# Technology Training in Chinese Language Teacher Education: Content, Concept, and Context

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## Abstract

This article examines issues of technology training in Chinese language teacher education using feedback from various training programs' participants. Their experiences are explored through survey and in-depth interviews with members of the Chinese language teaching community who were attendees, instructors, or organizers of technology training programs and workshops. The grounded-theory based analysis produces a variety of themes that are discussed under three categories— content, concept, and context. Since there has been little if any general research on this topic, this research aims to begin a constructive discussion of technology training that can enhance its development in not only the Chinese field but also foreign language education as a whole.

## Introduction

It is a typical tale of disconnection: A Chinese language instructor spends several days in a technology workshop, in which she acquaints herself with pedagogy and second language acquisition theories, meets like-minded colleagues, and explores online resources, multimedia tools, and mobile applications. Feeling accomplished and

energized, she returns to her home school, only to find out the classroom management system is different from those discussed in training; she also realizes there is no computer or projector in the classroom where she teaches unless she reserves one and pushes a cart from the technology support center herself if the machines are actually available, which oftentimes they are not. She feels lost as she tries to adjust what she has learned into the curriculum. She ends up changing little in her routine besides occasionally showing a few online videos and making some PowerPoint slides. She is disappointed and discouraged. She wonders what could or should be done to make it better, and whether joining another workshop or training program is worthwhile.

Her puzzlement is symptomatic of the problems facing Chinese teachers as well as the language education community at large. No longer a novelty but a norm in the classroom, teaching with technology has become increasingly popular, if not necessary, on any language teacher's education agenda and a common requirement in many teaching positions. The field of Chinese pedagogy is no exception. From electronic devices to software, Internet platforms to cloud computing, social networks to virtual reality games, the term "technology" encompasses a wide range of informational as well as communicative tools and practices that are employed by language pedagogues (Yao, Xiao, Magrieny, & Wong, 2011). Computer Assisted Language Learning (CALL), Computer Mediated Communication (CMC), and Mobile Assisted Language Learning (MALL), for example, have focused on utilizing the newest technology to help language teachers better facilitate the learning process. While the advent of information technology has certainly been changing the ways in which language is taught and learned, how technological components are integrated into language teacher training programs is less certain. In particular, how language teachers implement and incorporate technology into their classrooms upon completion of different types of training programs remains unclear. Did or can they use what they learned?

This article endeavors to shed some light onto the role technology plays in Chinese teacher training programs and how it informs the participants' instructional practices. Their experiences are explored first through an online survey with 56 participants, followed by in-depth interviews with ten members of the Chinese educational community who were attendees, instructors, or organizers of technology

training programs or workshops. The grounded-theory based analysis produces a variety of themes, and we grouped them under three categories— content, concept, and context—which address the challenges and effectiveness of technology training for Chinese teachers. Before presenting our findings, a brief review of the extant literature on technology training is germane to the discussion. The analysis of the survey and interview then constitutes the core of this article, concluding with some suggestions for technology training that can hopefully enhance its development in not only the Chinese field but also less commonly taught languages and foreign/second language education as a whole.

## Brief Overview on Teacher Technology Training

From powerful search engines that handle multilingual queries, to massive online language applications that target a wide range of learning needs, the past quarter century has witnessed phenomenal technological innovations in language teaching. For most colleges and university language classes, teaching with technology no longer has to rely on the computer lab for physical space and equipment, as Internet, personal computers, and tablets allow a more integrated approach to learning right in the regular classroom or even beyond (Chapelle, 2003; Van Deusen-Scholl, Frei, & Dixon, 2005). Language teachers are urged to apply "technologies used in our daily personal and professional lives to improve student learning" (U.S. Department of Education, 2010). The International Society for Technology in Education (2008) also calls for meaningful and competent integration of technology to be infused within the educational context. Language teaching organizations and academic journals these days all publish information on computer, electronic devices, software, web sites, and research, and every language education conference offers presentations and workshops about technology (Garrett, 2009).

The ubiquity of technology in the language classroom presents teachers with both promises and problems. With computers and mobile phones becoming an inseparable part of contemporary lives, language teachers today probably all use technology at some point in their instruction, from word processing to email to online research to multimedia classroom activities. The trend seems to affirm what Bax

(2003, 2011) envisioned as the "normalization" of technology in language education. The concept was first introduced about a decade ago referring to "the stage when a pedagogical technology such as a textbook or pen has become in effective invisible, so seamlessly is it employed in everyday practice in the service of language learning without our being consciously aware of its role as a technology" (Bax, 2011, p.1). However normalized a technology "even books and pens" might be, teachers still need to know how to use them effectively. The mere provision of technology does not automatically lend itself to successful pedagogy. Reinforcing previous investigations of teachers' technology use, DelliCarpini (2012) remarked that "personal use of computer did not translate to classroom use" (p.20). Stockwell and Hubbard (2013) also warned that knowledge of how to use mobile devices for personal or social functions did not always indicate knowledge of educational functions. Most surveys reported that teachers predominately use technology to perform low-level curricular tasks such as drills and practices, homework assignments, tutorials, and administrative activities (Maddux & Johnson, 2006; Project Tomorrow, 2009; Ottenbreit-Leftwich et al., 2012). Garrett (2009) argued that basic uses of technology—such as email, digital audio, materials on the web, or institutional online management systems to manage grade and post syllabi—"do not constitute CALL proper, that is, the full integration of technology into language learning" (p.719). Hence, in order to support more critical and higher-level tasks in language acquisition, teacher training becomes ever more important.

