Collaboration to teach English language learners: opportunities for shared teacher learning

Melinda Martin-Beltran[a] & Megan Madigan Peercy[a]

[a] College of Education, University of Maryland, College Park, MD,
USA
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Melinda Martin-Beltran* and Megan Madigan Peercy

College of Education, University of Maryland, College Park, MD, USA

This study examines collaboration between English for Speakers of Other Languages (ESOL) teachers and content-area elementary school teachers, and makes the case for conceptualising teacher collaboration as an opportunity for shared teacher learning. Using a sociocultural theoretical lens, this study examines how three pairs of elementary teachers and ESOL specialists used and constructed tools for collaboration, which mediated and made visible teachers' learning processes. Employing interpretive enquiry and cross-case analysis, we examined data from classroom observations, teacher co-planning sessions and interviews with teachers. Findings demonstrated that collaborating teachers used tools to articulate and reconceptualise teaching goals, co-construct knowledge and ultimately transform teaching practices to meet the needs of culturally and linguistically diverse students. This study has implications for teacher education and ongoing professional development, by shedding light on the potential affordances of collaborative tools for teacher learning. Findings suggest that teacher education could harness these opportunities for learning by incorporating collaboration between ESOL specialists and content-area teachers as an integral part of preparing more qualified teachers to work with culturally and linguistically diverse students.

Keywords: English language learners; teacher collaboration; English as a second language (ESL); language teacher knowledge; professional development; sociocultural theory

1. Background

As the population of culturally and linguistically diverse students continues to increase in schools around the world, research has shown that many teachers are not adequately prepared to meet the needs of these students (Gándara, Maxwell-Jolly, & Rumberger, 2008; Haworth, 2008; Hutchinson & Hadjioannou, 2011; Miller, 2011; Rumberger & Gándara, 2005; Téllez & Waxman, 2006). This situation presents a challenge and an opportunity to engage teachers in ongoing learning in their schools as they seek better ways to teach language minority students (we use the term English language learners, or ELLs, throughout this paper because this was the term used in the school context), yet more research is needed to understand how to promote this learning among teachers. Although English for Speakers of Other Languages (ESOL) specialists could potentially offer their expertise to content-area or elementary classroom teachers, they are rarely given the opportunity to work and

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*Corresponding author Email: memb@umd.edu

learn together at schools or in teacher education programmes (Cross, 2011; Roache, Shore, Gouleta, & Butkevich, 2003; Robinson & Buly, 2007). In recent years, scholars have underscored the potential for collaboration between general education and ESOL teachers (Crandall & Kaufman, 2002; Davison, 2006; Dove & Honigsfeld, 2010; Haynes, 2007; Hoffman & Dahlman, 2007; Rushton, 2008). Our study extends a growing body of research that has examined teacher collaboration in terms of organisational factors, discourse, relationships, perceptions and identity (Arkoudis, 2006; Creese, 2006; Davison, 2006; Gardner, 2006; Naraian, 2010; Pawan & Ortloff, 2011; Sawyer & Rimm-Kaufman, 2007) and instead frames collaborative teaching as a key opportunity for teacher learning (Doppenberg, Bakx, & den Brok, 2012; Hindin, Morocco, Mott, & Aguilar, 2007). In response to previous studies which have highlighted epistemological and pedagogical gaps between ESOL and mainstream teachers (Arkoudis, 2006; Creese, 2002, 2006; Davison, 2006; Gardner, 2006), our study sought to understand what tools teachers may use to bridge those gaps. We examined how three pairs of elementary classroom teachers and ESOL specialists took on the challenge of collaborating to meet ELL needs; and more specifically, how they utilised and constructed tools to create mediational spaces for collaborative teacher learning.

2.   Conceptual framework

Drawing upon a sociocultural theoretical lens (Johnson, 2009; Johnson & Golombek, 2003, 2011; Lantolf, 2000; Lantolf & Poehner, 2008; Yoon & Kim, 2012), we conceptualise teacher collaboration as an ongoing process of teacher learning that occurs as teachers do their work. We applied concepts from Cultural Historical Activity Theory (CHAT) (Engeström, 1987, 1994, 1999, 2001; Leont'ev, 1978, 1981; Roth & Lee, 2007) to analyse teacher collaboration as dynamic social activity that is situated in social contexts, and distributed across people, tools and activities (Johnson, 2006; Vygotsky, 1978; Wertsch, 1991). Applying the CHAT framework allows us to respond to the call in teacher education research to move beyond a focus on process product (Opfer & Pedder, 2011) and to instead examine teacher learning as activity shaped by a greater network of relationships. In this study, we found that teaching goals, shared artefacts, administrative support, school norms and division of labour were all important features mentioned by teachers explaining their collaboration – which resonated with a CHAT framework. Figure 1 illustrates how we applied the CHAT 'activity triangle' (Engeström, 1991, 1999) that models the mediated nature of social and material resources that are salient in learning activities.

