunciation instruction. During the lecture held in week 7, Grace (PST) and Mio (IST) both shared with the rest of the class their insights gained from observing the second author teaching pronunciation kinesthetically to L2 learners. Mio, for example, mentioned that they initially doubted L2 students’ willingness to learn pronunciation through a kinesthetic/tactile approach. After the observation, however, she thought that “[t]he most impressive thing was that the students perfectly accepted that technique … I saw they [were] pleased with the movement with pronunciation. It really worked very well” (OW7). When asked about her observation, Grace echoed Mio: “I do think that [pronunciation] can lead to change now” (FI). The findings, thereby, provided evidence that observations of pronunciation teaching played a significant role in transforming the two participants’ cognition, supporting Cabaroglu and Roberts’ (2000) notion of classroom observations being effective in stimulating cognition change in SLTE programs.

These findings contribute to SLTE because our study demonstrated that the cognition of PSTs and ISTs regarding kinesthetic/tactile pronunciation instruction developed during the course, in contrast to research suggesting teacher preparation programs are potentially ineffective in altering student teachers’ beliefs and knowledge (e.g., Peacock, 2001; Urmston, 2003). Differences between PST and IST cognition development are discussed in the following section.

4.2 Differences between PST and IST cognition development

In alignment with research indicating that PST and IST cognition often differs (Kourieos, 2014; Polat, 2010), observation, focus group and semi-structured interview data suggested that in comparison with the ISTs, PSTs’ beliefs and knowledge about pronunciation pedagogy developed less. When asked at the end of the semester about the choice of pronunciation instruction used in their classrooms, most PSTs believed that they lacked the ability to teach pronunciation. Lucy, for example, expressed uncertainty about how to teach pronunciation, and she suggested that general speaking skills rather than pronunciation should be focused on in L2 classrooms (FG3-3). Additionally, Grace felt “stuck” (FG3-3) about how to teach pronunciation and therefore relied on textbooks for guidance (FI). Besides Grace’s uncertainty, her dependence on commercially published ESL resources is problematic since ESL textbooks generally provide L2 instructors with limited guidance on pronunciation pedagogy (Derwing, Diepenbroek, & Foote, 2012;
Diepenbroek & Derwing, 2013). This suggests that despite the course’s strong emphasis on pronunciation pedagogy, without practical teaching experience to anchor this new knowledge, PSTs struggled with confidence.

Some of the ISTs, on the other hand, seemed to be more confident when talking about pronunciation teaching. Georgia mentioned using her newly gained knowledge of the International Phonetic Alphabet (IPA) in her classes: “I wasn’t a hundred percent familiar with the IPA. Now I am which is, you know, really really good. I feel like I can use it to my advantage” (FG2-3). This indicates the cognition of ISTs developed more, which was evident in how ISTs were able to connect new course content with their teaching experience (Basturkmen, 2012; Hong, 2010). Further contributing to their development was their stronger awareness of the influence of contextual factors (e.g., institutional, curricular, and political) on pronunciation instruction. This is not surprising, given that experienced instructors are likely to possess a better understanding of factors impacting their teaching due to insights gained in their own classrooms (Kourieos, 2014; Polat, 2010).

What was unexpected, however, was that non-integrated pronunciation instruction was frequently mentioned by both ISTs and PSTs. Treating pronunciation as a stand-alone entity in the form of short sequences was generally seen as being the most effective means to address L2 learners’ pronunciation needs. Grace’s comment is representative of what several participants expressed (e.g., Hiro, Mark, Mio, Lucy):

I would firstly set aside at least 5 to 10 minutes at the end of each lesson, just dedicated to pronunciation teaching, just so that we could get into that rhythm and then once 10 minutes is enough then we can bring it down to 5 and focus on the other work. (FI)

The notion of dedicating just a few minutes to pronunciation at the end of an L2 lesson was in contrast to the lecturer’s frequently advocating an integrated approach to pronunciation instruction. However, at the end of the semester, student teachers continued to view pronunciation instruction as being most effective when approached in a non-integrated manner. This raises the question of what restricted the development of some of the students’ beliefs and knowledge about pronunciation instruction.

