Student Teachers and CALL: Personal and Pedagogical Uses and Beliefs

*Anne Cummings Hlas[1], Kelly Conroy[2], and
Susan A. Hildebrandt[3]*

Abstract

The student teaching semester affords teacher candidates the chance to apply what they have learned during their teacher preparation coursework. Therefore, it can be a prime opportunity for student teachers to use technology for their own language learning and to implement computer assisted language learning (CALL) in their instruction. This study explores United States K–12 foreign language (FL) student teachers' use of and beliefs about CALL technologies. Four research questions guide this study: (a) How are FL student teachers using CALL for personal language learning (if at all)? (b) What do FL student teachers report they believe about their own personal language learning using CALL? (c) How are FL student teachers using CALL pedagogically (if at all)? (d) What do FL student teachers report they believe about their teacher preparation in CALL? Data from 71 respondents suggest FL student teachers do not feel well prepared to use CALL technologies pedagogically and that they have a limited repertoire of technology resources. Approximately 87.5% of these student teachers self-report their knowledge of CALL technologies as novice or intermediate. This article examines the virtues and shortcomings of FL student teachers' preparation and use of CALL, offering suggestions for FL teacher education.

KEYWORDS: TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE, STUDENT TEACHERS, TECHNOLOGY, TEACHER BELIEFS

Affiliations

[1]University of Wisconsin Eau Claire.
email: hlasac@uwec.edu

[2]Metropolitan State University of Denver.
email: kconroy5@msudenver.edu

[3]Illinois State University.
email: shildeb@ilstu.edu

Using technology in the classroom is a 21st-century skill and an integral part of teacher knowledge. In fact, Mishra and Koehler (2006) proposed that *technological pedagogical content knowledge* (TPCK) be added to Shulman's (1987) teacher knowledge framework, emphasizing the "connection, interactions, affordances, and constraints between and among content, pedagogy, and technology" (Mishra & Koehler, 2006, p. 1025). TPCK's specificity to a given content area distinguishes it from mere knowledge of technological resources and practices. Instead, teachers use technology to teach students particular content, while incorporating pedagogical content knowledge to create meaningful opportunities for its use. Meanwhile, computer-assisted language learning's (CALL) importance cannot be denied within the field of foreign language (FL) teaching. Hubbard and Levy (2006a) point out that "[i]ncreasingly, both language teachers in training and practicing teachers will find themselves at a disadvantage if they are not adequately proficient in computer-assisted language learning" (p. ix).

While the benefits of CALL are numerous (Beatty, 2013; Hirschel, 2012), concerns still exist regarding its acceptable and optimal usage (Felix, 2005; Hubbard & Levy, 2006b). With a better understanding of when and for what purposes FL teachers use technology, teacher education programs may be able to prepare teachers to use technology better inside and outside the classroom. Further, technology's ephemeral nature requires regular study to document its changes and impacts on language teaching (Raschio & Raymond, 2003). Therefore, understanding the current status of FL teacher technology use and beliefs represents an essential inquiry.

Literature Review

FL teacher education programs can provide valuable pedagogical experiences for teacher candidates throughout their university studies. According to Hong (2010), the "ultimate goal of CALL teacher education is to enable [second language] teachers to integrate CALL technology into their classroom with confidence and knowledge" (p. 53). Despite this goal, preservice teachers' technological competence can be isolated and dysfunctional (Fleming, Motamedi, & May, 2007), with some Colleges of Education preparing teachers to use technology well and others failing to do so (Kessler, 2006; Luke & Britten, 2007).

Teacher Candidates' Technology Knowledge Development

Student teachers' exposure to technology usually occurs during three crucial time periods. First, preservice teachers may receive direct technology instruction during coursework. Second, teacher education or language faculty may model effective technology use. Finally, the student teaching experience

may invite interaction with or observation of technology use. The first pivotal period occurs when preservice teachers are students in teacher education courses and experience technology. This exposure during coursework may promote later technology use when teaching (Hong, 2010; Lam, 2000). For this reason, teacher education programs may include technology courses. In Hargrave and Hsu's (2000) survey of 53 teacher education programs, 73% of the participating institutions reported having a technology course with a primary focus on computing technology, yet little discussion of effective technology integration accompanied the instruction (p. 308). In a comparison of FL teacher education programs, Hildebrandt, Hlas, & Conroy (2013) found that only four of the nine language programs under study required technology courses, and only one had an FL-specific technology course.