We conceptualise teacher collaboration as an interrelated activity system tied together by a shared goal or *object* (teacher collaboration to meet ELL needs) aiming for an intended *outcome* (improved education for ELLs). This is not to suggest that all *subjects* (ESOL and mainstream teachers) always agreed upon shared goals, nor the means to achieve their goals (see Klette, 1997). In fact, contradictions were common in collaborative teaching activities; yet, Engeström (1999) explains that contradictions can lead to subjects' cognitive development as they respond to difficulties using appropriate available cultural resources (*mediating artefacts* or semiotic tools). In this paper, we focus on the teachers' use of these tools to respond to some of the contradictions and opportunities to learn in their collaborative teaching.

Johnson and Golombek (2003) argue that a sociocultural lens makes visible 'how various tools work to create a mediational space in which teachers can externalise
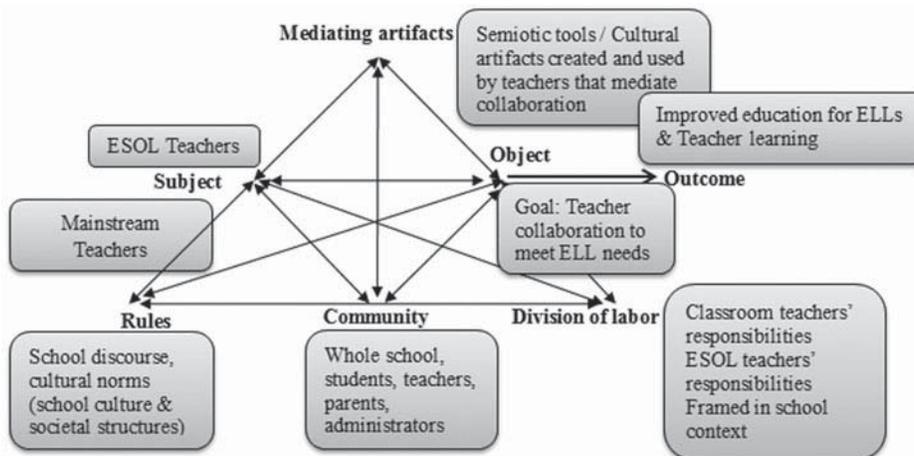
Figure 1. Conceptualising teacher collaboration as an activity system (Adapted from Engeström 1987, 1994, 1999; Leont'ev, 1978).

their current understandings and then reconceptualise and recontextualise their understandings and develop new ways of engaging in the activities associated with teaching' (p. 735). In this study, we focused on semiotic tools as texts or meaning-making artefacts through which teachers reach their goals and mediate new knowledge (Johnson & Golombek, 2003; Leont'ev, 1981; Vygotsky, 1986; Wells, 1999). For example, the teachers in our study used tools such as lesson plans, reflective notes, assessment tools, instructional materials and classroom technology to collaborate. We examined how teachers created mediational spaces using dialogic tools, and we focus on how the teachers' use of tools makes visible their collaborative learning processes. Although there is a growing body of research using a sociocultural lens to investigate teacher learning (Freeman & Johnson, 1998, 2004; Johnson, 2009; Johnson & Golombek, 2011), few empirical enquiries have examined collaboration between ESOL specialists and content-area teachers as an opportunity for learning to teach.

3. Methods

3.1. Context

This research project grew out of a university–school district partnership involving a five-month professional development (PD) series for 26 teachers from 11 different schools in the greater metropolitan Washington DC area. The participating schools were chosen by district administrators based upon high ESOL populations with the goal of training at least one pair of ESOL and mainstream teachers at each school. At the time of this study, the school district was working to implement more collaborative plug-in teaching (in which the ESOL teacher instructed ELLs in the general education classroom, supporting content-area instruction) between ESOL and classroom teachers in their schools, although most schools in the district used a pull-out model, with the ESOL teacher instructing students outside of the general education classroom using the ESOL curriculum. The authors and the district's

ESOL instructional specialist worked together to develop and co-teach the PD work-shops, which offered teachers research-based instructional strategies to meet the needs of ELLs (based on the work of Bailey & Butler, 2003; Chamot & O'Malley, 1994; Fillmore & Snow, 2000; Harper & de Jong, 2004; Herrell & Jordan, 2008; Rothenberg & Fisher, 2007; Yatvin, 2007) and explored the benefits and challenges of ESOL–mainstream teacher collaborative planning and teaching. To supplement the workshop sessions, teachers participated in co-planning and co-teaching, which offered practical experiences for reflection in later PD sessions. As teacher educators and researchers, we aimed to engage teachers as constructors of knowledge and praxis (Johnson, 2006; Sharkey, 2009).