4.3 Factors restricting PST and IST cognition development

This study demonstrated that training and classroom observations can exert a positive influence on student teachers’ cognition about pronunciation teaching, but focus group, observation and semi-structured interview data also showed that all of the participants expressed difficulty with learning content at some point during
the course. We propose that the challenge of acquiring subject matter may have restricted the development of participants’ cognition. An analysis of our thematic coding suggested that two factors restricted development: (1) the intensity of the course/depth of content, and (2) the complexity/ambiguity of English phonology. Both factors were closely intertwined in that the complexity and ambiguity of phonology was often manifested in participants’ perception of the course being intense and overwhelming. The number of incidents coded as restrictive was much higher for the PSTs, indicating that the development of inexperienced instructors’ cognition was more likely to be restricted by these two factors during the course (Figure 3). These findings support previous research indicating that classroom experience (or the lack thereof) plays an important role in student teachers’ cognition growth (Kourieos, 2014; Polat, 2010).

![Figure 3. Factors restricting cognition development](image)

On several occasions during the focus group meetings, Alizhe, Charlotte, Lucy and Grace mentioned that the course contained too much content for them to process and obtain an in-depth understanding. At the beginning of the semester they found English vowel sounds to be challenging. They expressed frustration with their inability to distinguish certain vowel sounds, especially some of the subtle differences commonly occurring in Australian English (e.g., ‘goat’ versus ‘no’). Although not clearly visible in Figure 3, the qualitative data suggested that in the second half of the semester, intonation posed a significant challenge for PSTs and ISTs. For example, Aoi (FG2-3), an in-service teacher from Japan, and Kirsten (FG4-2), a pre-service teacher from Hong Kong, both mentioned that intonation was challenging because of their difficulties with using it in their own speech. For Hiro (PST), on the other hand, intonation was confusing because of his lack of knowledge (FG1-3). Furthermore, Grace (OW12), a PST, and Rio (OW13), an IST, suggested that the L2 learner speech sample they had to analyse for assessment task #3 contained no intonation because of the monotony of the speaker’s voice.
Their inability to recognize that intonational contours existed regardless of how an utterance is expressed indicated their difficulties with mastering the concept of intonation. In fact, at the end of the lesson on intonation, Lucy (PST) said that “I feel like having a nervous breakdown” (OW7) because she was unable to understand the content covered in class. Restricting factors seemed to affect mostly PSTs whose first language was English. NSs without pronunciation teaching experience appeared to be particularly susceptible to restricting factors impeding cognition growth (Table 1).

| Factors restricting cognition development of native and non-native English speakers |
|----------------------------------|------------------|------------------|------------------|
|                                  | Pre-service Teachers | In-service Teachers |
|                                  | NS (4)             | NNS (6)        | NS (1)             | NNS (4)     |
| Intensity of course / depth of content | 17                | 1               | 2                   | 1           |
| Complexity / ambiguity of phonology      | 15                | 4               | 1                   |             |

Notes. NS = native English speaker; NNS = non-native English speaker; number of participants is indicated in brackets.

Since only four PSTs were NSs, the large number of restricting factors encountered by native English-speaking PSTs is noteworthy. It confirms previous work showing that differences exist between NNS and NS cognition development (Burri, 2015b) and between PST and IST cognition growth (Kourieos, 2014; Polat, 2010); it also supports Wyatt and Borg’s (2011) research demonstrating that program-related factors can exercise a powerful influence on student teachers learning to teach language. Our findings suggested that learning to teach pronunciation might be particularly challenging for inexperienced NSs. The findings have, therefore, important implications for teacher educators preparing L2 instructors to teach pronunciation.

5. Discussion

The study showed that student teachers’ beliefs and knowledge developed in some ways during the pronunciation pedagogy course and demonstrated the complexity of SLTC development (Baker & Murphy, 2011; Borg, 2006; Tsui, 2011). On the one hand, the course had limited impact on participants’ cognition development, specifically pronunciation activities selected in assessment task #3. On the other hand, in contrast to research suggesting that SLTE might be ineffective in developing the knowledge and beliefs of student teachers (e.g., Peacock, 2001; Urmston, 2003), this study demonstrated that one area of student teachers’
cognition changed, namely their cognition about kinesthetic/tactile pronunciation instruction. Various factors, such as training participants in the use of kinesthetic/tactile techniques, classroom observations, intensity/depth of content and complexity/ambiguity of English phonology, also influenced cognition development (Figure 4). Implications for pronunciation teacher preparation are outlined in the ensuing discussion.

