
ORIGINAL RESEARCH ARTICLE

The Beliefs of Secondary Content Teachers of English Language Learners Regarding Language Learning and Teaching

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Given the growing presence of English language learners (ELLs) in U.S. schools, much attention has been paid to the need to prepare mainstream teachers to work with such learners in content classrooms. Grounded in teacher professional development addressing the intersection of teacher beliefs and classroom practice, this mixed-method study examined the impact of a year-long teacher education program aimed at promoting changes in the beliefs of secondary content teachers regarding language learning and teaching to enhance ELLs' academic achievement. Data were collected from pre- and post-program surveys, post-program written responses, and online discussion entries. The findings from this study indicated significant changes in teachers' beliefs about language learning in seven key areas, including language learning through imitation, the role of age in language learning, the benefit of indirect error correction, and the importance of the simultaneous learning of language and content knowledge. Several factors attributed to such belief changes include (1) teacher education course work, (2) action research with ELLs, and (3) peer coaching. Implications for teachers of ELLs, teacher education, and future research are addressed.

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INTRODUCTION

With dramatically increasing numbers of ELLs - students whose primary language is not English and who have limited English proficiency - in U.S. secondary schools, the issue of preparing mainstream teachers in content areas (e.g., mathematics, science, language arts, and social studies) to work with these students has received growing attention. According to recent state statistics, during the period between 2008 and 2009 there were 5.3 million ELLs enrolled in U.S. K-12 public schools, representing about 10.8% of the total K-12 population (National Clearinghouse for English Language Acquisition, 2011). It is estimated that ELL enrollment will reach approximately 40% of the total U.S. K-12 student population by 2030 (U. S. Department of Education & the National Institute of Child Health and Human Development, 2003). ELLs face the double challenge of simultaneously mastering academic content knowledge while improving their English language skills (Short & Fitzsimmons, 2007), and the underachievement of these students on state, district, and school assessments has been well-documented (Fry, 2007).

In recent years, a growing number of teacher education initiatives have been put forth to respond to the increased need for adequate training for mainstream content teachers to support the learning of ELLs (see Dove & Honigsfeld, 2010; Fu, Houser, & Huang, 2007; Gort, Glenn, & Settlage, 2011; Newman, Samimy, & Romstedt, 2010). In these teacher education initiatives, mainstream content teachers are expected to develop an appropriate set of beliefs, knowledge, and classroom practices that enables ELLs to attain challenging academic content standards and develop English language skills. In particular, given that “the process of learning to teach begins with making explicit one’s beliefs about teaching and learning” (Bryan & Atwater, 2002, p. 822), teacher beliefs are an important aspect of teacher preparation for work with ELLs. Beliefs are often viewed as the vital foundation for teachers’ planning, decision-making, and classroom behavior (Clark & Peterson, 1986). It is assumed that changes in teacher beliefs are likely to result in better classroom practices and benefit students’ learning. While the beliefs of language teachers have been extensively documented, studies examining the beliefs of in-service content teachers of ELLs regarding language learning and teaching are scarce. This paper explores this issue in the context of a year-long Teachers of English to Speakers of Other Languages (TESOL) teacher education program for in-service secondary content teachers in Ohio.

LITERATURE REVIEW: BELIEF CHANGES DURING TEACHER EDUCATION

It has been widely recognized that teachers enter teacher education programs with deeply seated beliefs about teaching and learning that are derived from various sources, including individual personalities, prior experiences as learners, and teaching practices (Kagan, 1992; Pajares, 1992). Such beliefs tend to shape how teachers learn to teach, interpret new information, and make instructional decisions during teacher education (S. Borg, 2003). Given the powerful influence of beliefs on teacher learning and classroom

practice, a central issue for teacher educators is the extent to which teachers' pre-existing beliefs (particularly inappropriate or erroneous beliefs) change through the interventions of teacher education programs.

An increasing body of research on teacher beliefs has focused on the impact of teacher education on language teachers. Some studies (e.g., M. Borg, 2005; Peacock, 2001; Urmston, 2003; Wong, 2010) have indicated that teacher education programs appear to have no or limited impact on teachers' beliefs about language learning. For example, Peacock (2001) and Urmston (2003) reported a weak impact of teacher education on pre-service teachers' beliefs. Peacock (2001) examined the beliefs about second language (L2) learning of 146 pre-service teachers enrolled in a three-year Teaching English as a Second Language (TESL) program. The study found no significant change in pre-service teachers' beliefs, providing evidence for the inflexibility of teacher beliefs in some key aspects of language learning. Similarly, Urmston (2003) investigated the beliefs and knowledge of 30 pre-service teachers enrolled in a TESL course in Hong Kong. It was found that pre-service teachers' pre-course beliefs were formed by their learning experiences as students within the teacher-centered educational system in Hong Kong. The author concluded that pre-service teachers' beliefs about key aspects of teaching changed very little during the TESL course.