3.2. *Data collection*

Using cross-case analysis (Borman, Clark, Cotner, & Lee, 2006), we focused on what multiple cases (three teacher pairs) revealed about teacher collaboration. Following guidelines for interpretive enquiry and participant observation (Creswell, 2009; Miles & Huberman, 1994), data collection included interviews with the teach-ers about the context and everyday practices of collaboration in their school, obser-vations of teachers co-planning and co-teaching and interviews after they taught their planned lesson to understand their perspectives about their collaboration.

   We focused on three ESOL–mainstream teacher pairs in three different elemen-tary schools. The focal pairs represented a spectrum of approaches to collaborative teaching: the first pair (Kathleen and Gina) was co-teaching at their own initiative in second grade, the second pair (Dorothy and Hannah) was collaborating as part of the district's plug-in pilot programme in second grade and the third pair (Samantha and Tanya) represented a pull-out ESOL model for kindergarten. The data from these focal pairs were contextualised in our larger data-set that included observation notes during the PD meetings, and questionnaires completed by 23 teachers (of 26 who participated in PD) about their experiences with teacher collaboration.

3.3. *Data analysis*

Following a grounded approach (Strauss & Corbin, 1998), we conducted open coding on the observation notes and interview transcripts (using NVivo software) to identify salient themes discussed by the participants. As a research team, we compared themes which were initially categorised by obstacles or opportunities for collaboration. Our initial coding of the same examples as both obstacles and oppor-tunities for collaboration led us to re-think the complexities of dynamic collaborative relationships. Instead, during a second phase of axial coding, we examined teachers' collaboration as an activity (often wrought with contradiction) through the lens of CHAT (Engeström, 1987, 1994, 1999, 2001), which revealed affordances for teacher *learning* in moments that were both obstacles and opportunities. Particularly inter-esting was the way that teachers co-created and used tools to mediate their learning while dealing with challenges. We identified teachers' use of semiotic tools as a central phenomenon to guide selective coding (Creswell, 2009; Corbin & Strauss, 2008) of the larger data-set of field notes and interviews. As we analysed excerpts from the interviews and teaching observations that illustrated teachers' use of tools, we identified three overarching categories to illustrate the ways in which they used tools (see findings below).

4. Findings

As teachers collaborated, they externalised their collaborative practices (rendering their learning visible) through the use of mediational tools. Using a sociocultural theoretical framework (Engeström, 1987, 1994, 1999, 2001; Johnson, 2009; Johnson & Golombek, 2011), we foreground teachers' use of tools as a way to understand teacher learning (see *mediating artefacts* in Figure 1). We found that teachers created mediational spaces (Vygotsky, 1978) for teacher learning, using several tools, some available in their school/institutional context, while others were created by teachers in their daily practices. We make the case that the social negotiation of these tools and teaching practices created an important context for teacher learning. We found teachers created and used tools to: (1) communicate and clarify their own and their partner's teaching goals; (2) co-construct their expanding knowledge base for teaching linguistically diverse students; and (3) negotiate ownership of space, students and teaching voice within a shared teaching activity.

4.1. Using tools to communicate and make sense of teaching goals

Because the ESOL–mainstream teacher pairs needed to coordinate lessons on a daily or weekly basis, the teachers used and created tools to make sense of their communication and to negotiate what to teach and how. One of the tools that acted as an important point of convergence for teacher collaboration was the school district's curriculum framework (CF). Although this institutional artefact was not created specifically for the purposes of teacher collaboration, we found teachers took ownership of this text when they used it as a tool to construct their own understanding of how to connect mainstream and ESOL instruction.

The CF contained a pacing calendar, state reading/English language arts standards, titles of reading selections, daily objectives and suggested activities adapted from the adopted textbook series. ESOL teachers used the CF as a reference to determine what content and language they should provide support for in their own lessons. From our survey data, we found that most of the teachers (83% or 19/23) mentioned the CF as their first reference point for communicating with other teachers. The teachers used the CF as a tool to articulate, re-name and re-conceptualise their own teaching and learning. Examples from data below illustrate how teachers used the CF to make sense of their own and their colleagues' teaching goals and how teacher learning occurred through their communication about the CF. For example, in the initial interviews, the ESOL teachers mentioned the CF in the following quotes (bold text in the quotes is authors' emphasis to draw attention to our analytic themes and to highlight the ways the teachers externalised their learning):