**Figure 4.** Factors impacting PST and IST cognition development

5.1 Implications for pronunciation teacher preparation

Why did student teachers not select more guided and free activities in task #3 as advocated by the lecturer during the lesson on teaching techniques held in week 10? The participants’ previous exposure and experience with pronunciation teaching provides a likely explanation for their choice of activities. The PSTs had experienced mostly traditional pronunciation instruction (e.g., drills and repetition) during their past L2 learning endeavours. Given the powerful influence previous learning experiences have and the fact that expert knowledge is not yet available to teachers without pedagogical classroom experience (Borg, 2006), the selection of mostly controlled activities may have been the result of PSTs drawing on their apprenticeship of observation as language learners (Borg, 2005; Lortie, 1975). Lucy and Hiro were the only PSTs that selected free activities (drama and role games). While Hiro’s self-proclaimed interest in innovative teaching techniques may explain his choice, Lucy’s extensive participation and engagement in class lectures may explain her choosing free activities. As for the ISTs, their teaching experiences
might have prevented them from adopting new techniques. Research has shown that pedagogical experiences have an impact on teacher learning (see Tsui, 2011); thus, ISTs might have resorted to the types of techniques they felt most comfortable with because they had used them in their former classrooms to address their students’ pronunciation needs (Appendix C). As the majority of pronunciation work involves controlled techniques (Baker, 2014), the ISTs might have also picked the ones that seemed to most directly relate to addressing specific pronunciation difficulties and thus these experienced teachers may need more time to become familiar with other options (personal communication with John Levis, January 22, 2016). Alternatively, because of their practical experience, some of the IST were perhaps “critical of the information and knowledge imparted in [the pronunciation course]” (Mattheoudakis, 2007, p. 1282).

The finding that student teachers’ preference for controlled activities remained largely unchanged should concern teacher educators, especially since student teachers, irrespective of teaching experience, expressed uncertainty about integrating pronunciation instruction into L2 teaching. Participants generally regarded pronunciation as an add-on to existing lessons, something that can be covered in a few minutes at the beginning or end of a lesson. This confirms previous research showing the difficulties L2 instructors have with the integration of pronunciation (Breitkreutz, Derwing, & Rossiter, 2001). Although there is a general consensus in contemporary language teaching that pronunciation should be integrated and practiced in meaningful contexts rather than treated as a stand-alone matter (Burgess & Spencer, 2000; Burns, 2006; Levis, 1999; Levis & Grant, 2003; Morley, 1991; Scales, Wennerstrom, Richard, & Wu, 2006; Sicola & Darcy, 2015; Trofimovich & Gatbonton, 2006), helping student teachers learn to integrate pronunciation appears to be an urgent need for L2 teacher educators.

In light of the positive effects classroom observations had on Mio and Grace’s cognition about kinesthetic/tactile pronunciation instruction, observing how expert teachers integrate pronunciation into their lessons could be effective in addressing this need. However, if visiting a real classroom is logistically challenging, videos of L2 classroom sessions could be shown (e.g., Harmer, 2007). Observations – whether done in real-time or video format – may allow participants to connect course content with real-life classrooms and subsequently enhance cognition about effective integration of pronunciation instruction (Murphy, 2014). To further facilitate student teachers’ understanding of pronunciation teaching, observers could be provided with reflective tasks to accompany their observations (Farrell, 2007; Richards & Farrell, 2005). Student teachers could thus be given a set of pedagogical criteria that focus on effective pronunciation integration. Identifying such criteria would most likely increase observers’ understanding of how pronunciation can be integrated into L2 classrooms. Observation tasks could also help student
teachers reflect on their pre-existing cognitions about L2 learning and teaching (Gutierrez Almarza, 1996; Peacock, 2001), allowing them to examine how their pre-existing beliefs and knowledge may conflict with integrated pronunciation instruction. Given the potential influence the biographical background exercised on participants’ cognition, having student teachers acknowledge, question and examine their pre-existing beliefs and knowledge about pronunciation pedagogy may promote cognition growth and subsequently enhance the preparation of pronunciation teachers.