However, this negative view of the impact of teacher education programs on language teachers' beliefs has been challenged by other studies (e.g., S. Borg, 2011; Busch, 2010; MacDonald, Badger, & White, 2001; Phipps, 2007). Two recent studies by Phipps (2007) and S. Borg (2011) suggest that teacher education plays a critical role in enacting changes in the beliefs of in-service language teachers. Phipps (2007) investigated the effect of four months of an 18-month teacher education course on the beliefs about grammar teaching of an in-service language teacher in Turkey, whereas S. Borg (2011) explored whether an eight-week teacher education program had any impact on the beliefs of six in-service English language teachers in the UK. Two main findings from these studies included: (1) the teacher education program enabled teachers to become more aware of and consolidate their pre-existing beliefs although it did not lead them to make radical and significant changes in their beliefs, and (2) the teacher education program helped teachers develop ways of adopting and implementing teaching practices that were consistent with their emerging beliefs.

In short, given a great deal of variation in the nature of the teacher education programs investigated and the research approaches taken in different studies, the findings of the studies are inconclusive (S. Borg, 2011). However, considering the assumptions that teachers bring their existing beliefs to the teacher education programs and that belief changes are likely to result in improvement in classroom practices, teacher education programs should continue to work to help teachers explore and reconstruct their deeply-seated existing beliefs for professional development (Richardson, 2003).

To date, scant attention has been paid to whether and how teacher education influences the beliefs of in-service mainstream content teachers of ELLs regarding language learning and teaching. Although mainstream content teachers need to serve as important educational agents in the education of ELLs, they receive no or limited training to meet the needs of ELLs (Menken & Antunez, 2001). When there is a lack of teacher training related

to ELLs, teacher beliefs may play a pivotal role in guiding instructional practices for ELLs (Tan, 2011). Therefore, it is important to examine whether and how teacher education influences the beliefs about language learning and teaching held by mainstream content teachers of ELLs. To explore these issues, this study focuses on addressing the following questions:

- 1) How do in-service secondary content teachers' beliefs about language learning and teaching change as a result of their participation in a year-long TESOL teacher education program?
- 2) What contributes to the changes in teachers' beliefs?

METHODOLOGY

Participants

This study involved 31 in-service secondary content teachers enrolled over a year-long period in the TESOL teacher education program. Participants were self-selected from six school districts with high ELL populations in Ohio. There were 28 female (90%) and 3 male (10%) content teachers. The majority of the content teachers were White and monolingual native English speakers. The age of the teachers ranged from late 20's to 50's. The subject areas taught by content teachers included language arts (n=11), math (n=7), science (n=6), and social studies (n=7). Although most of the content teachers had experience with teaching ELLs, they had limited or no prior ELL-related professional development training at the time of the study. Forty-five percent of the participants (14 out of 31) were veteran teachers who had more than 10 years of teaching experience. Six English as a Second Language (ESL) teachers were also recruited from six school districts for participation in this teacher education program. These teachers served as peer coaches and collaborators for content teachers who learned to adapt instruction and assessment for ELLs.

Context of the Study

In this study, we investigated the impact of a year-long TESOL teacher education program on in-service secondary content teachers' beliefs about language learning and teaching. The authors were part of a team of faculty and staff that developed this teacher education program to (1) provide support to develop appropriate beliefs about language learning and teaching; (2) offer a solid foundation in L2 learning and teaching theories and cross-cultural awareness; (3) share a variety of research-oriented strategies to implement content and language integrated instruction and assessment for ELLs; and (4) promote school-based collaboration between content and ESL teachers to better support ELLs. Given the significant role of beliefs in teachers' professional development, we particularly focused on creating a process by which teachers could examine, reflect on, and develop their beliefs about language learning and teaching.