Even with coursework, various factors impede technology's integration. These courses are often unevenly integrated into a continuous technological infrastructure throughout a program and are rarely content-specific (Goertler & Winke, 2008; Hegelheimer, 2006; Lord & Lomicka, 2011). Further, it can be challenging to expose preservice teachers to various levels of technologies adequately. Puentedura (2009), for example, differentiates between technology as substitution, in which "tech acts as a direct tool substitute, with no functional change" (p. 3), and technology as a redefinition, in which "tech allows for the creation of new tasks, previously inconceivable" (p. 3). Finally, exposing teacher candidates to the full array of CALL tools available (e.g. smart boards, iPads) can be unreasonable, as technology is ever-changing (Williams, Abraham, & Bostelmann, 2014). These reasons may help explain why some FL teacher candidates report dissatisfaction with the CALL knowledge and skills developed during general or content-specific education courses (Egbert & Thomas, 2001; Kessler, 2006, 2007). FL teacher candidates may lack exposure to content-specific technology and opportunities to use it during their teacher education programs.

Teacher education faculty can also expose teacher candidates to meaningful technology integration into language classes. Hargrave and Hsu (2000) hold that "preservice teachers' ability to integrate technology into the curriculum will be the result of two factors: their basic technology skills, and the effective modeling of technology integration by teacher educators" (p. 304). Kay (2006) has documented examples of teacher education faculty missing opportunities to model effective technology use. When preservice teachers do not observe faculty modeling new technology usage, field experiences and student teaching become even more critical.

Student teaching can afford teacher candidates opportunities to witness effective technology use and to apply what they have learned during their coursework. During the observation period, normally at the beginning of

student teaching, student teachers may see working models of technology integration. This field experience may also encourage them to use technology, specifically if they belong to a collaborative professional network using technology (Chambers & Bax, 2006; Smerdon, Cronen, Lanahan, Anderson, Iannotti, & Angeles, 2000).Teacher candidates often observe how their cooperating teachers may or may not use technology to enhance their own lessons (Fleming et al., 2007; Hammond, Reynolds, & Ingram, 2011). After all, Richardson (1996) tells us that "experience in the classroom is thought to shape beliefs and practical knowledge; in fact, a teacher may only acquire practical knowledge through classroom experience" (p. 111).

Cooperating teachers' beliefs also influence teacher candidates' perceptions of their own technology skills (Fleming et al., 2007; Stuhlmann & Taylor, 1999). In a case study of four student teachers, Stuhlmann and Taylor (1999) found that student teacher exposure to technology varied, depending on the attitudes, competency, and computer access of cooperating teachers and principals. Cooperating teachers either viewed technology enthusiastically as an integral part of the course or as an add-on, and their beliefs positively or negatively impacted their teacher candidate's student teaching experience. Ideally, a robust preparation in technology will influence novice teachers positively as they begin their careers. Jones (2013), however, found that student teaching only minimally impacted first-year teachers' preparedness to teach with technology, speculating that first-year teachers were most concerned with themselves as a teacher. A lack of time, exposure, experience, and preexisting learning beliefs all constrain teacher candidates' technology knowledge and use.

Although the research described above suggests that technology may not play a significant role in student teaching, counterexamples exist. Teacher candidates can respond favorably to computers when introduced to them during the student teaching experience. For example, Egbert, Paulus, and Nakamichi (2002) found that 70% of teachers surveyed used a CALL activity from their teacher education course during their first years of teaching. More recently, Cutrim, Schmid, and Hegelheimer (2014) reported on a collaborative technology project between preservice and inservice teachers, finding that the preservice teachers, with guidance, became more aware of benefits of integrating technology into contextualized lessons. Concrete examples can make a positive impact on preservice teachers as they become CALL practitioners.

Teacher education programs are not the only way preservice teachers can learn about CALL. Teacher candidates learn to use technology in other contexts, and Egbert et al. (2002) note that they tend to use applications "that they need to use in their lives outside of school" (p. 110). Those technologies useful to teachers for both personal and professional purposes, such as

word-processing technologies (Levy, 1997; Smerdon et al., 2000), are more frequently used in the classroom (Galloway, 1997). It is logical that student teachers would extend technologies from their own personal lives to the classroom, given their comfort with those technologies and the potential benefit to others. In regard to technology for personal purposes, Kessler (2010), in a study of 33 students taking CALL courses, found that first-generation CALL teachers did not easily transfer these skills to the classroom. Teacher candidates may need support making connections between technologies from their personal lives and those technologies' appropriate classroom applications.