I can read the curriculum [framework] and I sort of check in with the classroom teacher: 'Where are you at in the curriculum [framework]? *What are you doing?*' and the variations, I try to kind of keep up with that. *I took the initiative to read the curriculum* ahead of time … I knew I was getting into this [plug-in co-teaching model] so I read the book and I read the curriculum and was familiar with it. [*Dorothy, Interview 1*]

I will know what story they should be on by the pacing calendar [in the CF] and usually *I will check and say* 'Are you on day 2 of this story or are you behind?' [*Samantha, Interview 1*]

The ESOL teachers described their use of the CF as a tool to make sense of learning objectives, to ask their co-teachers questions and to coordinate teaching activities. Dorothy explained that because co-teaching obligated her to talk with another teacher about this curriculum, she was more invested in her reading and using this artefact. Teachers explained that even a brief interaction with their colleagues about how they used this tool offered a learning opportunity for both teachers to reflect on their adaptations of the curriculum and instructional decisions. In the quote below, Kathleen stated that the CF was a tool that helped her make sense of her colleague's teaching goals during grade-level team meetings when curriculum was discussed in the context of other weekly teaching demands.

> I can say 'Okay, based on what I am hearing, this is not getting covered, or this is getting covered'. So I usually take a highlighter and my curriculum framework [to our grade-level team meetings] and *I just highlight*. So, I can kind of *see what people are saying* that their kids are doing. [*Kathleen, Interview 1*]

Kathleen took ownership of the curriculum by physically marking the text as she actively prioritised teaching objectives and made sense of her colleagues' instructional plans.

Gina, the second-grade teacher with whom Kathleen co-taught, also described the use of the CF as a mediating tool to link teacher knowledge and negotiate teaching concepts.

> And I think it is also important to be *willing to share* the curriculum with the ESOL teachers because … especially when they plug-in, they are not doing their own thing, *they are meshing* with you, so *you need to be aware*, well-aware, of the curriculum and *share all that knowledge* with the ESOL teachers and make sure that they are on the same page. Because *you need to look at the curriculum equally* as well *to know what you need to bring in* to scaffold. [*Gina, Interview 1*]

Gina articulated the way they 'share all that knowledge' by using the CF as a tool for mediation, and she offered evidence of teachers co-constructing knowledge about learning objectives together. The opportunity to discuss the curriculum together and reflect on ways to adapt the curriculum also demonstrated ongoing teacher learning within their collaboratively generated zone of proximal development (Johnson, 2009; Vygotsky, 1978) where each teacher brought her pedagogical expertise.

Email was another important semiotic tool (mentioned by 17/23 teachers) that facilitated collaborative opportunities to coordinate teaching goals between mainstream and ESOL teachers. Kathleen explained that she used email regularly to generate instruction that supported what students were learning in their mainstream classrooms.

> I email the team leader, she has the majority of my ESOL kids. There are fourteen in her class. So, I email her and saying 'Hey, *I am thinking* this,' and she will email back 'Yeah, that sounds good.'[*Kathleen, Interview 1*]

Kathleen explained how email is a place to articulate thinking between teachers, which is another example of teachers externalising their knowledge (Golombek & Johnson, 2004). Dorothy used email as a tool for collaborating with her mainstream counterpart, as well as the special educator in their school. This was an opportunity to express in writing what she understood (or misunderstood) about their shared

teaching and learning goals. In the quote below, Dorothy explained how she took notes of their co-planning and then emailed these notes to her mainstream partner and the special education teacher for any feedback.

> I usually take notes during [our planning] and *keep track of what we have come up with* and email that to the Special Ed. teacher who pulls out students during the reading block. So she knows where we are. [*Dorothy, Interview 1*]

This act of synthesising notes from a planning meeting was another opportunity for teacher reflection and learning as both teachers made sense of what they were planning to teach and considered how this would be communicated with others at the school. Teachers explained that email was easily shared with others in the school, which raised awareness of ESOL issues and their co-teaching practices across the school, creating an expanded activity network of support (Hutchinson & Hadjioannou, 2011).

As Dorothy explained the need to support or strengthen communication between mainstream and ESOL teachers throughout the school, she discussed an additional semiotic tool, in the form of systematic written communication between teachers.