Unlike previous studies of teacher beliefs in which discrete courses were used as a means for enacting changes in teacher beliefs (e.g., Busch, 2010; MacDonald et al., 2001; Phipps, 2007), we adopted a program-based integrated approach in which the teachers were comprehensively exposed to L2 learning and teaching theories, research, and instructional practices through various sources of professional development, including (a) two online courses (TESOL Methods and TESOL Field Experience) and (b) two hybrid video-conferencing courses (Language Testing and Material Development in L2 Teaching), and (3) three face-to-face workshops on various issues concerning teaching ELLs at the secondary level. In the courses, the teachers were asked to examine their own beliefs and related teaching practices in light of L2 learning and teaching theories, research, and the beliefs of others. For example, in the TESOL Field Experience course, the teachers were exposed to the Sheltered Instruction Observation Protocol (SIOP) Model and its teaching strategies (Echevarria, Vogt, & Short, 2008) supported by various L2 theories and research. While they were asked to implement SIOP teaching strategies in their classroom with ELLs, they received peer coaching from ESL teachers. They were also engaged in reflective online discussions on their prior language learning experiences and were asked to share their beliefs about how languages are learned and how they should be taught with their content colleagues and ESL teachers.

Data Collection and Analysis

This study employed a mixed-methods approach that included both qualitative and quantitative data collection and analysis (Creswell, 2009). Data were gathered through two major sources: (1) pre- and post-program surveys of beliefs and (2) online discussion entries.

- *Pre- and post-program surveys of beliefs:* A survey questionnaire developed by Lightbown and Spada (2006, p. xvii-xviii, see Appendix) was used and adapted by the authors to capture the teachers' beliefs about language learning and teaching before and after the program. The pre- and post-program surveys consisted of 17 fixed items that address popular ideas about language learning and teaching, such as language learning through imitation, the role of age, and the simultaneous learning of language and content knowledge. The teachers were asked to indicate to what extent they agreed or disagreed with each of the statements where 1 meant strongly agree and 6 meant strongly disagree. To obtain more detailed information about belief changes, the post-program survey included an open-ended question that asked the teachers to compare their pre- and post-program belief surveys, identify two items on which their responses changed the most, and then write a short paragraph about why they thought their responses changed.

- *Online discussion written entries:* Throughout the program, the teachers took part in online asynchronous discussions on theoretical and practice-oriented ESL issues. Topics emerged from instructors' lectures, class readings, SIOP teaching video analysis, and/or experiential learning activities (e.g., the implementation of SIOP strategies and action research with ELLs).

Data were analyzed quantitatively for the pre- and post-survey responses and qualitatively for the post-program written survey responses and online discussion entries. Paired sample *t*-tests were performed to determine whether and how the teachers' beliefs

about language learning and teaching had changed through their participation in the year-long teacher education program. To examine main factors contributing to changes in beliefs, the teachers' post-program written survey responses and online discussion entries were coded and analyzed using qualitative content analysis (Mayring, 2004). The data were imported to Nvivo9 for systematic coding and analysis for emergent themes and patterns with respect to changes in teacher beliefs and factors attributing to such changes. In the coding process, we constantly compared and contrasted different teachers' written responses and comments as to their evolving beliefs and relevant pedagogical practice for supporting ELLs.

RESULTS

Belief Changes

To determine whether and how the teachers' beliefs about language learning and teaching changed, a series of paired sample t-tests were performed. The results of the analysis indicated significance differences in the beliefs of the teachers between the pre- and post-program survey results. Pre-program mean was 3.43 with SD = 0.53, while post-program mean was 3.69 with SD = 0.37; $t = 3.21$, $p = 0.03$. This could be interpreted as meaning that the teacher education program had a considerable impact on the in-service content teachers' beliefs about language learning and teaching. Table 1 presents the statements on which there was a statistically significant difference at $p < .05$ between the pre- and post-program responses. In the post-program results, the teachers exhibited significant changes in beliefs on seven statements (items 1, 5, 6, 8, 12, 16, and 17) (See Table 1).

As shown in Table 1, one important trend in belief changes was a movement away from the behaviorist view of language learning (items 1, 6, and 12). The behaviorist view of language learning seemed to be the guiding principle for the teachers at the beginning of the program.