Teacher education programs are responsible for presenting preservice teachers with technology experiences, which may influence technology belief systems. Their initial exposure to technology relies on the observation of models and/or anti-models, and student teachers may not be sufficiently introduced to content-specific models during their own technology-specific coursework, teacher education courses, or student teaching experience. According to Bax (2003), the aim of CALL practitioners should be "a state of normalisation … when computers … are used every day by language students and teachers as an integral part of every lesson, like a pen or a book" (p. 23). While obstacles to reach this target may exist, normalization must begin early with preservice teachers if they are to effectively employ technology throughout their career.

The Present Study

The current study reports on 21st-century FL student teachers' technology use and their beliefs concerning technology. Four research questions guide this study: (a) How are FL student teachers using CALL for personal language learning (if at all)? (b) What do FL student teachers report that they believe about their own personal language learning using CALL? (c) How are FL student teachers using CALL pedagogically (if at all)? (d) What do FL student teachers report that they believe about their teacher preparation in CALL?

Procedures
Survey Construction
Designed as an explanatory mixed-methods research project (Creswell, 2013), this study was approved by the institutional review board prior to beginning data collection. Researchers developed a survey based on already existing surveys (e.g. Kessler, 2006, 2007) and conducted interviews with four target participants, in which potential survey categories, questions, and responses were explored. These pre-pilot interviews, suggested by Dörnyei (2003), allowed the researchers to script potential answers to the survey items in order to develop

effective follow-up questions. The final survey explored student teachers' personal and professional use and beliefs about computers. Interviews were later conducted as a qualitative follow-up measure to help explain the survey outcomes. (See the complete survey in the Instruments for Research into Second Languages [IRIS] Digital Repository.)

A convenience sample was obtained via two methods. First, researchers posted a request to share the study invitation with teacher candidates to the American Council on the Teaching of Foreign Languages' Teacher Development Special Interest Group online community forum. Second, researchers emailed self-identified world language teacher educators, requesting that they forward the study invitation to their student teachers via email. Between the spring of 2012 and the spring of 2014, 71 online surveys were completed. The data were collected over two years to obtain a satisfactory sample size, given the relatively small population of student teachers of languages as compared to those of other content areas. For example, Illinois State University's language teacher preparation program is one of the larger programs in the country, yet only .02% of that university's total number of student teachers over the course of three academic years were FL student teachers, with 49 FL and 2,597 in other content areas.

Follow-up Interviews

Survey participants were asked to supply an email address if interested in receiving the results of the survey. Those participants were then contacted via an email containing an invitation for a follow-up interview along with informed consent for a 15-minute face-to-face, Skype, or telephone follow-up interview. Six student teachers replied to the invitation and made an appointment with one of the three researchers.

Prior to conducting those interviews, researchers created an interview guide containing seven detailed questions regarding technology use during student teaching. This guide encouraged systematic and similar lines of inquiry with each interviewee (Patton, 2002). (See Appendix A for the interview questions.) Questions were worded to provide sufficient opportunities for exploration, further probing, and elaboration to avoid leading participants. These practices were informed by Merriam's (2009) observation that "[l]ess structured formats assume that individual respondents define the world in unique ways…. This format allows the researcher to respond to the situation at hand, to the emerging worldview of the respondent, and to new ideas on the topic" (p. 90). Interviews lasted an average of 15 minutes and were digitally recorded with participants' consent. Each interview was conducted and transcribed by one of the researchers, each of whom currently teaches FL methods courses in a U.S. university.

Researchers shared their interview transcriptions, notes, and other related documents in a common Dropbox folder. Following a general review, researchers independently analyzed interview transcripts, rereading them multiple times, while color-coding and glossing the texts. Merriam (2009) describes this process as "having a conversation with the data [and] asking questions of it" (p. 178). After independent open coding, the researchers convened to share initial themes and patterns to aid in axial coding (Corbin & Strauss, 2007). The researchers established a master list of themes that emerged from interviews, and a student worker reviewed the coding to strengthen reliability. The qualitative data were reviewed on numerous occasions during the data collection and analysis, as well as while writing study results.