         To successfully equip students to learn with and through technology, teachers should first train themselves (Kolaits, Mahoney, Pomann, & Hubbard, 2006).  Technology is thus no stranger to higher education classes and teacher training programs. Kleiner, Thomas, and Lewis (2007) found that 85 percent of the 1439 degree-granting four-year institutions with teacher education programs had educational technology courses. Nevertheless, the credits, contents, and curricula offered by each institution vary from one to another. Lesson titles usually contain phrases such as "integrating technology into instruction," "the use of Internet resources and communication tools," and "using multimedia for instruction"; however, covering technology topics in the training curriculum does not necessarily mean productive outcomes. Some critics suggested that there were gaps "between the technology

topics covered in teacher education programs and the ways teachers currently use or should use technology to support teaching and learning in their classrooms" (Project Tomorrow, 2009, p.13).

In addition, it is difficult to determine the depth, breath, or quality of these programs, how adequately technology was presented for pedagogical purposes, and most importantly, their actual impact on the participants' instructional practices (Kleiner, Thomas, & Lewis, 2007; Ottenbreit-Leftwich et al., 2012; Pellegrino, Goldman, Bertenthal, & Lawless, 2007). Despite the fact that "most pre-service language teaching methods courses for graduate teaching assistants and language teaching certification programs for undergraduate students now include some introduction to CALL," Garrett (2009) argued that because they are often "taught by language program directors who have not themselves been trained by CALL or worked intensively in this area, such courses are not likely to deal with more than the tip of the iceberg" (p.732).

The effectiveness of teacher education on instructional practices, especially among pre-service and new teachers, has drawn the attention of many researchers (Britzman, 1991; Good et al., 2006; MacDonald, Badger, & White, 2001; Peercy 2012; Wildner, 1999; Wilson, Floden, & Ferrini-Mundy, 2001). A number of more recent works are especially dedicated to technology integration and teacher training (Betrus & Molenda, 2002; Ertmer et al, 2012; Hew and Brush, 2007; Hubbard, 2008; Kleiner, Thomas, & Lewis, 2007; Lawless & Pellegrino, 2007; Ottenbreit-Leftwich et al., 2012; Zhao, 2003). In particular, edited volumes such as *Teacher Education in CALL* (Hubbard & Levy, 2006) and *Preparing and Developing Technology-Proficient L2 Teachers* (Kassen, Lavine, Murphy-Judy, & Peters, 2007) are much welcomed for providing inspiration and direction for language teachers. Kessler and Bikowski (2011) found that technology training programs have been beneficial and positive for teachers, such as supporting the creation of informed CALL environments (Okan, 2008) as well as minimizing computer-related anxiety (Lee, 2004; Lewis & Atzert, 2000).

Meanwhile, professional standards have been set up to guide the efforts. The TESOL (Teaching English to Speakers of Other Languages) technology standards for language teachers were established to achieve four major goals: 1) Language teachers acquire and maintain foundational knowledge and skills in technology for professional

purposes; 2) Language teachers integrate pedagogical knowledge and skills with technology to enhance language teaching and learning; 3) Language teachers apply technology in record-keeping, feedback, and assessment; and 4) Language teachers use technology to improve communication, collaboration, and efficiency (Healey et. al., 2011). The standards emphasize the benefits of incorporating technology into the language classroom, as students will not only acquire a second language effectively but can also develop important electronic literacy skills at the same time.

Still, the potential of technology has not yet been fully realized in the classroom (Kolaitis, Mahoney, Pomann, & Hubbard, 2006, p.317). The appreciation of these standards notwithstanding, they can be overly "generic" and "rigid" at times, often taking a "best-practices" approach that institutionalize certain prevailing views and marginalize other alternatives (Hubbard & Levy, 2006, p.3). Hubbard (2008) maintained that "technology standards are a relatively new addition to the field of language teaching" (p.178). Although there has been some progress in producing and promulgating technology standards specific to language learning, they do not make much of an impact in the classroom at present (Oxford & Jung, 2007). While the reasons behind the minimal effect are multifaceted, inadequate teacher training is one of them (Healey et al., 2011; DelliCarpini, 2012).

Organizing and conducting effective technology training is no easy task. Hubbard (2008) opined that the field of teacher education has seen "only sporadic attempts to reconcile" technology and teacher training. He listed seven possible factors why teacher education programs are not meeting the needs for CALL courses, including inertia, ignorance, insufficient time, insufficient infrastructure, insufficient standards, lack of established methodology, and lack of experienced, knowledgeable educators (Hubbard, 2008, pp.177-178). Ertner (2012) identified two basic types of barriers that hinder teachers' use of technology in the classroom: first-order barriers, which are considered external factors to the teacher, include resources, training, and support, whereas second-order barriers are predominately internal factors such as teachers' confidence, beliefs about students learning behavior, and perceived value of technology to the educational process (p.423). Likewise, Hew and Brush (2007) put forward six typical barriers faced by K-12 schools when integrating technology into the instructional

curriculum, namely: resources, institution, subject culture, attitudes and beliefs, knowledge and skills, and assessment.

Whether Chinese teachers encounter similar barriers is one of the concerns of this study. Computer technology was introduced to the teaching of Chinese in the United States more than three decades ago - as early as it was initiated for English and other languages. Yao (1996) noted that the first wave of computerized products focused mostly on Chinese character teaching programs that were created in the late 1970s and early 1980s.[1] A variety of software and web-based resources have since been developed for different educational purposes, such as pronunciation, *pinyin* input (Romanization), dictionary, online text reading aids, and distance learning (Bourgerie, 2003; Zhang, 1997). In particular, computer programs have been widely used for Chinese testing and assessment. For example, the Chinese Adaptive Test for Reading Chinese (CATRC), developed by Tao-chung Yao of the University of Hawaii, was introduced for computerized assessment in 1993 and evolved into WebCAPE in 2001 (Yao, 2013). Both SAT Chinese and AP Chinese are now available for online testing as well. Haiyu Shuiping Kaoshi (HSK)—the national standardized proficiency test for non-native speakers (similar to TOFEL in English) by the People's Republic of China — also offers online versions. Of course, the significance of technology in Chinese pedagogy has been addressed at almost all professional conferences, workshops, and seminars, from the American Council of Teaching Foreign Languages (ACTFL) to the Chinese Language Teacher Association (CLTA) and its regional affiliates to the Technology and Chinese Language Teaching (TCLT).