By the end of the program, however, the teachers became more inclined to disagree with language learning through imitation (item 1), the negative influence of first language (L1) on L2 acquisition (item 6), and immediate error correction for preventing the formation of bad habits (item 12). In addition, they significantly lessened their convictions as to the "early start advantage" in language learning (item 5), from the pre-program mean of 2.03 to the post-program mean of 3.48 ($t=5.93$, $p < .001$), and the significance of accurate pronunciation (item 8), from the pre-program mean of 4.13 to the post-program mean of 4.74 ($t=2.72$, $p=.011$). Furthermore, they became persuaded by the benefit of indirect error correction (item 16) and the importance of the simultaneous learning of language and content knowledge (item 17). In particular, the teachers showed slight agreement with the importance of the simultaneous learning of language and content knowledge (item 17) with the pre-program mean of 2.88, but moved toward strong agreement with the post-program mean of 1.35 ($t=3.90$, $p < .001$).

Table 1
Belief Statements with Statistically Significant Changes Pre- to Post-program

	Survey statement	Mean (SD)		<i>t</i>	df	Sig. (2-tailed)	Nature of change pre to post
		pre	post				
1	Languages are learned mainly through imitation.	2.77 (1.28)	3.73 (1.14)	-4.59	30	<.001	slightly agree toward slightly disagree
5	The earlier a second language is introduced in school programs, the greater the likelihood of success in learning.	2.03 (.87)	3.48 (1.15)	-5.93	30	<.001	agree toward slightly disagree
6	Most of the mistakes that second language learners make are due to interference from their first language.	3.32 (1.47)	3.82 (1.14)	-2.05	30	.048	slightly agree toward slightly disagree
8	It is essential for learners to be able to pronounce all the individual sounds in the second language.	4.13 (1.23)	4.74 (1.00)	-2.72	30	.011	slightly disagree toward disagree
12	Learners' errors should be corrected as soon as they are made in order to prevent the formation of bad habits.	2.97 (1.45)	4.19 (1.14)	-4.42	30	<.001	slightly agree toward slightly disagree
16	Teachers should respond to students' errors by correctly rephrasing what they have said rather than by explicitly pointing out the error.	2.87 (1.36)	2.17 (1.15)	2.70	30	.011	slight agree toward agree
17	Students can learn both language and academic content (for example, science and history) simultaneously in classes where the subject matter is taught in their second language.	2.88 (1.43)	1.25 (.67)	3.90	30	<.001	slightly agree toward strongly agree

Note: * a significant difference $p < .05$

Major Factors Contributing to Belief Changes

To explore what prompted a meaningful transition from existing beliefs to more theoretically-informed and professionally-oriented beliefs about language learning and teaching, a content analysis of the teachers' post-program written survey responses and online discussion entries was performed. As the quantitative data suggest, one significant trend in belief changes was a movement away from the behaviorist view of language learning (items 1, 6, and 12). For instance, the teachers' post-program written responses pertaining to language learning through imitation (item 1) included a number of statements that suggested an initial belief that language learning took place through imitation, habitation, and reinforcement. Many teachers attributed this pre-program belief to their previous language learning experience in high school or college (i.e., apprenticeship of observation [Lortie, 1975]). Like the in-service content teachers in Hutchinson and Hadjioannou's study (2011), they expressed adherence to the audio-lingual or grammar translation approaches supported by the behaviorist view, although they acknowledged that these approaches used in their high school or college language class did not help them develop the ability to meaningfully use an L2 in both academic and non-academic contexts.

As they moved through the program, however, such views changed to more theoretically informed beliefs. When asked to reflect on the factors contributing to belief changes, many teachers made reference to the theories of L2 acquisition, particularly Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency (CALP) (Cummins, 1979). As they developed their understanding of the difference between BICS and CALP, they recognized that the behavioristic explanation might not be sufficient. One teacher wrote, "I now realize that learning a second language is much more complex than simply being able to imitate what to speak. Social language (BICS) and academic language (CALP) differ, and academic language requires explicit instruction." Another teacher commented, "Although young children may learn through imitation, an ESL student needs to develop academic language and benefits from direct and explicit instruction, such as using visuals, graphic organizers, and modified authentic assessment." It should be noted that a number of teachers reported that the distinction between BICS and CALP provided them with a useful foundation to examine and transform their beliefs about language learning and teaching and to offer instructional support for ELLs.

