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Contextualized Views of Practices and Competencies in CALL Teacher Education Research

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While teachers play a central role in capitalizing on the potentials of computer assisted language learning (CALL), CALL teacher education overall still appears not to be adequate and effective (Healey et al., 2011; Hubbard, 2008). Furthermore, foreign/second language teachers have expressed a desire for more and better professional development opportunities in that area (Beaven, Emke, Ernest, Germain-Rutherford, Hampel, Hopkins, Stanojevic & Stickler, 2010; Digedu, 2014; Kessler, 2006). Given the continuing and new challenges for CALL teacher education, this special issue of *Language Learning & Technology* on CALL teacher education further speaks to its importance for our field and ultimately our students. To advance our understanding of CALL teacher education, the main goal for this issue is to move beyond research on teacher beliefs and attitudes to investigate actual practices and competencies, especially from a longitudinal perspective, that traces teachers' development. The current issue brings together a collection of articles that represents a wide variety of contexts, formats, foci, and research methods. This variety is particularly important given the highly contextualized nature of teaching and learning (Freeman & Johnson, 1998) and the different needs of pre-service and in-service teachers (Beaven et al., 2010).

INTRODUCTION

There is no doubt that technology has changed the educational landscape in subtle as well as profound ways. In addition to administrative and programmatic uses (e.g., student recruitment and retention, parent-teacher communication, high stakes testing), its impact can also be seen directly in the classroom. In a 2014 survey of 620 K-12 teachers in the US, 90% of respondents reported that they and their students use technology in class (Digedu, 2014). But while technology has made its way into many classrooms, there is still room for growth. A majority of US K-12 teachers indicated a desire to make more use of instructional technology (Digedu, 2014). Furthermore, there seems to be a need to expand the ways in which it is used. The same survey reported mostly basic uses that seem like "digital replacement[s] for manual/non-digital formats" (Digedu, 2014, p. 6). There is similar unrealized potential in second and foreign language (L2) classrooms (Healey, Hanson-Smith, Hubbard, Ioannou-Georgiou, Kessler & Ware, 2011). A recent survey of almost 1,300 US language teachers, for example, reported that technology remains infrequently used to engage learners in culture learning and interpersonal communication (American Council on the Teaching of Foreign Languages, 2011), an area where computer assisted language learning (CALL) can provide unique opportunities.

Teachers play a central role in realizing these unique opportunities of CALL. In fact, they are "the lynchpin around which successful online learning events revolve" (Guichon & Hauck, 2011, p. 188). In addition to selecting which CALL applications will be used and how (Hubbard, 2008), teachers significantly shape the outcomes of CALL through their instructions, scaffolding, feedback and responses

to teachable moments. With teachers acting as such "pivotal players" (Hubbard, 2008, p. 176), it is particularly problematic that CALL teacher education overall is still not entirely adequate and effective. Although many in-service programs now address CALL, at least as a topic in a general methods course (American Council on the Teaching of Foreign Languages, 2011), this training often does not prepare teachers to successfully integrate CALL into their teaching practices (Healey et al., 2011; Hubbard, 2008). In fact, teachers in general and L2 teachers in particular have expressed a desire for more and better professional development opportunities in that area (Beaven, Emke, Ernest, Germain-Rutherford, Hampel, Hopkins, Stanojevic & Stickler, 2010; Digedu, 2014; Kessler, 2006).

The role of technology is now being recognized in several teacher education standards and frameworks, for example the European Profile for Language Teacher Education (Kelly, Grenfell, Allan, Kriza, McEvoy, 2004), the EPOSTL European Portfolio for Student Teachers of Foreign Languages (Newby, Allan, Fenner, Jones, Komorowska & Soghikyan, 2007) and ACTFL's Program Standards for the Preparation of Foreign Language Teachers (American Council on the Teaching of Foreign Languages, 2013). In addition, specific technology-focused standards have been developed, such as the TESOL Technology Standards (Healey et al., 2011) and the ISTE Standards (International Society for Technology in Education, 2008).

Such standards can play an important role in teacher education (Murphy-Judy & Youngs, 2006). Besides acknowledging the pedagogical potential of CALL, they recognize that teaching with technology requires additional, even unique skills compared with teaching in face-to-face contexts (Comas-Quinn, 2011; Compton, 2009; Hampel & Stickler, 2005), as evidenced also by the TPACK (Technological Pedagogical Content Knowledge) framework (Graham, 2011). In fact, it even demands "a reconceptualising of the roles of both teacher and learner." (Comas-Quinn, 2011, p. 230).