While technology is a popular subject among Chinese pedagogues, how well teachers receive and perceive such learning opportunities, and whether CALL training programs or workshops can lead to subsequent changes in their instructional practices or

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[1] Yao (1996) credited Chin-chuan Cheng of the University of Illinois as the first Chinese CALL expert who developed a Chinese character teaching program in the 1970s; it was made to run in the PLATO mainframe environment. Yao also mentioned Kim Smith of Brigham Young University for creating computer programs to teach Chinese characters for the personal computer (Apple II+).

professional growth, remains less explored.  It is also unclear what types of technology education programs Chinese teachers found useful and what improvements they would like to see. For teachers to become fluent with educational technology entails more than acquaintance or even competence with the latest tools (Zhao, 2003). Introducing technology to the training process does not guarantee effective integration in the classroom (Koehler & Mishra, 2005). One cannot help but wonder whether the tale of disconnect we heard at the beginning is an all too common story among Chinese teachers. The goal of this article, hence, is to take a preliminary look at Chinese teachers' experiences with and feedback on technology training programs. There has not yet been any general research on this subject matter. It is our hope, in spite of its small scale, that a constructive discussion of Chinese technology training can begin.

## Method

To better understand the good, the bad, and the useful aspects of technology training in Chinese language teacher education programs, we conducted an online survey that attempted to gauge the participants' experiences and opinions. The instrument was developed in part from previous literature that investigated perceptions of the technology learning environment and included the barriers that teachers encountered in implementation. The data collection began in the summer of 2013 with initial discussions with participants in various teacher-training programs. The survey was then distributed to potential trainees in Fall 2013 mainly through three professional training programs in the United States —a Master's degree program in Chinese pedagogy in California, a Startalk program hosted by a college in New York, and a teacher training workshop for a summer intensive study abroad program from a university in New Jersey (hosted in Beijing, China).

The survey consisted of 23 questions and took about 30 minutes to complete. Three open-ended questions required short answers (e.g., "What was the most useful and/or problematic technology training program/workshop that you have participated in, and why?") and 20 questions used either multiple choice or a 5-point Likert scale to rate the extent to which participants agreed or disagreed with statements about

technology training programs (e.g., "I became a more frequent/better technology-using teacher after the training").

Data presented in this study came from 56 completed responses. The participants were of diverse demographic backgrounds and with varying teaching experience. It also showed that Chinese language teachers in these three training programs tend to be young and female native speakers. There were 16.7% male and 83.3% female teachers. The younger generation made up approximately 93% of the respondents. 95.8% participants identified Chinese as their first language (the other two languages being English and German). The majority of the respondents have already had some experience teaching Chinese. One third (33.3%) were pre-service teachers who planned to teach in the future. Almost two thirds of the participants were teaching in college (57.8%); other institutions included overseas language programs (31.1%), K-12 (17.8%), bilingual (11.1%), and heritage language schools (8.9%). 75% of the participants declared teaching as one of their career goals; other choices were administration (22.9%) and research (29.2%). A summary of the participants' demographic is featured in Appendix A, and the survey is available in Appendix B.

All of the respondents had participated in technology training programs. 67.5% were in teacher training related courses in graduate programs; 62.5% were in short-term teaching workshops; 12.5% were in online teacher training courses. 78% of the participants had more than 40 hours of training – half of them had more than 150 hours.

Following the survey were ten in-depth interviews with the participants who were willing to discuss further the issues with the authors (as the participants were not reimbursed for their time). The interviews were semi-structured with 7 questions, and conducted in a combination of Chinese and English; the authors translated the Chinese excerpts, whereas the quotes in English were presented as such. Although some citations are abbreviated with ellipses and personal names are omitted, they are reproduced, as they were spoken, with their idiosyncrasies and at times grammatical errors intact. Appendix C lists the interview questions.

The transcripts were examined to extract a full range of responses and identify all the central ideas expressed by the participants. The initial coding of the data generated a set of labels—either identified by the participants themselves or emerging during the process of

analysis—from which broader themes were derived. These labels were not identified *a priori* and were allowed to develop from the participant's responses rather than the researcher's preconceived notions. Once a theme was identified, it was reexamined to confirm whether it was supported by other examples and further evidence was gathered to enrich its description. Finally, all the various themes they brought up were organized into three most frequently mentioned key categories: content, concept, and context, on which our analysis was based. In the meantime, data collected from the survey underwent a series of chi-square tests in order to establish links among teachers' backgrounds, attitudes, and their perception of training programs. We annotated our interview results, where appropriate, with these statistic results, short answers in the survey, and literature to better interpret the qualitative data. As each theme is supported by a number of similar opinions, only selected quotes are presented here to illustrate the point.

## Results and Discussion

The positive impact of teacher education on technology—from general attitude to practical skills—is evident in extant research. Hegelheier et al. (2004) found that the knowledge of their graduate students in a Master's TESL program in creating and using web-based materials increased significantly after the technology course despite their widely different initial skills. Many scholars also noted that teacher education can improve teachers' attitudes toward and confidence with technology while providing them with skills that they did not previously have (Egbert, Paulus, and Nakamichi, 2002; Knezek, Christensen, and Rice, 1996; Lam, 2000).