L2 teacher educators must also take into account the powerful influence that the intensity/depth of content and complexity/ambiguity of English phonology exert on student teachers’ cognition development. The findings suggest that preparing inexperienced NSs to teach pronunciation may require time beyond coursework to learn the necessary skills to teach language effectively (Freeman, 2002). For them to develop to the extent that these teachers are ready to teach pronunciation in their future classrooms, we argue that additional support could be built into postgraduate courses on pronunciation pedagogy. One way to provide such support could be to team up PSTs and ISTs during lectures. ISTs could be asked to share pedagogical experiences with their PST peers and then collaboratively reflect on implications of new content learned during the pronunciation course (Farrell, 2007). This type of partnership may allow inexperienced teachers to process some of the course content more effectively – something Borg (2011) considers to be essential in SLTE – because new content might become more meaningful to PSTs in that it could be linked to real-life classroom experiences. Ideally, this type of group work would also consist of NNSs and NSs because a linguistically diverse learning environment can result in cognition growth of student teachers learning to teach pronunciation (Burri, 2015a).

Finally, findings generated by this study support the notion of cognition development being a complex, uneven, individualistic and often ambiguous process (Borg, 2005; Murray, 1995). It also appears that the growth process of PST and ISTs’ beliefs and knowledge about pronunciation instruction may require significant time (Mattheoudakis, 2007) and/or perhaps different tasks than those used in the course. It is important to note that, in any course or program, the process between input, appropriation and action requires considerable time. Whether a postgraduate course on pronunciation pedagogy offers enough time to observe development in a variety of areas is, therefore, a legitimate question. At the same time, the findings also demonstrated that cognition did develop, even if only modestly, suggesting that preparing L2 teachers to teach pronunciation is a worthwhile undertaking in SLTE.
6. Conclusion

This research provided insights into how inexperienced and experienced L2 instructors’ cognitions about pronunciation teaching developed during a pronunciation pedagogy course. To better understand the contribution of a pronunciation pedagogy course to preparing L2 instructors, further inquiry is needed to examine “how teachers appropriate their new pedagogical tools in their own teaching settings” (Kurihara & Samimy, 2007, p. 118). A useful follow-up study would be to ascertain the degree to which the participants adopted some of the practices that were included and observed in the pronunciation course. This would most likely reveal to what extent these teachers draw on new techniques such as the kinesthetic/tactile activities. It is possible that although the cognition of the participants changed during the course, they may revert back to their previous beliefs and practices due to contextual and institutional constraints (Tang et al., 2012). This type of research would also disclose whether controlled activities continue to prevail in their classrooms, or whether, as the teachers become more experienced and thus more confident in teaching pronunciation, they begin to place greater emphasis on guided or free techniques. Although an equal gender balance and an even number of PSTs, ISTs, NNSs, and NSs may have generated slightly different findings (Polat, 2010), and although the study showed a growth in participants’ cognition, whether this change will be reflected in teachers’ pronunciation teaching practices remains unanswered (Wyatt & Borg, 2011).

In view of the impact of the classroom observations on participants’ cognition development, future research should be conducted in a pronunciation course featuring more experiential components. This kind of approach to L2 teacher preparation may result in more substantial cognition growth. Research should also examine whether PSTs and ISTs require different elements in a pronunciation course in order to enhance the uptake of content. Such research would almost certainly yield invaluable insights that could be used to further improve the preparation of pronunciation teachers.

Acknowledgements

We would like to thank the editor, the three anonymous reviewers, and Jan Wright for their most valuable comments on previous drafts of this article. We would also like to thank the student teachers whose participation made this study possible.
References


Murphy, J. (2014). Teacher training programs provide adequate preparation in how to teach pronunciation. In L. Grant (Ed.), *Pronunciation myths: Applying second language research to classroom teaching* (pp. 188–224). Ann Arbor, MI: The University of Michigan Press.