> I am trying to come up with a checklist that needs to be constructed weekly … because there are some teachers that we do not catch otherwise. Basically, the areas that we need to communicate about are what is happening in the mainstream classroom, questions like 'Are you on the right page in the curriculum [framework]?' 'What do you see that needs to be focused on?' 'What would you like us to do for you?' and then like 'How can we work together?' The checklist would also include what ESOL teachers are doing, for example ESOL assessments … just to have more understanding on the part of the mainstream *teachers to understand what things we do*. A lot of people say, 'they pull the kids out, they come back 45 min later with a sticker and we have no idea what is happening in between.' … This is also to *alter and improve the communication* within the ESOL team because we do not have a lot of chance to discuss the data and help each other … I will keep it very simple … hoping that it will improve everybody's communication. [*Dorothy, Interview 2*]

In this comment, Dorothy gives confirming evidence about the importance of written communication to keep a record of what students are learning, how this tool is connected to the CF and, ultimately, with the greater school community.

4.2. *Using tools to co-construct teachers' expanding knowledge base*

Our observations of teachers co-planning and co-writing lessons plans offered a window into their co-learning processes. We observed examples of collaborative dialogue (Foster & Ohta, 2005; Swain, 2001) when teachers externalised and often re-conceptualised their understanding of how to teach ELLs. We observed Gina and Kathleen co-creating their lesson plans, which acted as key tools for negotiating their teaching and learning goals. In making their instructional decisions collaboratively, the teachers were offered opportunities to learn together. As Kathleen and Gina co-wrote their lesson plans, we observed their shared negotiation of how to teach their particular objectives. They began their planning by identifying a skill that the students needed to improve, then spent over an hour going through their lesson plan as they negotiated how to implement the activity, and visualised what the process would look like with students, which is illustrated in the following excerpt of their co-planning conversation:

Kathleen: *One of us could be modelling* what to do, like a 'think aloud person' who is like 'Okay, let me think about, let me look at my word.'
Gina: We are partners. So, *different modelling* partners?
Kathleen: Right. I am saying one of us could be, I read it and you say 'Let me think about it. Where is the first letter?'
Gina: Okay, I get it.
Kathleen: You know what I mean. So *we are modelling.* So, that way, the kids are seeing us, negotiate the meaning of what these [instructions] actually say.

As they co-planned, we observed examples of how they built upon and even finished each other's sentences as they co-wrote their lesson plan. We observed several examples of ways the teachers externalised, co-constructed and expanded their knowledge of how to adapt instruction for ELLs.

As part of our PD series, Tanya (kindergarten) and Samantha (ESOL) engaged in one session of co-planning, during which we observed them using tools such as the CF, the mainstream reading textbook and the ESOL pull-out textbook. As they negotiated what they would be teaching, Tanya drew on Samantha's expertise as a language specialist about how best to support the ELLs in her classroom in understanding new vocabulary.

Samantha: So I'm going to do the song for a warm up. I have some manipulatives, too, of children dressed for different seasons. I could bring in some things too, like a sweater.
Tanya: *Do you think* I should bring in things too? Would that be *more meaningful* than pictures? Should I bring in real items?
Samantha: Yeah, *I think so.* Real items are much better …
Tanya: One other thing: after the story we're going to move into a writing piece which is on rhyme, which is very difficult [for the students]. A lot of them still can't rhyme. *Are there any more supports that I can give them*? Do I just have them focus on the sounds? *What's more beneficial for them*, to play with words, or to have a picture so they know what it is?
Samantha: To me, *I think* part of it is to just know what rhyme is. You just have to draw a picture or act it out so they know what the word means. You just try to communicate the meaning as best you can.

In this co-planning interaction, we observed teachers engaging in reflective, collaborative dialogue about student learning as they worked with the text as tools. They co-constructed their knowledge about teaching as they identified potential student problems and brainstormed ways to meet student needs. As Samantha was trying to make learning objectives clearer for her partner teacher, she also had an opportunity to articulate her reasoning for her own teaching and learning priorities. This co-planning session afforded Tanya the opportunity to draw on Samantha's expertise and resulted in changed teaching practice when Samantha decided to bring in extra resources (articles of clothing) to support the students' learning of vocabulary and understanding of the story. This expansion of learning opportunities for the students was reflective of the teachers' own expanding knowledge base.

4.2.1. *Teacher learning through disagreement about how to use tools*

While it was evident that the CF was helpful to establish a common starting point to discuss what students needed to learn, this did not guarantee agreement about teaching and learning goals between teachers. The CF was not a neutral tool that was

utilised without disagreement; on the contrary, this tool seemed to make visible certain tensions and contradictions in the teachers' own views of teaching and learning.

This dissonance about how to approach the CF did not lessen its value as a tool for collaboration or learning; in fact, it sometimes led to fruitful discussions that pushed teacher learning. For example, while Hannah explained teachers' use of the CF in terms of establishing clear, concrete objectives and skills for students, her partner Dorothy was concerned that teacher adherence to the CF neglected student needs. In the quote below, Dorothy describes their very different uses of the CF.