Another sub-area in the behaviorist view that showed significant changes in teachers' beliefs was related to the negative influence of L1 on L2 acquisition (item 6). The teachers moved from slightly agree toward slightly disagree. In their explanations many teachers cited the program content (e.g., course readings and the instructors' lectures) as a main reason for belief changes. They reported significant learning about the benefits of using L1s in L2 acquisition from the courses. One teacher commented:

Initially, I thought differences between an L1 and L2 would make learning an L2 more difficult. Now, I realize that although L1 may contribute to some interference for some students, strengths in L1 might allow students to make connections between their L1 and L2 to increase second language acquisition. I learned that a student's knowledge in their L1 enables and empowers their L2

learning. Obviously, when students have a better understanding of language in general, this knowledge translates across language barriers.

It is notable that these changes in beliefs led to improvement in classroom practices for ELLs. Online discussion entries from the early program phase suggested the teachers' adherence to the "English-only" principle and their negative perceptions of the role of L1 in L2 acquisition. However, online discussion commentaries toward the end of the program showed substantial increase in the use of teaching strategies that allowed ELLs to use their L1s as a mediation tool for L2 acquisition (e.g., creating legitimate and safe spaces in the classroom for ELLs' L1s and grouping ELLs with speakers of their L1).

The second key area which exhibited significant differences in beliefs and generated much commentary from the teachers was the role of age in language learning (item 5). The teachers went from agree to disagree on the "earlier the better" principle. Many cited class readings and online group discussions as a major factor attributed to their belief changes. They reported on their significant learning that there are many other important factors that shape L2 acquisition, including L1 literacy skills, motivation, and cognitive maturity. One teacher commented, "I previously thought that the sooner an L2 was introduced, the higher the success rate. I now know how complicated the language acquisition process is and that it depends on a variety of factors, including an ELL's education background and motivation."

The simultaneous learning of language and content knowledge (item 17) was the final key area indicating dramatic changes in beliefs. Like the content teachers in previous studies (Creese, 2005; Tan, 2011), many of the teachers in the present study originally believed that content and ESL teachers had separate roles. Online discussion entries from the early program phase indicated the teachers' initial belief that content teachers should focus on subject knowledge, while teaching language was primarily ESL teachers' responsibility. This may explain why the teachers expressed a sense of inadequacy in supporting the language development of ELLs at the beginning of the program. However, it was found that the opportunity to learn and implement language and content integrated instruction (e.g., learning and implementing SIOP strategies and analyzing SIOP teaching videos) during the program led to significant changes in the teachers' beliefs. One teacher noted, "Prior to the SIOP portion of the program, I believed that content and language were taught separately. The program has given SIOP strategies that demonstrate how dual learning can take place. In addition, I have used those strategies to assist my ELL students in succeeding in learning both simultaneously." In short, participation in the TESOL teacher education program seemed to have a considerable impact on the teachers' beliefs about language learning and teaching as well as their self-perceptions of competence in teaching both language and content knowledge to ELLs. As one teacher phrased it:

I came into the program seeing myself as an exclusive content area teacher. As I have become more educated, thus being more aware, in the bigger picture that we are both content and language teachers. Learning about TESOL standards, LEP [Limited English Proficient] standards, and SIOP strategies helped me understand how to incorporate language learning in the content classes. You can't separate one from the other. I now see the connection that you can't learn

content without language and that content area teachers are crucial in providing the bridge for language development.

DISCUSSION AND CONCLUSION

Finding Summary

This study sought to explore the impact of a year-long TESOL teacher education program on in-service secondary content teachers' beliefs about language learning and teaching. The first research question concerned whether the teachers' beliefs changed during their participation in the teacher education program. The findings suggest that the program had a positive impact. The analysis of the pre- and post-program survey responses indicated significant changes in beliefs about language learning and teaching, which seemed conducive to supporting the academic growth of ELLs. Such belief changes were also expressed in the post-program written survey responses and the online discussion entries. Therefore, this study corroborates results from other studies that have observed that teacher education programs play a pivotal role in helping in-service teachers examine their existing belief system and promoting changes in beliefs (S. Borg, 2011; Phipps, 2007).

Regarding the second research question, "What contributes to the changes in teachers' beliefs?" the teachers' post-program written survey responses and online discussion entries provided direct insight. Like previous studies (Busch, 2010; da Silva, 2005), the present study showed that the teachers' pre-program beliefs were derived from their unique life histories and past experiences as language learners and teachers. However, these pre-program beliefs significantly changed as they were influenced by various aspects of the teacher education program. The teachers attributed their post-program belief changes to three major factors: (1) teacher education course work, (2) action research with ELLs, and (3) peer coaching.