Appendix A. Overview of themes covered in the pronunciation pedagogy course

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overview of pronunciation instruction</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Teaching pronunciation through multimodalities</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Vowels (1)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Vowels (2)</td>
<td>Task 1 due</td>
</tr>
<tr>
<td>5</td>
<td>Syllables, word stress and phrasal stress</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Tone units, sentence stress and rhythm</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Intonation</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Consonants (1)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Consonants (2) and connected speech</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Teaching techniques</td>
<td>Task 2: In-class quiz</td>
</tr>
<tr>
<td>11</td>
<td>Fluency development and integrating pronunciation into the curriculum</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Pronunciation and spelling</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Presentations</td>
<td>Task 3 due</td>
</tr>
</tbody>
</table>
### Appendix B  Background of study participants

<table>
<thead>
<tr>
<th>Participants (pseud.)</th>
<th>Gender; Age</th>
<th>Course Enrolled</th>
<th>Formal Teaching Experience</th>
<th>Desired Teaching Context</th>
<th>L1; L2 Studied (Years)</th>
<th>Method of Learning PR During L2 Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-service Teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Koki</td>
<td>M; 20–25</td>
<td>Masters of Education (TESOL)</td>
<td>No</td>
<td>English junior HS teacher in Japan</td>
<td>Japanese; English (10)</td>
<td>Repetition/imitation</td>
</tr>
<tr>
<td>Mai</td>
<td>F; 31–35</td>
<td>Masters of Education (TESOL)</td>
<td>6 years at HS in Japan</td>
<td>English HS teacher in Japan</td>
<td>Japanese; English (10)</td>
<td>Dictations, repetition/imitation</td>
</tr>
<tr>
<td>Hiro</td>
<td>M; 20–25</td>
<td>Masters of Education (TESOL)</td>
<td>No</td>
<td>English junior HS &amp; senior HS school teacher in Japan</td>
<td>Japanese; English (10)</td>
<td>Learned phonetic symbols with software at university</td>
</tr>
<tr>
<td>Hayley</td>
<td>F; 20–25</td>
<td>B.Ed (primary ed.) in HK</td>
<td>No</td>
<td>English PS teacher in HK</td>
<td>Cantonese; English (since kindergarten)</td>
<td>Drills, repetition/imitation</td>
</tr>
<tr>
<td>Mark</td>
<td>M; 20–25</td>
<td>B.Ed (primary ed.) in HK</td>
<td>No</td>
<td>English PS teacher in HK</td>
<td>Cantonese; English (since kindergarten)</td>
<td>Drills, repetition/imitation; following non-native teacher model</td>
</tr>
<tr>
<td>Kirsten</td>
<td>F; 20–25</td>
<td>B.Ed (primary ed.) in HK</td>
<td>No</td>
<td>English PS teacher in HK</td>
<td>Cantonese; English (since kindergarten)</td>
<td>Drills, repetition/imitation</td>
</tr>
<tr>
<td>Grace</td>
<td>F; 20–25</td>
<td>Graduate Diploma (TESOL)</td>
<td>No</td>
<td>English HS teacher in AUS and abroad</td>
<td>English; Indonesian (1)</td>
<td>Repetition/imitation</td>
</tr>
<tr>
<td>Charlotte</td>
<td>F; 20–25</td>
<td>Graduate Diploma (TESOL)</td>
<td>No</td>
<td>Schools and volunteer organisations overseas</td>
<td>English; Spanish (2)</td>
<td>Drills, repetition/imitation</td>
</tr>
<tr>
<td>Lucy</td>
<td>F; 46–50</td>
<td>Masters of Education (TESOL)</td>
<td>20 years at HS and PS contexts in Australia</td>
<td>ESL (adults) in AUS and EFL in Asia or Europe</td>
<td>English; German (since HS)</td>
<td>Teacher provided only positive feedback, including repetition</td>
</tr>
<tr>
<td>Name</td>
<td>Gender</td>
<td>Age Range</td>
<td>Degree</td>
<td>Experience</td>
<td>L1/L2</td>
<td>Pronunciation Instruction</td>
</tr>
<tr>
<td>-------</td>
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<td>--------</td>
<td>------------</td>
<td>-------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Alizeh</td>
<td>F; 31–35</td>
<td>Masters of Education (TESOL)</td>
<td>No</td>
<td>ESL in AUS or Europe</td>
<td>English; Italian (since age 11)</td>
<td>Teacher provided feedback during class</td>
</tr>
<tr>
<td>Aoi</td>
<td>F; 26–30</td>
<td>Masters of Education (TESOL)</td>
<td>5 years at HS in Japan</td>
<td>English HS teacher in Japan</td>
<td>Japanese; English (15)</td>
<td>No systematic pronunciation instruction at school. Took course on English phonology at university</td>
</tr>
<tr>
<td>Mio</td>
<td>F; 41–45</td>
<td>Masters of Education (TESOL)</td>
<td>6 years at HS in Japan</td>
<td>English HS teacher in Japan</td>
<td>Japanese; English (10)</td>
<td>Drills, repetition/imitation</td>
</tr>
<tr>
<td>Ken</td>
<td>M; 36–40</td>
<td>Masters of Education (TESOL)</td>
<td>14 years at HS in Japan</td>
<td>English HS teacher in Japan</td>
<td>Japanese; English (10)</td>
<td>Repeating teacher model, independent study of IPA</td>
</tr>
<tr>
<td>Rio</td>
<td>M; 26–30</td>
<td>Masters of Education (TESOL)</td>
<td>8 years at tertiary level in Iran</td>
<td>College level (adults) in AUS</td>
<td>Persian; English (7)</td>
<td>Drills</td>
</tr>
<tr>
<td>Georgia</td>
<td>F; 56–60</td>
<td>Masters of Education (TESOL)</td>
<td>15–20 years at tertiary level in Australia; 2 years at PS in Australia</td>
<td>ESL in AUS</td>
<td>English; French (4)</td>
<td>Teacher asked students to repeat words until they were pronounced correctly</td>
</tr>
</tbody>
</table>