Participants

Of the 71 survey respondents, most were female (85%), non-native speakers of the target language (85%), representing 23 states in the United States with midwestern, eastern, and southern states represented. The largest number of participants was from Illinois (n =10), and eight participants each were from Wisconsin, Ohio, and Utah. Respondents taught five target languages: American Sign Language (8%), French (11%), German (8%), Latin (2%), and Spanish (71%). In addition, 59% of respondents were under the age of 25, and over half reported having a major (61%) or a minor in the target language (5.7%). Other participants indicated their highest level of education in languages as master's degree (13%) or Ph.D. (4.3%), while 6% had no degree in the target language. Most were placed in suburban (58%) high schools (72%), with many students (45%) teaching in programs with three to five FL teachers. Participants reported teaching a variety of language levels, including first year (n = 44), second year (n = 42), third year (n = 29), fourth year (n = 18), and fifth year (e.g., a high school course for students who earned language credit in middle school; n = 5). The length of their student teaching lasted 1–4 weeks (3%), 5–10 weeks (22%), 11–15 weeks (34%), or 16 or more weeks (41%). One fifth of participants reported not having a computer in their classroom, but 97% reported having at least one computer lab in their school.

After all survey data were collected, researchers carried out interviews with six survey participants, from four different states, who indicated interest in study participation. All interviewees were female, non-native speakers with bachelor's degrees, and between 22 and 26 years old. All interviewees taught in high-school student-teaching contexts, with five student teaching Spanish and one French. One of the interviewees took a specific course on CALL (see

Table 1). Numbers were assigned to survey completers who were not inter-
viewed, while pseudonyms were used to identify interviewees.

Table 1
Characteristics of Interviewees

Student Teacher	Age	State	CALL-Specific Course	Language
Beth	22	KY	No	Spanish
Elena	23	MN	No	Spanish
Gabby	22	IL	No	Spanish
Hannah	23	IL	No	Spanish
Lisa	24	IL	Yes	French
Mary	26	WI	No	Spanish

Results

CALL, Personal Language Learning Practices, and Beliefs

This study explored student teachers' use of CALL for personal language learn-
ing and pedagogical applications, along with their reported beliefs related to
each use. The first two research questions concerned if and how FL student
teachers use CALL for personal language learning, along with their reported
beliefs on the topic.

In terms of hardware, all 71 respondents reported having a computer at
home, and 99% reported using it daily over a wide a range of hours per week:
less than 1 hour (20%), 1–2 hours (32.5%), 3–5 hours (25.5%), 6–8 hours
(8.5%), 9–10 hours (1.5%), and more than 10 hours (12%). These results sug-
gest a division between infrequent users (52.5%), who use computers for two
or fewer hours per week, and more frequent users (47.5%), with three or more
hours of computer use.

When asked more specifically about which software they used for their
own language knowledge and proficiency development, participants reported
using the Internet to access dictionaries and music four or more times a week.
In a follow-up interview, Mary shared that:

> Music is how you take the language home with you. I use it is an 'in' with the stu-
> dents. It is them using it outside of class … I listen to music in my car, in my house.
> I enjoy it and students enjoy it. I use lots of music in my lessons and in my personal
> life. It is a fun way to learn in context.

In contrast, participants reported most infrequently using podcasts and tele-
vision shows (e.g., video series) for their own language learning (see Table 2),
among the choices offered.

Table 2
Use of Technologies for own Language Knowledge and Proficiency Development

Technologies	Never	Rarely (once a week)	Frequently (2–3 times a week)	All the time (4+ times a week)
Social media (e.g. Facebook, Twitter)	18	16	13	23
News broadcasts	14	37	11	8
Podcasts	47	15	6	1
Digital texts (e.g. magazines, books)	16	28	18	8
Television shows (e.g. video series)	25	24	15	6
Grammar sites	10	18	26	16
Music	6	12	22	30
Dictionaries	1	13	22	33

Most participants ($n = 63$) pasted the URL of their most frequented language learning website into the survey. Of those, 38 (60%) posted a dictionary site such as WordReference.com. Other sites included sites related to grammar study (8%), news (8%), quizzes (e.g. quia.com) (5%), community interaction (e.g. language-exchanges.org/) (5%), and free courses (e.g. duolingo.com) (5%). Two participants indicated that they frequented each of the following types of websites when asked to provide a URL: videos, music lyrics, webquests, search engines, publisher sites, and a course wiki page.