The teachers provided consistent reports that teacher education coursework was profoundly influential in examining their assumptions about language learning and teaching and developing more theoretically informed beliefs. The courses included rigorous work on topics relevant to supporting ELLs' academic growth in the content classroom. The teachers cited theoretical principles (e.g., BICS and CALP), rich research on L2 acquisition, and the analysis of SIOP teaching videos as major influences on their beliefs. Exposure to theories in L2 learning and teaching gave them theoretical underpinnings and enabled them to examine and transform their beliefs and practices.

In addition to teacher education coursework, the teachers cited action research with ELLs as significant in exploring their emerging beliefs. Action research is considered to be a useful means for productive reflection and enacting changes (Goodnough, 2010). In our study, the teachers observed ELLs in the content classroom and kept track of and documented their progress in language learning over a 10 week-period. This action research allowed them to examine the effects of their instruction on ELLs' language learning and engage in reflective writing in which they challenged their own assumptions about language learning and teaching and actively explored their emerging beliefs in the light of SLA

research findings and research-based teaching practices. Some teachers reported that when their action research and reflective inquiry were shared through online and/or face-to-face discussions with content colleagues and ESL teachers in the program, it further consolidated their evolving beliefs.

More importantly, many pointed to peer coaching from ESL teachers as a significant factor affecting their beliefs. Peer coaching refers to “a process of cooperation between two or more colleagues in which they exchange ideas, attempt to implement these ideas, reflect on their own teaching practice” (van Driel, Beijaard, & Verloop, 2001, p.149). Our study supports findings of previous studies reporting that peer coaching facilitates changes in teachers’ cognition and behavior and improves teachers’ professional development (Murray, Ma, & Mazur, 2008; Zwart, Wubbels, Bergen, & Bolhuis, 2009). In the present study, the ESL teachers, as coaching partners, observed how the content teachers implemented SIOP strategies for ELLs and provided peer feedback on their teaching. A number of content teachers particularly noted the significance of post-observation discussions with the ESL teachers as to their underlying beliefs and reasoning behind instructional decisions during the lesson. This peer coaching and observation awakened the need for changes in beliefs and provided the content teachers with ways to incorporate their emerging beliefs into classroom practice.

It should be noted that this evidence of belief changes was the result of the long-term programmatic endeavor that focused on comprehensively engaging the teachers in language learning and teaching theories, research, and instructional practices. Our study also found that belief changes improved the teachers’ perceived competence in providing effective instruction for ELLs. Previous studies suggest that teacher education tends to have limited impact on teachers’ beliefs, partly because it typically provides short-term intervention (e.g., offering short discrete courses) (Richardson, 2003). In fact, some teachers in our study reported that they still entered the teacher education program with existing beliefs inconsistent with L2 acquisition theories and research findings, although they had prior short-term teacher training on ELLs (e.g., 2-day school-based SIOP training). However, these teachers showed significant improvement in their beliefs about language learning and teaching after their participation in this year-long program. Therefore, our study adds to the argument that more sustained and long-term teacher education programs should be developed and offered to facilitate belief changes (e.g., Richardson, 2003; Song, 2014; Tatro & Coupland, 2003).

Implications for Teachers of ELLs and Teacher Education

It is important to note that this study is the first investigation of which we are aware to examine the beliefs of in-service secondary content teachers of ELLs regarding language learning and teaching. Thus, it represents a significant step forward in understanding the impact of teacher education on mainstream content teachers’ beliefs about language learning and teaching in an in-service context. However, there are limitations that should be acknowledged. This study was set within the context of only one teacher education program and involved the relatively disproportionate ratio of female to male teachers, which limits the generalizability of the results. Another limitation is the fact that the findings are based

on self-reported data, which are potentially subject to social desirability and recall biases. Therefore, incorporating classroom observation data into the study design would broaden our understanding of how the beliefs of in-service content teachers of ELLs evolve through participation in teacher education programs.