> I do know that there are teachers who give a lot less credence to the Curriculum Framework. I mean they use it, but not quite as strictly. Hannah tends to be very 'by the book.' … I think, [Hannah] comes to worry very much about *what needs to be taught* … this is what needs to be covered, but she doesn't think as much about *how to cover this material or what the kids need*. [*Dorothy, Interview 2*]

Dorothy's disagreement with her partner called attention to how both teachers *think* about teaching and instructional decisions. Although both teachers admitted that they had not spent enough time resolving their disagreements about teaching goals, they reported that this collaborative teaching arrangement gave them the opportunity to reflect and compare different ways to make sense of the CF as a common teaching and learning tool.

4.2.2.   Shared assessments as mediational tools for learning

Teachers explained that shared rubrics and student assessments could also become tools to support teacher collaboration. For example, several teachers mentioned the 'language-proficiency continuum', a teacher-directed measure of ESOL student progress, as an opportunity for ESOL teachers to interact with mainstream teachers about student learning. Samantha (ESOL teacher) lamented that this tool was time consuming, requiring teachers to talk individually about each student; however, Gina (mainstream teacher) noted that the 'language proficiency continuum' was useful because it provided a way for both teachers to think about student progress and to share similar feedback with ELLs' parents.

> it is a very beneficial tool … both of us are communicating with the parents that way and say 'So and so needs to work a little bit more on this,' you know. It is a [way to] touch base with them. [*Gina, Interview 2*]

By using this tool together, the teachers focused on student learning and established goals for future teaching while involving parents and other important members of the learning community.

4.3.   Using tools to negotiate ownership of space, students and teaching voice

As we observed each pair co-teaching, we found that teachers actively applied and even created new tools to orchestrate all the participants in their lessons. The way they used tools together provides further evidence of how teachers were constantly learning during their collaborative teaching practices as they negotiated their shared ownership of students, space and instructional decisions in moment-to-moment interactions.

Kathleen and Gina created a number of tools that helped them interface smoothly, such as a system of sticky notes used during student writing conferences to record teacher comments and to establish future learning goals. These written notes, saved in the student's writing folder, served as a tool for communication with the student and between teachers. Their system allowed for consistency in teacher feedback and an opportunity to build upon each other's comments as they worked together toward a common goal.

Gina and Kathleen's observed lesson involved carefully coordinated instructional roles mediated, in part, by common text on chart paper, which they had prepared during their co-planning. They shared the space at the front of the classroom and took turns reading directions from the chart paper. The graphic organiser was a teacher-created tool intended to support the learning of the students, but this tool also supported teacher learning and communicated their shared teaching and learning goals visually while they were teaching. Reflecting on this lesson, Gina noticed that her partner's language expertise helped her better support the learning of all of the students in her classroom.

> I would not have thought to make a big, huge chart [like Kathleen did]. I think that visual for them, like anything for an ESOL child, is good for all of my students. [*Gina, Interview 2*]

During their planning session, Dorothy and Hannah decided who would take on the responsibilities of lead and support teaching during large-group instruction by the way they used tools such as the reading textbook and overhead projector. During their lesson, the teachers used a graphic organiser on the projector as an *in vivo* teaching and learning tool that allowed them to balance teacher voices and acknowledge student learning as they took turns recording students' responses.

Dorothy brought her expertise in language acquisition (and emphasis on comprehension) to the lesson and she seemed to inspire Hannah (who used a more skill-based approach) to engage in meaning-making together with the students. When reflecting on the lesson, both teachers acknowledged the value of collaboratively created tools like their graphic organiser to guide their teaching; however, they admitted that it was difficult to find the time and space to collaboratively plan ahead of time.

For the purposes of the PD, Samantha and Tanya engaged in one session of co-planning, but due to scheduling logistics, they each taught their lessons separately. Reflecting on their lessons, both teachers reported that their collaboration had positively impacted their teaching and student learning. Samantha explained that the students seemed more engaged in her vocabulary lesson because she connected it to the story she knew they had already read with Tanya.

> I thought they were more engaged because I mentioned the story [they read with Tanya] and I had the clothesline [realia] and all that. That *made a connection* for them … *I think it helped to coordinate* the lessons. [*Samantha, Interview 2*]

Tanya reported she garnered ideas from Samantha about spending more time on the language of the lesson, which enabled students to participate more than usual.