Given the continuing and new challenges for CALL teacher education outlined above, this topic "continues to feature high on the CALL research agenda" (Guichon & Hauck, 2011, p. 187). This special issue of *Language Learning & Technology* on CALL teacher education further speaks to its importance for our field and ultimately our students. When all L2 teachers can create technology-rich and engaging learning environments, "social justice in the form of a more equitable dispersion of technology-related skills, knowledge, and attitude—major cultural capital in the 21st century—can emerge (Oxford & Jung, 2007, p. 41).

To advance our understanding of CALL teacher education, the main goal for this issue is to move beyond research on teacher beliefs and attitudes to investigate actual practices and competencies, especially from a longitudinal perspective, that traces teachers' development. Such research can have important curriculum and program design implications.

This issue brings together a collection of articles that represents a wide variety of contexts, formats, foci and research methods. Such variety is particularly important given the highly contextualized nature of teaching and learning (Freeman & Johnson, 1998) and the different needs of pre-service and in-service teachers (Beaven et al., 2010). In particular, this issue features the following articles:

- In *Supporting in-service language educators in learning to telecollaborate*, Robert O'Dowd introduces an online platform designed to help educators develop the skills needed to implement telecollaboration projects. His interviews with four in-service teachers in multiple countries, who used this site, revealed that each struggled with different competencies. For such informal training, peer mentors proved to be particularly valuable.
- Similar to telecollaboration, 3D virtual worlds have a steep learning curve for educators. *ESL teacher training in 3D virtual worlds* by Iryna Kozlova and Dmitri Priven describes how six pre-service ESL teachers in Canada, who used 3D virtual worlds with English learners from Turkey, engaged in collaboration and situated learning to develop five integrated skills related to the pedagogical implementation of this tool.

- Unlike Kozlova & Priven's study with its focus on situated learning, Chin-chi Chao's contribution *Rethinking transfer: Learning from CALL teacher education as consequential transition* focuses on the connections in-service teachers in Taiwan build between a CALL course and their teaching practice. Interviews eight months after the course showed that teachers had limited opportunities to apply what they had learned, in part because of a mismatch between course materials and teaching context. The teachers did, however, continue to critically reflect, which led to change in their practices.
- Mei-Hui Liu and Robert Kleinsasser's article, *Exploring EFL teachers' knowledge and competencies: In-service program perspectives*, also focuses on in-service teachers of English as a foreign language in Taiwain, who participated in a TPACK-based professional development program. They traced the teachers' self-efficacy and competencies over the course of a year and triangulated that data with the perspectives of students and administrators.
- In her article *From TPACK-in-action workshops to classrooms: CALL competency developed and integrated*, Shu-Ju Diana Tai uses surveys, interviews and classroom observations to assess the effectiveness of a workshop for in-service teachers in Taiwan. Participants transformed the material from the workshops and were able to match tools' affordances to their context.
- In another article that examines teachers' usage of affordances, Karen Haines' *Learning to identify and actualize affordances in a new tool* reports on a 14-month long study of in-service teachers of Italian to examine how they view the affordances of wikis and blogs and how their perspectives change over time.
- The final article in this special edition addresses a seldom discussed issue in the field of CALL, namely how to prepare students to use technology in ethical and legal ways. *Teaching critical, ethical, and safe use of ICT to teachers* by Sang-Keun Shin examines the efficacy of two training sessions for pre-service teachers in Korea.

In this commentary, we will continue to discuss these seven articles in light of the following three themes: 1) the impact of different types of CALL teacher training, 2) the development of teacher cognition (Borg, 2003), and 3) reflective and collaborative formats of CALL teacher education. These common themes emerged from the studies in this special issue but also connect with trends in the larger field of (CALL) teacher education.

THEME 1: THE IMPACT OF DIFFERENT TYPES OF CALL TEACHER EDUCATION

Formal CALL teacher education continues to play an important role in preparing teachers to incorporate technology into their classes. While even one course can positively influence pre-service teachers' confidence and competencies (Desjardins & Peters, 2007), some studies question the efficacy of the single-course approach and call for more extensive training (Hegelheimer, 2006; Peters, 2006). Additional important curricular questions are: 1) On which tools should the course(s) focus since teachers do not always have access to the tools for which they receive training (Williams, Abraham, & Bostelmann, 2014)? and 2) How should this training be structured? Teacher educators have used a variety of approaches, such as project-based learning to combine theory and practice (Debski, 2006), distributed learning to help participants view CALL from the student and teacher perspective (Bauer-Ramazani, 2006; Egbert, 2006), and portfolio-based learning (Van Olphen, 2007).