Our findings confirm that technology training is a constructive experience for the participants. All survey respondents and interviewees see it as an encouraging and creative opportunity for professional improvements. Question 15 in the survey listed 11 statements of trainee's attitude toward technology training on a 5-point Likert scale, ranging from strongly disagree to strongly agree. The responses were combined into three categories: disagree, neutral, and agree. A one-way goodness-of-fit chi-square for each statement was conducted to understand trainees' general attitude toward technology training. The frequency counts and chi-square results are summarized in Table 1.

*Table 1 : Teacher's attitude toward technology training (n=56)*

| Statements | Disagree | Neutral | Agree | $\chi^2(2)$ | $p$ |
|---|---|---|---|---|---|
| It is important to integrate technology into my own teaching. | 3 | 6 | 47 | 64.75 | .000 |
| I consider myself a technologically fluent teacher. | 4 | 11 | 42 | 43.053 | .000 |
| The training program/workshop is useful in helping me incorporate technology into my classroom. | 5 | 11 | 41 | 39.158 | .000 |
| I became a more frequent/better technology-using teacher after the training. | 7 | 11 | 40 | 33.552 | .000 |
| I actively seek out new technology inspired by what I learned in the training program. | 5 | 14 | 38 | 30.632 | .000 |
| The technology I learned in the training program/workshop is NOT readily/conveniently available in my school/program. | 25 | 22 | 9 | 7.75 | 0.021 |
| I do NOT find many colleagues who are willing to invest in using technology in my school. | 28 | 14 | 16 | 5.931 | 0.052 |

| | | | | | |
|---|---|---|---|---|---|
| I plan to regularly attend technology training program/workshop. | 13 | 14 | 29 | 8.607 | 0.014 |
| Technology training should be more aligned with second language acquisition theories. | 3 | 11 | 42 | 45.464 | .000 |
| Most of the materials/contents of the training program are immediately useful for my classroom teaching. | 3 | 12 | 41 | 42.25 | .000 |
| There is a gap between the materials/contents of the training program and actual implementation of them in my teaching. | 11 | 18 | 28 | 7.684 | 0.021 |

Most participants (82.1%) believed the importance of "integrating technology into their own teaching" (Item 1: $\chi^2(2) = 64.75$, $p < .001$). They also considered themselves already "technologically fluent" teachers (Item 2: $\chi^2(2) = 45.05$, $p < .001$)—probably due to the relatively young demography (under 35 year-old) of our participants. About the same amount (74.2%) believed technology training programs were "useful" in helping them incorporate technology into the classroom (Item 3: $\chi^2(2) = 39.15$, $p < .001$), and they became "better technology-using" teachers "after the training" (Item 4: $\chi^2(2) = 33.57$, $p < .001$).

While the overall impression of the participants was positive, the specifics of their experiences were important to further the cause for Chinese technology training. We treated questions in the survey as categorical variables, and converted options in multiple responses questions into binary items. By doing so, we ran a series of two-way group-independence chi-square tests to examine relationships among teacher's teaching status (pre-service vs. in-service), school setting (college vs. non-college), training programs (attended vs. not attended graduate courses, short-term workshops, and online training courses), their attitude (Question 15), as well as their perception of various aspects of technology training (Question 16-20). The tests found statistically significant links between 26 pairs of categorical variables. Appendix D provides all the pairs and frequency counts. Most significant associations were found between training program types and trainees' perceptions regarding the content, concept, and context of technology training. Although it is beyond the scope of this paper to present a complete analysis of the complexities in these relationships, the following discussion include relevant statistic tests, along with the qualitative data from interviews, to illustrate these three major themes.

## Content

Learning new technology and electronic tools that can be employed in the classroom is a major goal of the training program participants. The respondents (85.7%) overwhelmingly chose acquiring "practical skills and instructional materials/strategies" as the most valuable aspect of the technology training program, followed by "lesson planning/organization and activity design" (73.4%) and "monitor students' performances & assessment" (51.4%). On the contrary,

enhancing "critical and analytical skills" (22.9%) and learning "theory, conceptual framework, and educational paradigm" (34.3%) do not rank as high on their agenda, which also resembles comparable research findings on other language teachers (Garrett, 2009). This "practical" sentiment is echoed in their preferred topics covered in the program. The topics that are most applicable to the participants' teaching include "presentation"—e.g. present information in lecture, and activities (65.7%), "assessment"—e.g. testing, instant feedback, and monitoring progress (54.3%), as well as "assignment"—e.g. audio/video/multi-media project, and electronic portfolio (42.9%).

Many participants rely on the training programs to provide guidance, if not an instant "take home" package, that can be readily applied to the classroom. The extraordinary amount and range of technology information available online or elsewhere is itself one of the major problems in the field; both pre-service and experienced teachers have trouble finding and organizing what is useful for them (Garrett, 2009). It is hence no surprise that the majority of the participants voted "selecting materials, tools, resources" as their number one barrier for teaching with technology (65.7%). "Time" came in second as just more than half of the participants (51.4%) consider the lack of it a major obstacle. Nonetheless, these two "external" barriers were interlinked, as selecting materials requires not only knowledge but also time. Attending technology education programs hence is expected to help them overcome these hindrances, and the training contents should reflect this need. One teacher wrote that she hoped the training program could propel her to "get in touch with the newest technology tools so as to incorporate them into her own teaching" (Survey 18). Another interviewee also noted, "Basically, I think most of the teachers nowadays know how to use PPT and smart board. It is not necessary to spend extra time on these. I actually look forward to learning other more advanced software to help my teaching". (Interview 3)

Reviewing the training materials and course syllabi provided by the participants, we found the programs aptly addressed the "practical" needs of the attendees. All training sessions, with a varying degree of depth and time, introduced popular computer software and online systems such as PowerPoint, Voicethread, YouTube, Wiki, Moodle, and Blackboard that teachers can use for presentation, assessment, and class management. The majority of the participants (71.4%) believed that

"most of the materials and contents of the training program are useful for classroom teaching." Nevertheless, there are some reservations on the applicability of the tools. Most trainees also agreed "there is a gap between the materials/contents of the training program and actual implementation of them in [their] teaching." (Item 11: $\chi^2$ (2) = 7.68, $p$ = .021). Many respondents feel some difficulties in utilizing the learned tools and materials—despite their usefulness—in their everyday situations. One of the interviewees commented, "Being a teacher right now, I use the Internet, video, and PowerPoint, but there aren't any software that can comprehensively cover all the Chinese instructional needs—vocabulary, grammar, pronunciation, listening, reading, and writing. Many of our teacher learners did not experience the full help from CALL in our teaching. Some schools do not even have the basic equipment like projector, computer, or Internet connection in the classroom; therefore, teachers tend to fall back on the traditional way of teaching. Technology-based activities become a once in a while treat, at most". (Interview 4).