Ten participants left the URL textbox blank without explaining their decision. An interviewee, who only revealed her most frequented site when asked verbally, shared: "Something I like to use, this may sound kinda [sic] silly, is Pinterest, because you can find some authentic things on there to use like, in the classroom and also for me as well. There's a lot of different websites on there." This participant's hesitation suggested her belief that Pinterest, a social media idea sharing site, might not be viewed as a truly pedagogical website.

In the URL textbox, 33% of respondents specifically named WordReference.com, an online multilingual resource, launched in 1999 that offers dictionaries, discussion fora, and a curated list of other online resources. Survey participants indicated a preference for the site because of its convenience, reliability, and contextualized examples. Survey participant 1 noted, "This website provides a trustworthy dictionary. More importantly, it hosts a forum that can be turned to for language use in context, such as sample sentences with explanations of use." In her interview, Gabby pointed out that "when learning a different language in multiple Spanish-speaking countries, a word can mean

different things so I love how that website shows you how it's used not only in other countries, but how it's used as a noun, how it's used as a verb, how it's used in different ways." In sum, participants indicated using WordReference. com for their own language questions, with some sharing it as a resource with their students, as will be seen.

CALL and Pedagogical Practices

To further explore the link between personal and pedagogical technology uses, participants responded to questions concerning how often their students were assigned to use given technologies. Online dictionaries and music were assigned by participants regularly, as were grammar sites and digital video (see Table 3), in line with their personal uses. Social media and podcasts were infrequently used with their students.

When asked if their students were familiar with their most frequented personal website, 29.5% indicated that their students were very or extremely familiar with it. Other participants noted that their students were familiar (27%), a little familiar (27%), or not familiar (16.5%) with it, suggesting that many were exposing their students to these sites during student teaching. Gabby explained, "Spanish music, I would say, is a big passion of mine. I just like to listen to it leisurely and everything, but whenever I do listen to it, I try to find a grammar lesson in there." Participants noted they were personally passionate about the sites they indicated and found them to be avenues to connect with their students.

Table 3
Technologies Assigned to Students

Technologies	Never	Rarely (once a unit)	Frequently (2–3 times a unit)	All the time (4+ times a unit)
Social media (e.g. Facebook, Twitter)	47	15	5	2
News broadcasts	30	26	10	4
Podcasts	48	11	9	1
Digital texts (e.g. magazines, books)	21	23	20	6
Television shows (e.g. video series) series	34	24	11	1
Grammar sites	22	11	26	11
Digital video	13	24	21	11
Music	14	19	24	13
Dictionaries	9	13	27	21

Hardware available while student teaching also seemed to affect usage. Lisa explained a lack of support for the student-issued Chromebooks during her placement:

> [T]his Chromebook use and everything, I don't really have any idea how it works, and I was just kinda thrown into it, without a lot of practice with it, and then the online assignments, I didn't really know how to use it, so I'm just kinda going about it. And also, they use Google docs a lot. So they are always like, "Oh, can I share this with you?" And I'm like, "I guess you can share it with me." I don't really know how it works. So I feel like it makes me look incompetent when I don't know how to use that technology.

Similarly, other interviewees noted that they did not feel entirely comfortable using school-provided technologies, such as iPads, smart boards, and laptops. It should be noted that these items were not specifically included on the survey. Rather, these specific devices bubbled up during the open-ended interview as areas of concern in relation to student teaching.

Support available for technologies, either from oneself or other stakeholders, also seemed to influence pedagogical usage of CALL technologies. On the one hand, some student teachers noted a lack of technology support from their cooperating teachers. For example, Mary said, "With my last placement, my cooperating teacher wasn't open to the idea of using technology. She preferred books. So I only used technology with [the students] once and then they kept asking for it and I had to tell them 'No.'" On the other hand, Hannah felt confident with technology given her prior experiences:

> When I was a language learner, my Spanish teacher had her degree in Spanish Ed, obviously, but she had her master's in technology and so I was exposed to a lot of different technological components from Spanish I. And so having that exposure really allowed me to use the technology that I do in my classroom in a lot of different ways.

Both current and previous teachers may influence student teachers' technology use or nonuse.

CALL and Teacher Education Beliefs

When asked to describe the CALL training received in their teacher education program, a variety of course experiences emerged via the surveys: one general technology course (24%), one CALL technology course (13%), an FL methods course with some CALL discussion (31%), a general methods course with some technology discussion (22.5%), and no technology course (9.5%). During their teacher education program, 31 of the respondents indicated that they were never instructed how to teach with CALL technologies, and 22 of

them reported that CALL was a required part of their methods course. Survey participant 19 noted that "[i]t would be great if during a CALL class or seminar, they could teach us typical fixes for common technological problems." In sum, CALL technologies do not seem uniformly present in FL teacher education programs.