Despite these limitations, this study carries important implications for teachers of ELLs. With a growing ELL population in K-12 schools, mainstream content teachers are key instructional agents for the learning of ELLs. Assuming that content teachers' beliefs about language and content learning influence how they interact with and teach ELLs (Tan, 2011), belief changes should be the primary focus of the professional development of teachers of ELLs. If teachers have erroneous or inappropriate beliefs about language learning and teaching, they may end up adopting classroom practices that are counterproductive to ELL's learning of content-specific academic language. Therefore, explicit opportunities should be provided for teachers of ELLs to become content and language teachers and examine, confront, develop, and transform beliefs about language learning and teaching. A useful approach for teachers of ELLs may be to build school-wide collaborative networks, such as peer coaching (Zwart et al., 2009), learning labs (Brancard & Quinnwilliams, 2012), and teacher inquiry groups (Crockett, 2002).

As mentioned earlier, our study provides evidence that school-based peer coaching served as an important tool for the content teachers to build collaboration with ESL teachers and explore their emerging beliefs and how these beliefs influenced their classroom practices for ELLs. Therefore, collaborative teacher networks that focus on input, reflections, and discussions can serve as a catalyst for the exploration and development of teacher beliefs (Phipps, 2009). In order for collaborative networks to be effective, trust and openness among teachers should be ensured (Phipps, 2009). Coherent administrative support is also a crucial component of effective school-wide networks (Walker, 2012). Consequently, school administrators need to provide leadership by developing a safe, constructive, and trustworthy school climate that promotes a sense of learning community among teachers.

Promoting belief changes is an important and yet daunting task for teacher education, given that beliefs are often deep-seated and inflexible (Richardson, 2003). Therefore, teacher education programs should provide specific tasks and activities to facilitate significant and meaningful belief changes. First, since teacher beliefs are implicit in nature, teacher educators need to help teachers understand why it is important to explore their beliefs and develop specific ways to articulate and make explicit their beliefs (S. Borg, 2011; de Vries, Jansen, & van de Grift, 2013). Second, reflective activities (e.g., reflective writing and portfolios) should be incorporated into the teacher education curriculum. A number of studies (S. Borg, 2001; Phipps, 2009) suggest that belief changes can be facilitated by reflection on beliefs, since this can help teachers scrutinize the potential inadequacy of their beliefs and rationalize their own belief system. During reflective activities, it is important that teacher educators offer feedback on teachers' evolving beliefs and eventually facilitate belief changes, which in turn can improve teachers' classroom behavior.

Finally, to facilitate the development of teacher beliefs, teacher educators should provide clear guidelines that reflect the objectives of the teacher education program, yet are

cognizant of the realities of daily teaching context. The findings of our study confirm the assertion that contextual and institutional constraints (e.g., curriculum mandates, standardized tests, and school policies) may influence the development of teacher beliefs (e.g., Mansour, 2009). Being concerned about the pressure of state mandated standardized tests, diverse needs of ELLs, lack of resources, and time constraints, some teachers in this study encountered conflicts between their emerging beliefs and actual or desired practices of language and content integrated instruction. These conflicts seemed to have an inhibiting effect on the teachers' continuing development of beliefs and their ability to adopt instructional practices that were consistent with their evolving beliefs. Therefore, teacher educators should provide teachers with opportunity to explore potential tensions between emerging beliefs and complex classroom realities, and develop and consolidate their beliefs in relation to the contextual realities of daily classroom teaching and learning (Mansour, 2009).

Implications for Future Research

Although our study provides valuable insight into in-service secondary content teachers' belief changes emerging from teacher education, there are still further questions to be answered. Further attempts need to be made to explore the relationships between teachers' stated beliefs and actual classroom practices after a teacher education program. This would yield a more comprehensive understanding of the long-term influence of teacher education. Further attention should also be given to the links between belief changes, classroom practices, and students' learning (Kubanyiova, 2012). Examining these links deserves attention since it would offer valuable information for teacher educators, program administrators, and educational policy makers to expand the current understanding of the teaching process and its influences on ELLs' academic development.

Another area worthy of further examination has to do with comparisons of the beliefs of in-service and pre-service mainstream content teachers. Given the dramatic increase in the number of ELLs in K-12 U.S. schools, the preparation of both in-service and pre-service content teachers for ELLs needs to be explored (Bunch, 2010). The study reported here focused on in-service content teachers' beliefs. However, it would be worthwhile to examine whether the same pattern of results would be obtained with pre-service content teachers. Future research may track pre-service teachers in their transition to the first year of teaching and investigate whether and how teacher preparation programs contribute to the belief development of these novice teachers. Moreover, studies comparing the beliefs of in-service and pre-service content teachers would shed light on developmental patterns of teacher beliefs as well as transformations in teacher beliefs that may occur over time.

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