A main "logistical problem" of implementing technology for teachers is whether the schools, including the actual classrooms, support the use of technology; Garrett (2009) observed that "even wealthy institutions seldom have this capacity, and in competing for well-equipped 'smart' classrooms" most language instructors "have low priority," for they are by and large "non-tenure-track faculty" or teaching assistants (p.733). The training content by all means should complement the context in which the participants teach, which will be discussed in the final section.

Regarding other dimensions of the training content, some participants found the instruction on using specific software and tools somewhat limiting. The materials introduced in the training program or workshop often were not in sync with those in the participants' institutions or did not fit their curricula, as the teacher's story at the beginning affirmed. Another interviewee also noted, "The interface we use [in training] to meet students should add functions, such as video, PowerPoint display; the current [institution website] interface has no video, and it can only support PDF, and JPEG documents, no PowerPoint function. Another suggestion is to add more technology component in the training other than the instructions on using [institution name.org] interface. More online and technology-related resources should be introduced during the training to diversify the

online instructional activities". (Interview 1)

If the participants attend technology training mainly for "practical" reasons, the opportunity to actually practice and test out what they have learned becomes highly desirable. A great number of the respondents suggested that the program "provide more real teaching environment in the training, so the teachers could face those problems in their actual classes" (Survey 19). More hands-on practices might also help reduce some of the anxiety that teachers had when working on their own materials. Another teacher affirmed: "We do not want to just talking about "battles on paper" [a Chinese idiom]; we want to be in the trenches and fight with our own hands. It would be nice if we have time to experiment rather than just listening and looking at demonstrations" (Survey 42). Other participants who had joined a training program with a practicum component concurred, "From second week onwards, teacher trainees started teaching practicum. Each of us was assigned to teach at least 3 periods of classes with a peer. Teacher trainees' classes were observed by teacher trainers and peers and also video-recorded... I think this is the most useful part as we got many opportunities of applying what we learned during the first week in the real teaching setting. In addition, the immediate feedback from our lead teacher and peers were very helpful". (Interview 1)

Although the specific contents of each program may vary, the notion that teacher trainees need to learn something "practical" and have interactive opportunities to "practice" seems to resonate with most of the participants. Often teachers forget skills that are not practiced (Barrette, 2001). If teachers keep telling their students to practice what they learned as the key to success, it seems rational for teachers to do the same. Training course contents should be readily transferable to school settings across language contexts, and language teachers should continue to learn and grow in the technology area as practicing professionals (Egbert, Paulus, & Nakamichi, 2002).

## Concept

How technology training programs teach, of course, is as important as what they teach. "Without substantive grounding in SLA [Second Language Acquisition] theory and in the pedagogical context for technology use," Garrett (2009) cautioned that "familiarity with the

technology will allow only superficial application and no real integration" (p.733). Zheng (1998) emphasized that pedagogy also has to be the rationale behind the application of technology; otherwise, the use of technology may become superfluous. Critics have pointed out that teacher training is not sufficiently grounded in SLA theory (Slaouti & Motteram, 2006). There is also "a disconnect between the strategies students are learning in their teaching methods classes and the technology that teachers are currently using in the classroom to enhance student achievement" (Project Tomorrow, 2009, p.13). One of the objectives of technology training should be to bridge that gap.

Integrating theory with content in the training program was a concern of our participants. The majority of the participants (74%) agreed that "technology training should be more aligned with SLA theories." (Item 9: $\chi^2(2) = 45.46$, $p < .001$). Many voiced that they hoped the programs had incorporated more SLA and pedagogical theories into technological applications. "I would like to see more discussion on theory and methodology to address Chinese language teaching specifically," a respondent replied (Survey 6).

Many participants expected theory to assume a greater role in designing technology training, which will ultimately inform practice and the use of technology to deliver instruction (Chapelle, 2009; Doughty, 1987). The connection between SLA theory and CALL has long been discussed through Krashen's monitor theory (Doughty, 1987), information processing theory (McLaughlin, Rossman, & McLeod, 1983), and interaction theory (Gass & Madden, 1985), to name a few. However, theory often took a back seat to the "practical" aspect of computer software and application in technology training, or was taught as a separate lesson apart from the main "technical" feature. A respondent stated that "pedagogical theory and technology should not be alienated," (Survey 1). Another interviewee explained, "I think part of the problem is that teachers sometimes see CALL as merely a tool, an add-on of sort, to so-called serious language instruction, especially a language like Chinese that puts a lot of emphasis on tradition and history. It'll be great to re-conceptualize technology with the whole SLA process from a new theoretical perspective... What I mean is most of the training workshops or conferences I had attended oftentimes used an eclectic approach that assembles individual topics or tool applications together. We need a framework, not just a vague or sound good title, but

something substantial, fully grounded in SLA or pedagogical theory, so what one learned in the training were not the end but the means; that is, if the teachers understood what and why were behind the use of a particular technology for a particular instructional purpose, they can better implement it, or even replace those they learned with other tools that are available to them". (Interview 8)