When self-describing knowledge of CALL technologies, participants reported being novice (49.5%), intermediate (38%), advanced (11%), and expert (1.5%). During a follow-up interview, Elena explained her self-rating of "novice" by saying, "I'm not extremely skilled. I can turn on a computer and I can work a smartphone for the most part. I can use the projector and YouTube. But I know there are more advanced technologies like a smart board, and I wouldn't even know how to turn that on." Regarding their ability to design activities with CALL, survey participants provided similar responses: novice (47.5%), intermediate (38%), advanced (13%), and expert (1.5%). In general, the data suggest that these FL student teachers viewed themselves as beginner CALL technology users.

Despite nearly half self-identifying as novice, participants overwhelmingly reported positive beliefs when asked the importance of learning about CALL, saying it is "very important" for FL teachers (49%) and for their students (47%). Few felt it was "not at all important" for teachers (3%) and for students (3%). Mary explained, "Students are multitasking and looking things up online. Everything is online … everything is digital … that is their reality, so taking that away from them is like disconnecting them from their world." This positivity toward technology also emerged when participants were asked about technologies for their own language learning and for their classroom.

Discussion

TPCK (Mishra & Koehler, 2006) is not an all-or-nothing phenomenon; rather, it grows and develops over time, influenced by myriad factors. Student teachers' exposure to technology occurs in varying moments along the path to becoming a teacher. In regard to technology exposure during the teacher education coursework, participants reported inconsistent technology inclusion and exposure. As Peters (2006) found, one or two technology courses is insufficient as the technological frontier is ever-expanding. It is seemingly impossible to prepare student teachers for all possible tools, scenarios, and situations they may face. Student teachers will be confronted with varying CALL technologies, and their flexibility as problem-solvers may be more beneficial than their specific technological knowledge.

Despite the fact that computers are readily accessible to this study's FL student teachers, they label their CALL knowledge and ability to design CALL activities as novice to intermediate. Similar to Peters' (2006) findings, few

participants self-identified as expert CALL technology users or experienced CALL practitioners. Although mobile-assisted language learning, such as on mobile phones, was excluded from this study, findings reveal a general sense of apprehension regarding integration of technology into student teachers' practice. In some cases, the student teacher was unable to implement a CALL activity because the cooperating teacher did not support technology use. In other cases, the student teaching placement included new hardware, such as Chromebooks, that the student teacher did not feel fully prepared to use. More information is needed to investigate whether these obstacles relate more to hardware, software, or other stakeholders' (e.g. cooperating teacher) beliefs.

Moreover, participants' novice status becomes evident through the technologies they report using regularly. Despite the ever-expanding pool of language resources available, online dictionaries remained the most frequented sites for both teacher candidates' personal language development and student assignments. Over half of participants (60%) indicated their most frequented site was WordReference.com, which has not changed significantly in the past 15 years. Authentic input-rich technologies (e.g. podcasts, digital texts, and television series) were infrequently mentioned as assigned to students or as tools for personal language acquisition. Similar to Kessler (2010) and Egbert et al. (2002), this study's respondents seem to be familiar with classroom CALL technologies that are used in their personal lives. In addition, they seem to use these technologies at the substitution level (Puentedura, 2009). For example, an online dictionary was used in place of a paper dictionary, instead of transforming possibilities into new technology tasks. At this stage in their learning trajectory, student teachers appear to be risk-averse when it comes to new technology.

When student teachers assign comfortable technologies to their students, they focus on music, digital video, and dictionaries. Using familiar technologies to engage students in fun lessons was a common theme among participants, but during interviews these technologies were often isolated from learning objectives and language proficiency development. Instead, they were most often seen as a way for the student teachers to maintain their own language or to engage students in an enjoyable way. These findings resonate with Cutrim Schmid and Hegelheimer (2014) who found that teacher candidates need greater support to focus on language-learning outcomes through contextualized experiences. In a sense, student teachers may view themselves as learners rather than teachers of CALL technologies.