**Notes.** M = male; F = female; TESOL = Teaching English to Speaker of Other Languages; HK = Hong Kong; AUS = Australia; L1 = first language; L2 = second language; PR = pronunciation; ESL = English as a second language; EFL = English as a foreign language; HS = high school; PS = primary school
## Appendix C. Approach to pronunciation teaching employed by experienced pronunciation teachers

<table>
<thead>
<tr>
<th>Participants</th>
<th>Pronunciation Teaching</th>
<th>Reason for Method</th>
<th>Pronunciation Model</th>
<th>Feedback Provision</th>
<th>Enjoyed Pronunciation Teaching?</th>
<th>Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aoi</td>
<td>Drew Sammy diagrams to teach articulation of sounds; used tongue twister for students to have fun</td>
<td>Pictures facilitated students’ &amp; understanding of articulation of sounds</td>
<td>Own (non-native) pronunciation</td>
<td>Rarely provided feedback</td>
<td>Unknown, but little time was spent on pronunciation</td>
<td>Not really confident; tried to copy native-like pronunciation as much as possible</td>
</tr>
<tr>
<td>Mio</td>
<td>Used imitations, repetitions, drills, songs to teach rhythm</td>
<td>Complicated explanations were boring; drills were a good warm-up exercise; singing songs was fun and created an atmosphere conducive to speaking English</td>
<td>Native pronunciation</td>
<td>Provided face-to-face feedback; conducted interview and reading tests once a semester</td>
<td>Yes</td>
<td>Not confident; was unsure about how to teach pronunciation effectively</td>
</tr>
<tr>
<td>Ken</td>
<td>Used drills and repetitions</td>
<td>Didn’t know any other effective way of teaching pronunciation</td>
<td>Own (non-native pronunciation and ALT pronunciation (native assistant teacher))</td>
<td>Provided in-class face-to-face feedback</td>
<td>No, because too much emphasis was placed on preparing students for university entrance exams</td>
<td>Not confident in teaching pronunciation and in his own pronunciation</td>
</tr>
<tr>
<td>Rio</td>
<td>Introduced pronunciation; provided examples; taught symbols; had students repeat to check their pronunciation</td>
<td>Created based on own experience; objective was to make pronunciation fun for students</td>
<td>Native and non-native pronunciation</td>
<td>Provided oral feedback in safe classroom environment</td>
<td>Yes, because getting students to understand how sounds were produced was rewarding</td>
<td>Highly confident. Gained knowledge from students’ questions</td>
</tr>
<tr>
<td>Georgia</td>
<td>Used drills; repetition/imitation; had students practice pronunciation in front of a mirror; taught word stress explicitly</td>
<td>Learned about in a pronunciation session at an English Australia conference</td>
<td>Native pronunciation</td>
<td>Provided face-to-face feedback without embarrassing or singling students out</td>
<td>Yes, because teaching pronunciation helped students with their listening, reading and writing. Time constraints in EAP was, however, an issue</td>
<td>Fairly confident, but wanted to know and understand more</td>
</tr>
</tbody>
</table>

**Notes.** Responses were provided in questionnaire
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