Gordon (2007) noted that "the concern that there is a mismatch, or even worse, an unbridgeable gap between educational theory and the practice of teaching" is a misconception shared by many teachers (p. xi). There is also a misunderstanding that educational theories are established facts or undisputable truths that have direct applicability to the classroom (Gordon, 2007). Smith (2007) argued that a given practice may reflect several different theories about how people learn; at the same time, belief in a particular theory might give way to numerous methods of approaching instruction. Various theoretical perspectives from SLA can offer productive implications for technology training, from cognitive linguistics to psycholinguistics to sociocultural theory (Chapelle, 2009). A successful training program should combine technology information with appropriate SLA and educational theories that work for its participants. Kessler (2007) proposed that "CALL could be integrated into a variety of pedagogical classes, thus allowing it to be introduced in a contextualized and relevant manner" (p.184). An interviewee summarized her experience as follows, "The issues [related to a Chinese technology training program] are mainly the lack of a good combination of both synchronous and asynchronous training activities. Trainees need more instructional models... More specifically, teacher training programs should provide teachers not only technology resources, but also demonstrate to them the best practice in the classroom". (Interview 1)

Still, many teachers, or even program trainers, continue to deem technology as a special skill rather than an integral part of the language learning process. This is another misconception which technology education needs to tackle. An interviewee's remark is telling in this regard, "Our conclusion [after the training class and practicum] was that technology can make the class livelier, but it should not be the dominant part of the instruction. For instance, we were encouraged to use PPT; however, the trainer also suggested that we should incorporate at least 3 paper-pen activities or peer /group communicative tasks without PPT

facilitation throughout the class time". (Interview 1)

Reconceptualization often brings about new format. To take full advantage of technology, some training programs have been completely carried out online. The reviews were mixed, however. An interviewee noted, "I consider this [online] training the least effective because of its lack of synchronous activities. I consider teaching as basically human interaction and communication, so the most effective interaction is undoubtedly face-to-face, which is facilitated by facial expression, body language, and immediate feedback. Thus, I think if more synchronous activities could be added in the training process, it would be much more successful... Technical issues inevitably arose in the process as well. Sometimes the student and the teacher could not hear each other, or we were unable to log into the live classroom. It took time to get used to the system". (Interview 1)

## Context

Using online training, for better or for worse, is one of the efforts introduced to Chinese technology training and is relatively new to the field of Chinese pedagogy. Recent research has highlighted the importance of considering context in making pedagogical decisions such as material and tool selection (Kessler & Plakans, 2008) along with task construction (Chapelle, 2003). For technology training to have an impact, Egbert, Paulus, and Nakamichi (2002) argued that it should focus on the needs of individual teachers and their contexts. Even with increasing focus on the role of technology in language teaching and training, there is still inadequate attention paid to individual teachers' emerging needs (Kessler, 2010), limited opportunity to reinforce the skills learned in CALL preparation (Egbert, Hanson-Smith, & Chao, 2007; Hegelheier et al., 2004), and a lack of contextualization (Egbert, 2006).

Context does matter. Teaching and learning Chinese, like any other foreign language, entails its own unique challenges, which technology education must acknowledge. After the training program, the participants reckoned "grammar" as the most useful area for them to apply technology to their teaching (64.7%), followed by "pronunciation and tones" (58.8%) then "culture" (52.94%). Teaching grammar was ostensibly the focus of the China study abroad summer intensive program, as a number of its participants stated that their training spent a

significant amount of time on it. One respondent claimed that the program "overemphasized grammar, which made the students feel a little bored and inflexible" (Survey 12), whereas another teacher said that "the training concentrated on the skills of teaching grammar and seemed to overlook the other aspects" (Survey 14). Grammar is probably a familiar subject for most trainers, who often had linguistics or applied linguistics backgrounds. Evidences also showed that the perception of grammar is associated with trainees' teaching status and the type of training programs they attended. There was a moderately strong association between the teaching status and the usefulness of grammar ($\chi^2(1) = 9.014$, $p = .003$), with a medium size effect ($\varphi = .394$, $p = .003$). Pre-service teachers in our study were more likely to think grammar is the most useful aspect to apply technology, compared with in-service teachers. There was also an association between the type of training program and the perception of grammar. A two-way chi-square test revealed between trainees who attended graduate courses in teacher training and those who attended other types of training program, the latter would more likely rate grammar as the most useful aspect ($\chi^2(1) = 4.91$, $p = .027$), with a medium size effect ($\varphi = .296$, $p = .027$). The type of the training program was also linked to whether trainees think grammar is an area needs to better incorporate technology. A third chi-square in our study suggested graduate students trainees less likely chose grammar teaching as an area that need improvement when applying technology ($\chi^2(1) = 9.052$, $p = .003$), with a medium size effect ($\varphi = .399$, $p = .003$). The evidence together seemed to imply that teachers with less teaching experience and those who attended short-term workshop and online training tended to put more emphasis on the cooperation of technology and grammar teaching.

It is easy to imagine using PowerPoint or other basic computer software to illustrate grammar and sentence structure, and thus, making both of them the center of the training. How technology can be better used to teach grammar—besides regular presentation tools still rooted in the grammar-translation model—seemed to be of great interest. Many participants agreed that video and other online streaming or broadcasting tools with their multimedia function were well suited to teaching pronunciation and tones, while short video clips—from film to YouTube—provided helpful authentic materials for cultural pedagogy.