> I think *the input I got* from Samantha was important for me because I am not an English language learner … it did *make me really stop and think about what things I*

am saying to them that they may not be fully understanding and also just the importance of giving them more time. *I realised* when we discussed it more that they made more observations about the text. And they were saying 'Oh what is that? Look at that' and those are not things they would necessarily do before because we did not take so much time to develop this vocabulary beforehand. It seems they are more empowered with this language and they have more observations to make. [*Tanya, Interview 2*]

After working through her lesson plan (a shared semiotic tool) with Samantha, Tanya mentioned that she spent extra time thinking about her teaching, which suggests an opportunity for teacher learning. Both teachers explained that the opportunity to plan together was valuable, but their schedules made it difficult to meet on a regular basis. This is a case where their use of common written tools may allow for more collaboration despite their distance.

4.4. Missed opportunities for teacher learning

For the purposes of this paper thus far, we have focused on the ways teachers took advantage of learning opportunities through collaboration; however, this is not to suggest that collaborative teaching was without its challenges. Indeed, we observed missed opportunities for learning when teachers admitted they could not find space or time to communicate and reflect in productive ways.

In the quote below, Dorothy explained that 'collaborative planning time' with grade-level teams focused on reporting student test scores and no time was left for ESOL student learning issues.

> During these collaborative planning meetings I try to tell them [mainstream teachers] in 2 min about *ESOL student learning* and the only *feedback* I get is, 'That is great, bye, we gotta go … We have got three minutes to go to bathroom and get back to the classroom and catch our kids.' … There was no time left at the end for us to *discuss what we needed to do* as an ESOL team and if we did, teachers are mentally already out the door … [*Dorothy, Interview 1*]

In response to what she saw as missed opportunities, Dorothy suggested a way to improve collaborative planning by creating a checklist (see Section 4.1) to enhance teacher communication. Hannah also explained that finding time to collaborate was difficult.

> A lot of prep went into that [lesson you observed], as you can imagine, but this is not reflective of how our co-teaching has evolved. Here is where we, as a team, have fallen short … complete lack of planning on a regular basis … This is very time-consuming and difficult to sustain. [*Hannah, Interview 2*]

During their planning session, we observed Hannah and Dorothy moving quickly through the CF with limited discussions about which activities they would have time to do, and who would take the lead. Unlike the other pairs where collaborative dialogue was evident during planning time, it was questionable whether these teachers were actually learning together when they avoided contentious discussions about misaligned instructional decisions. In the following excerpt from an interview, Dorothy acknowledged difficulties listening to and giving feedback to another teacher.

It is hard to tell another grown-up what to do. You have to couch it in good terms and work it into planning time. [For example] 'Okay, so I am going to do this and it would be really helpful if you could be doing this.' you know, 'And of course you are concerned about [student's] comprehension, and so this would be a good chance for you to sit with her and make sure she is getting this,' or something like that, sort of a suggestion. And also being a little more aggressive about it [in front of the students] like, 'Okay guys, here is what we are going to do today, I am going to do be doing this and Ms. H is going to be doing this' … and then it's like a little reminder. [*Dorothy, Interview 2*]

Even as Dorothy explained the difficulties of teacher collaboration, she underscored the importance of tools (lesson plans), shared planning time to negotiate instructional decisions and *in vivo* strategies (such as clarifying learning goals to students and her fellow teacher during instruction).

Gina and Kathleen also noted the difficulties inherent in working together in a classroom at the beginning of their co-teaching relationship. They both spoke of 'growing pains', but referred to their challenges as opportunities to grow and learn. In the following quote, Gina recognised their learning about new ways to teach.

And you know, *we are growing and we are learning* a lot more. And at first, you know, we were tense about everything, but now it is, that we are very comfortable with each other, everything. When she has an idea, 'Okay, let us try it,' or 'Let us try it this way.' [*Gina, Interview 1*]

Like most learning, which is social in nature, the degree of teacher collaboration and learning shifted across time and space depending on the participants, the resources available and the ways the teachers used tools to meet challenges (see Martin-Beltran, & Peercy, 2012).

5. Discussion

Our findings shed light on how classroom teachers and ESOL educators used tools to mediate their learning in the processes of collaboration. In sum, we found teachers created and used tools to: (1) communicate and clarify teaching goals; (2) co-construct their expanding knowledge base for teaching linguistically diverse students; and (3) negotiate ownership of space, students and voice within a shared teaching activity – all of which were related to teacher learning as teachers appropriated new knowledge, reconceptualised their teaching goals and transformed their teaching practices.