But even multiple CALL courses are probably not sufficient in sustaining teachers' CALL knowledge over their career (Kessler, 2006). This raises the important question of how to continue to support teachers (Cutrim Schmid, 2011; Kessler, 2006; Kessler & Bikowski, 2011). In in-service contexts, for example, situated learning and informal training take on a bigger role. But while in-service teachers may be able to work in a self-directed manner to explore new tools, they do not always recognize all of the affordances of the new technology without assistance (Kessler, 2006; Whyte, 2011).

The contributions to this special issue also recognize the importance of both formal and informal CALL

education and note the significance of active experimentation in either context. O'Dowd and Haines both report on the informal learning of in-service teachers. After interviewing four teachers with limited experience conducting telecollaborative exchanges, O'Dowd highlights the value of less experienced telecollaboration teachers pairing with experienced peers to help them navigate the organizational, pedagogical, and technological difficulties they can encounter during telecollaborative exchanges. Haines followed two in-service teachers over 14 months to examine how they realized the affordances of blogs and wikis in their courses. She finds that the teachers understood the affordances differently than one might expect based on their specific contexts (e.g., courses, student population, institution, individual cohorts) and how they had incorporated previous tools. For example, their experiences with blogs influenced how they conceptualized the use of wikis and therefore made them unaware of how wiki affordances differed from those of blogs. Formal training on these tools could have been more effective in helping these teachers notice the affordances specific to each tool more quickly.

Several articles in this issue also focus on formal training. Liu and Kleinsasser as well as Tai both emphasize the benefits of TPACK-focused CALL training for in-service EFL teachers in Taiwan, which increased their self-efficacy, competencies and ability to match the affordance of the technology with their goals. Focusing on the ability to use technology in ethical and legal ways, Shin also finds that formal training effectively raised participants' awareness.

Whether trainings are formal or informal, two other important themes that were raised in these studies were the value of active experimentation with tools in a relevant context, as noted by Haines, and Kozlova and Priven, and that development takes time. O'Dowd, Chao, Haines, and Liu and Kleinsasser demonstrate that teachers' perceptions and competencies can develop during initial training, but will continue to change and develop. As teachers situate their competencies and tools in their specific contexts and curricula, they also continue to struggle and thereby refine their strategies and understandings of the tools and their affordances. In addition, due to the quick pace of technological change (Williams, Abraham, & Bostelmann, 2014), they must be prepared to adapt tools or appropriate new tools that might fit their needs even better.

Remaining questions regarding types of teacher education include how to provide meaningful pre-service training with a focus on the necessary competencies for recognizing affordances and applying them to specific teaching contexts, as well as what types of in-service trainings can support teachers in developing their knowledge and implementation of CALL throughout their teaching.

THEME 2: THE DEVELOPMENT OF TEACHER COGNITION

The current view of teacher education recognizes "that teachers are active, thinking decision-makers who make instructional choices by drawing on complex, practically-oriented, personalised, and context-sensitive networks of knowledge, thoughts, and beliefs" (Borg, 2003, p. 81), also referred to as teacher cognition. Among other factors, teacher cognition is affected by prior experiences and attitudes (Borg, 2003), an influence that has also been documented for CALL. Pre-service teachers who are not very technically inclined at the beginning of a training or who were unable to implement their ideas during the training, for example, have been shown to be less likely to integrate CALL into their classes after the training (Chao, 2006; Kessler, 2006).

In the "long-term complex developmental process" (Freeman & Johnson, 1998, p. 402) of learning to teach, instructors interact with peer experts, experience successes and failures with various tools, and refine their CALL use based on their specific teaching contexts. Such experiences have the potential to shape teachers' cognition in profound ways. The studies included in this special issue explore some of the complex issues associated with teacher cognition and how teachers appropriate new CALL knowledge. One of the key findings regarding teachers' development, as shown by O'Dowd, Haines, and Liu and Kleinsasser, is the importance of individual factors. Each teacher develops differently according to his/her prior knowledge, teaching context, attitudes, and general pedagogical knowledge, all of which affect how

she/he identifies affordances of technology and how s/he reacts to challenges. Chao, for example, examines how K-12 in-service teachers built connections between a training course and their teaching, which demonstrate a variety of paths that can be taken regarding implementation of CALL after training. Surprisingly, the teachers seldom used the tools as the trainer had expected, which speaks to the complex relationship between teacher cognition, training and implementation.