Finding the right materials, which usually means creating one's

own, consumes a lot of time and resources. Due to a lack of technical skills and experience, a number of participants also worried that the amateurish materials they created might not achieve the expected pedagogical outcome, and even appear "silly" or "unprofessional" in the eyes of technology savvy students. Two interviewees' comments exemplified this issue. "I guess we all know that video can be very useful, but we cannot always find the exact clip with the vocabulary items and appropriate language level that we are supposed to teach. So, we have to become video editor on top of a teacher in order to get the teaching materials we want... [A trainer] showed us a software program that can add Chinese subtitles with pinyin in music video or films, that is very helpful, but I don't think we can afford to buy the software... In training session or demo presentation, everything seemed to work perfectly. But I am not teaching those particular words or grammar patterns, and I do not think I have the time to make every lesson from scratch, even if I know how" (Interview 7), " The greatest help from multimedia is to produce teaching materials. It's great that we were exposed to different options [in training]. But during the creation process, teachers may encounter technical problems, or cannot find the appropriate resources, or lack of technical skills; therefore, teachers are often unable to produce suitable materials on their own. If they do not want to give up, they must then accept the lower quality or not quite right final products. It is precisely these second rated materials that negatively impacted on the overall classroom experience, even took a toll on the accuracy of teaching". (Interview 3)

On the other hand, more than half of the participants (52.9%) believed the area that needed improvement was "writing." Teaching Chinese writing does pose a unique quandary for instructors, for it involves the construction of Chinese characters. While typing is already "normalized" in English language pedagogy, in the case of Chinese, typing using *pinyin* (Chinese Romanization) or other input systems remains a contested topic, for many teachers still consider handwriting a fundamental skill in learning the language. Recent research showed that technology can alleviate the high anxiety among students provoked by handwriting and hence improve their general writing skills (Xiao & Wong, 2014). It is reasonable that some participants expected the training program to discuss the newest developments on writing such as handwriting input. "Students typing issue needed to be addressed," a

respondent affirmed; "without *pinyin* support, students are hard to practice writing through computer" (Survey 1).

However, one also realizes the content of technology training programs, especially conferences or workshops, often depends on the expertise of the available speakers or presenters. An interviewee, who was an organizer of a technology workshop held by a Chinese language association, had the following insights: Of course, we would like to have the most cutting-edge tools and most appropriate technology platforms offered to our workshop participants. However, it was not entirely up to our wishful thinking. When we sent out the call for papers, even with a preset theme, we did not always get the anticipated outcome, both in terms of quantity and quality... And there are only a handful of well-established CALL experts in the Chinese field, and it was not easy to invite them due to timing, budget and other constraints. We had to work with what we got. (Interview 8)

Garrett (2009) asserted that "language teacher training is problematic without the help of a trained CALL specialist" (p.732). All the interviewees mentioned that a good teacher—someone who had actual experience in using technology and not just an armchair expert—was what made the training beneficial. As the quotation above indicated, the number of prominent Chinese scholars who specialize in technology is rather limited, and their works are mostly associated with the college-level context. Meanwhile, the majority of language teachers, from K-12 to non tenure-track university instructors, usually do not have the support or even eligibility "to be principal investigators on grant-funded materials development or research projects" (Garrett, 2009, p.735). Since they are the prime participants of technology training, such programs should hence expand their agendas to accommodate their needs.

Joining a training course or program alone, no matter how comprehensive its coverage might be, is probably not enough to change teachers' practices either immediately or over time (Egbert, Paulus, & Nakamichi, 2002). McMeniman and Evans (1998) concluded that language teachers would alter their practices and beliefs only when "presented with evidence that showed positive effects of the new teaching method on quality of learning outcomes" (p. 1); otherwise, they may not change their practice to incorporate technology. Teacher educators, hence, need to design technology training courses that teach what language teachers really need to know. More importantly, training

programs should inspire teachers to polish their skills on their own and employ technology specifically to support their current teaching practices (Egbert, Paulus, & Nakamichi, 2002). Zhao (2003) urged teachers "to develop knowledge that enables them to transfer technological potentials into pedagogical solutions, which are often very local and deeply situated in their own individual contexts" (p.4). DelliCarpini (2012) also encouraged teacher educators to build their candidates' CALL skills in a contextualized way, for information in general technology courses, while valuable, may not transfer in a disciplined specific way to the candidates' subject area (p.21).
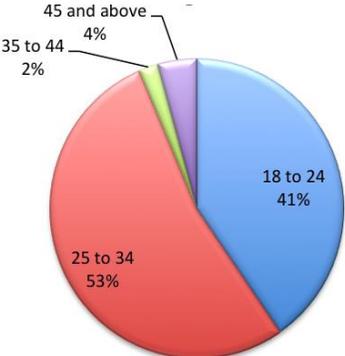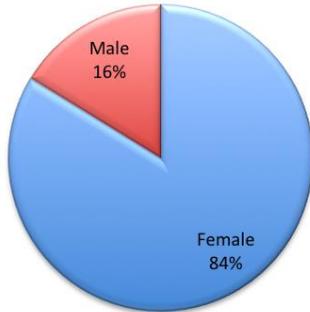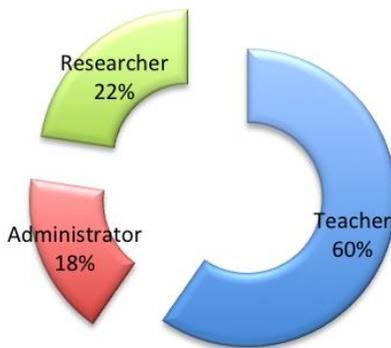
## Conclusion