Examining teacher learning through the lens of CHAT (Engeström, 1987, 1991, 2001; Leont'ev, 1978, 1981; Roth & Lee, 2007), we viewed these first two themes as corresponding with the activity system model because they revealed the way that teachers used mediating artefacts (tools) to make sense of their goals and to reach the 'object' and 'outcome' of the activity system. The third theme – negotiating space, students and teaching voice – corresponds to what activity theorists have described as 'community', 'rules' and 'division of labor'. The use of tools in this larger network of influences makes apparent the complexity of teaching and teacher collaboration as an activity system or multiple activity systems (Roth & Lee, 2007) even within one lesson. During collaborative teaching, both groups of educators constructed mediational spaces (Vygotsky, 1978), utilising not only the tools available in their school context, but also those they created themselves for teaching

purposes. Semiotic tools like the CF afforded opportunities for the teachers to have quick, yet meaningful, interactions about teaching and learning. Although there was not always agreement about how to teach ELLs, we argue that the teachers' shared use of tools created an important opportunity for negotiation about instruction, which created a context for teacher learning.

While the use of tools may have also occurred and facilitated teacher learning even among teachers who were not collaborating, we argue that teacher collaboration served as a way for teachers to externalise their thinking and learning, and to make these processes evident to themselves and others. This externalisation of learning was illuminated through interchanges such as the discussion between Kathleen and Gina in which they negotiated how to model think-aloud processes for their students. It may also be the case that the ways these pairs of teachers used their collaborative tools was more thoughtful because they came back to them iteratively for collaborative purposes, whereas when working alone, teachers may not have returned to the tools repeatedly, nor had to explain their thinking to someone else.

Seemingly simple tools (such as sticky notes or checklists) were representative of complex mediation and co-constructed spaces where teachers came together physically or symbolically to learn together. We found that these teachers were not merely providing 'another pair of hands' (Davison, 2006, p. 456) but rather they were serving as a dialogic partner in learning, creating a kind of synergy in which they were co-constructing knowledge about teaching ELLs. As teachers used and created shared artefacts, they were able to articulate, re-name and re-conceptualise their own knowledge about teaching, which demonstrated ongoing learning. We found that as teachers negotiated differences or tried to improve communication with their partner teachers, they were afforded opportunities to better understand their own teaching and learning priorities. As teachers engaged in collaborative dialogue with their teaching partners, they externalised their learning (Johnson & Golombek, 2003), and they showed that they had appropriated new knowledge about teaching as they articulated (and we observed) their changed teaching practices to meet the needs of ELLs in their classrooms.

6.   Implications

This study contributes to research on teacher thinking and teacher education, which has not adequately examined co-teaching between ESOL and content-area teachers as a site for teacher learning. Using a sociocultural theoretical framework, this study highlights collaborating teachers' shared use of tools to communicate teaching goals, externalise learning, recontextualise their understanding of teaching and ultimately transform their practice. We argue that future research needs to re-conceptualise teacher collaboration not just as shared teaching practices, but as an opportunity for shared teacher learning.

Our findings have implications for teacher educators seeking to better prepare teachers to work with culturally and linguistically diverse students. The ways teachers utilised their shared tools to mediate their collaboration and learning illustrate concrete approaches to bridge understanding across different areas of expertise in elementary education and second language education. By focusing on ELLs as a shared group of learners, teachers were compelled to attend to students' different processes of learning, access to curriculum, teacher language use and modification

of instruction in response to student needs. As Lucas and Grinberg (2008) argue, these issues need to be central, rather than marginal, to teacher education.

Until now, most teacher education programmes have done little to incorporate collaboration between ESOL and mainstream teachers; yet this study reveals potential affordances for teacher learning that collaboration can offer. Both pre-service and in-service teacher education programmes may be missing out on rich opportunities for ESOL and mainstream educators to work together, discover more about one another's expertise, and learn together in collaboration. Our findings suggest that ESOL teachers and mainstream teachers can harness these tools for collaboration as an opportunity for ongoing work-based professional learning. By the same token, content-area education faculty and ESOL faculty at universities could learn from greater collaboration between teacher educators to comprehensively address the increasing need for qualified teachers of ELLs. Bringing teachers and teacher educators together around common activities and shared tools, particularly in an era of new standards for teaching content to language minority students (Bunch, 2013), requires these groups to come together to share both learning and expertise (Peercy, & Martin-Beltran, 2011). This will mean thinking creatively about PD opportunities for both teachers and teacher educators, as well as creating spaces in which these groups can go about identifying *in situ* needs and tools.

Future research is needed to examine tools that teacher educators could use to bridge epistemological gaps across disciplines for both teachers and teacher educators, such as the pedagogical language knowledge (Bunch, 2013) needed to mediate language learners' access to and understanding of discipline-specific language use. Future research is also needed to examine how to create spaces for mediation among teachers of linguistically and culturally diverse students.

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