Other articles in this issue investigate how specific competencies develop. In their study on 3D virtual worlds, Kozlova and Priven found that the development of online teaching skills is a "spiral process" as the skills demonstrated in the pre-teaching phase are revised throughout pre-teaching and then again during the online teaching phase. Not only do competencies sometimes develop in a spiral fashion, they can also arise in an interconnected way as evidenced by O'Dowd's findings regarding the technical and organizational skills necessary for telecollaboration. In addition, Kozlova and Priven argue that technology, pedagogy, and evaluation skills are all acquired together and constitute one integrated skill set. In contrast, Liu & Kleinsasser found that some of their participants increased their technology literacy, but did not sufficiently integrate TCK or TPK as evidenced by their lack of collaborative tasks or effective assessments.

These findings have important implications for designing effective training that accounts for spiral development and the fact that teachers will not always learn the material in the same manner or the order in which it is presented. Considering these individual differences demands that trainers reach in-service and pre-service teachers on their own levels to make the material relevant to their own needs, predispositions, and contexts.

THEME 3: REFLECTIVE AND COLLABORATIVE FORMATS OF CALL TEACHER EDUCATION

The third theme that appeared in the articles of this special issue was the use of reflection and collaboration in CALL teacher education. Again, this theme mirrors current trends in the field of (CALL) teacher education. Since Schön's 1983 book, the reflective practitioner has been an influential way to conceptualize educators' professional knowledge and practice. Within CALL teacher training, many studies have underscored the benefits of self-reflection and self-evaluation for informing and improving teaching practices (Bustamande & Moeller, 2013; Cutrim Schmid, 2011). Collaborative learning has also been found to be a useful method for encouraging reflection and allowing pre- and in-service teachers to receive feedback from peers. The exposure to multiple perspectives can help trigger even deeper reflection (Bustamande & Moeller, 2013; Whyte, 2011). All of these findings are substantiated in the special issue articles.

In regard to collaboration, Haines as well as Kozlova and Priven report that collaboration between teachers provided important support and led to deeper understandings than if the teachers had been working alone. In Haines' study, two teachers collaborated on the use of wikis and blogs in their classes and shaped each other's views of the tools. Haines noticed that the teachers viewed their professional development as a collaborative endeavor as evidenced by their use of the pronoun "we" in the interviews. Kozlova and Priven's pre-service teachers also collaborated on task development, which led to the co-construction of new knowledge within the development of five integrated skills. The in-service teachers incorporated their peers' suggestions and feedback throughout the project and borrowed their peers' ideas to help them critically reflect on their own teaching. In addition, observing their peers' teaching promoted critical reflection about their own teaching, which led to individual improvements. O'Dowd's participants also noted the value of being linked to experienced mentors who could assist them with their telecollaboration projects.

As noted in the studies above, collaboration can also lead to deeper reflection as shown by Kozlova and Priven. Similarly, Chao found among EFL teachers that the continuous reflection in which the participants engaged as they interacted with digital devices in their classrooms led to unexpected results

in their teaching and even a change of teacher identity. Eight months after the initial TPACK training, the teachers continued to engage in reflection and develop new understandings in regard to their use of technology in the classroom. Chao argues that these later reflections "involved reconstruction of knowledge and skills, rather than merely application or use of something that has been acquired elsewhere."

Reflection and collaboration will remain important themes within the field of CALL teacher education and studies should continue to explore and examine the most effective means to encourage pre- and in-service teachers to become reflective practitioners who value and can successfully engage in collaborative professional development.

CONCLUSION

As illustrated above, the studies in this special issue of *Language Learning & Technology* connect with the previous literature on teacher education as well as CALL teacher education by reconfirming that: a) both formal and informal training can be beneficial but have unique limitations and constraints, b) teacher development in the area of CALL is not a linear, uniform process and depends heavily on teacher predispositions and teaching contexts, and c) pre-service and in-service teachers benefit greatly from collaborative and reflective forms of CALL training.

This issue also reminds us of the importance of context. In teaching, there is no one right way of doing things - what is effective and appropriate depends to a large extent on a wide variety of contextual factors (Larsen-Freeman, 2012). Furthermore, "contextual factors … [play] an important role in determining the extent to which teachers are able to implement instruction congruent with their cognitions" (Borg, 2003, p. 81). The teacher, as well as her/his immediate and larger context, significantly shape if and how CALL is implemented and with which outcomes. Therefore, more research is needed to help us identify ways in which CALL teacher education can successfully account for the context-specific nature of teaching and learning. In addition, future research should investigate how specific competencies develop and if/how they are interconnected. It will be particularly important to frame such research within standards and other policy frameworks (e.g., the TESOL Technology Standards) that guide accreditation and certification.

NOTE

1. Both authors contributed equally to this commentary.

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