In terms of their beliefs regarding CALL, the respondents reported strong views about the importance of CALL technologies for both themselves and their students. Similar to Kessler's (2006) findings that CALL was viewed as a valued element by language teachers to communicate with others, few of this

study's respondents felt that CALL was unimportant. In this study, respondents valued technology as an enjoyable and meaningful way to bond with students, access authentic language, and provide a "wow" factor for students.

In sum, this study suggests a developmental continuum of CALL knowledge and skills or TPCK, much like FL teacher pedagogical content knowledge in general (Hlas & Hildebrandt, 2010), with the majority of FL student teachers at the novice end. This study's participants seem to be using comfortable pedagogical technologies, similar to those used in their personal life. With a willingness to assign technology use, participants reflected positive views toward technology and language learning for themselves and their students.

Moving student teachers along the TPCK continuum to implement more transformative levels of technology (Puentedura, 2009) necessitates a better understanding of how to connect familiar technologies to real classrooms and meaningful and contextualized lesson plans. Showing a music video because it is entertaining is not enough; rather, the music video should be purposeful and tied to learning objectives. Second, the variety of student teaching scenarios and the impossibility of preparing student teachers for each option makes it imperative that we teach preservice teachers how to problem-solve, learn new technologies through self-direction, and seek support when necessary. Further, if few student teachers view their CALL course preparation as adequate, how can teacher educators more uniformly encourage CALL use? Moreover, how can we move toward a state of normalization (Bax, 2003), with CALL technology truly integrated into practice? This study hopes to contribute to the ongoing CALL and FL preservice teacher preparation discussions.

Limitations and Future Research

This study, like any, has limitations. To begin, a definition of CALL was provided at the beginning of the online survey and the CALL acronym was used afterwards. Three participants, however, noted in the final open-ended question (in which they offered additional thoughts about CALL) that they did not completely understand the meaning of CALL. This ambiguity suggests that the acronym is unfamiliar to some FL preservice teachers and that acronyms may not be appropriate to include in survey questions. Additionally, it is unknown whether student teachers learned about CALL technologies passively or actively in their coursework. Further, the survey, designed in 2011, does not adequately represent state-of-the-art technologies at the time of publication, from wearables to virtual reality.

The instrument is also limited in that the results are reported and not observed. Respondents may feel a need to acquiesce to what they think should be believed by a well-prepared teacher, and it is impossible to ascertain

whether participants were candid. Finally, this study is limited by its relatively low number of 71 participants, although FL teacher education programs tend to have low enrollments (Swanson, 2013). Further, student teachers not interested in CALL may have elected not to complete the survey, biasing it toward those interested in technology.

This study's purpose was to contribute to the current state of CALL technology knowledge in FL teacher education. Further research is needed to monitor the ongoing impact of technology on FL teacher preparation, along with the educational impact of CALL on K–12 student language learning. It would also be advantageous to observe how student teachers use CALL technologies in the schools. Some issues worthy of investigation may be how CALL technologies are assigned for school or home use, how student teachers learn about CALL, and how student teachers structure technology assignments (e.g. independent, pair or group work). In addition, qualitative data could supplement investigations of how cooperating teachers impact CALL integration (or lack thereof) and how time can be allocated for CALL in already stretched teacher-education programs, along with the characteristics of technology-based student assignments.

About the Authors

Anne Cummings Hlas is a professor of Spanish at the University of Wisconsin–Eau Claire. Her research interests include second language teacher knowledge, teacher use of technology, and teacher target language use.

Kelly Conroy teaches Spanish at Metropolitan State University of Denver. Her research interests include second language teacher licensure, teacher target language use, and student use of technology.

Susan A. Hildebrandt is an associate professor of applied linguistics and Spanish at Illinois State University. Her research interests include second language teacher education, professionalization, and evaluation.

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Appendix A: Interview Questions

1. You mentioned X website as your most frequented for language learning and gave Y reason why. Can you tell me a little more about why and how you use the site? Are there others that you also use regularly? How and why? For your language learning or that of your students?
2. When you assign X website to your students, can you explain what they are asked to do? What were the variables that you took into account when deciding to assign this activity?
3. Tell me more about how you use music for your own language learning and that of your students.
4. Tell me more about how you use X dictionary for your own language learning and that of your students.
5. Tell me more about how you use computers for your own language learning. Tell me about how you learn about technological resources for your own language learning.
6. Tell me more about how you use computers for your language teaching. How do you learn about technological resources for teaching language to your students?
7. Is there anything else you want to share about your thoughts on technology and language learning that I haven't brought up?