There is no doubt that technology has dramatically changed the landscape of language learning over the past few decades. The dilemma for Chinese pedagogues is not about whether to integrate technology into teacher education programs but rather one of degree and methodology. Teacher training programs need to center not on "technology use" but on CALL proper (Garrett, 2009). Stockwell and Hubbard (2013) noted that early CALL developers and practitioners did not take advantage of the potential interactivity afforded by computers; therefore, many computer-based activities are in effect replicas of traditional pen-and-paper activities without adequate consideration of the unique possibilities afforded by technology (Godwin-Jones, 2011). Many of our Chinese participants are still most comfortable in using technology in such a capacity.
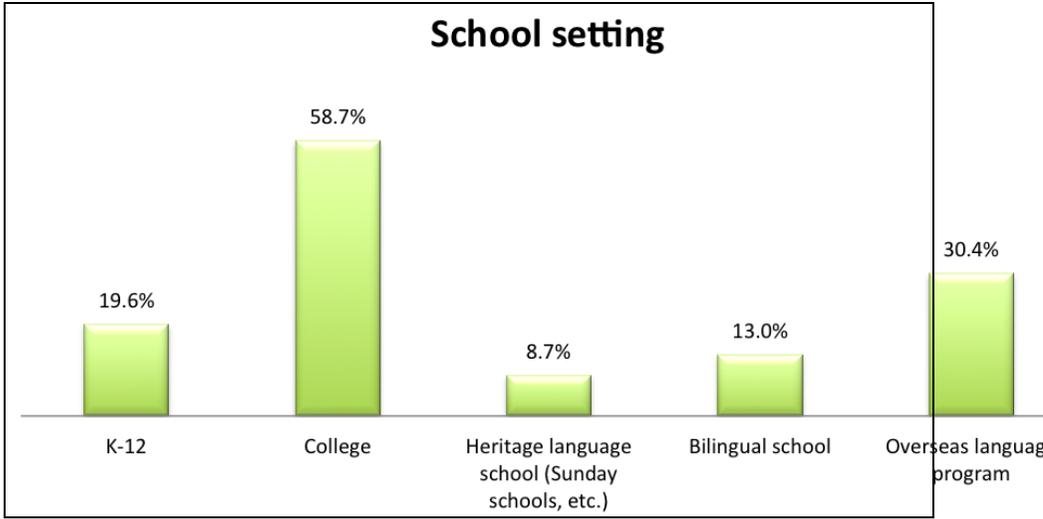
The challenges for training programs thus lie in conceptualizing technology in a more integrative, user friendly, and learner-centered environment. Just like any other type of students, teacher participants enrolled in training programs need explicit instruction (DelliCarpini, 2012). As much as they have learned or know, many teachers under-utilize technology simply because they do not recognize the relevance of a particular technology to the problems they face in their own classrooms (Ottenbreit-Leftwich, Glazewski, Newby, & Ertner, 2010). Our participants shared such sentiments. A great number of them wanted "step by step" demonstrations of how a particular software or application was used, while others were interested in knowing whether these tools were applicable to their own teaching situations. The

uniqueness of Chinese characters and writing, for example, is an area that many teachers would like technology training to explore. Much effort and encouragement are needed, as only half of them (50%) said they plan to regularly attend technology training programs or workshops in the future.

Technological tools in and of themselves do not bring about improvements in teaching (Kern & Warschauer, 2000, p.2). Successful technology depends on a variety of factors, notably the training of creative and confident teachers, who see technology not as merely a mechanical skill but also an essential part of the learning process. Ultimately, teachers themselves are a crucial factor, if not the most decisive one, in successful technology integration in the classroom (Bitner & Bitner, 2002; Romano, 2003; Zhao & Cziko, 2001). Furthermore, the content, concept, and context of technology education programs should be revisited. Whereas training content must be relevant to participants' contexts, theory and concept are equally important, too. No one knows the longevity of any particular software or tool. Perhaps within months upon the completion of a training or certification program, teachers already "find that most of what they studied about using computers and the Internet for language learning has become obsolete" (Hanson-Smith, 2006, p. 301). In that case, it is the concept, approach, and strategy of teaching language with technology, not simply the tools themselves, which will prove to be most useful key to bridge the "disconnect."

## Appendix A
### *Summary of Survey Participants*

| Age | Gender |
|---|---|
| 45 and above 4%<br>35 to 44 2%<br>18 to 24 41%<br>25 to 34 53% | Male 16%<br>Female 84% |

| Teaching Status | Career Goal |
|---|---|
| Plan to teach in the future 33%<br>Teaching currently 67% | Researcher 22%<br>Administrator 18%<br>Teacher 60% |

## School setting



- K-12: 19.6%
- College: 58.7%
- Heritage language school (Sunday schools, etc.): 8.7%
- Bilingual school: 13.0%
- Overseas language program: 30.4%

## Appendix B

Survey of Chinese Language Teacher Technology Training
1. What's the last five digits of your phone number?
2. What is your age?
    o   18 to 24
    o   25 to 34
    o   35 to 44
    o   45 and above
3. What is your gender?
    o   Female
    o   Male
4. What's your first language?
5. What is your ethnicity? (Please select all that apply.)
    o   American Indian or Alaskan Native
    o   Asian or Pacific Islander
    o   Black or African American
    o   Hispanic or Latino
    o   White / Caucasian
    o   Prefer not to answer
6. What's your career goal?
    o   Teacher
    o   Administrator
    o   Researcher
    o   Other (please specify)
7. In what type of school setting do you teach?
    o   K-12
    o   College
    o   Heritage language school (Sunday schools, etc.) Bilingual school
    o   Overseas language program Other (please specify)
8. Are you teaching or planning to teach Chinese in the future?
    o   Teaching currently
    o   Plan to teach in the future
9. If applicable, for how many years have you been teaching Chinese?
    o   Less than 2 years
    o   2-5 years

      o   5-10 years

      o   More than 10 years

10. What level are you teaching or plan to teach?
   o Beginning level
   o Intermediate level
   o Advanced level
   o Other (please specify)

11. Have you ever completed a foreign language teacher-training program?
   o Yes
   o No

12. If yes, for how many hours?
   o 0-10 hours
   o 10-40 hours
   o 40-80 hours
   o 80-150 hours
   o More than 150 hours Other (please specify)

13. In what type of training programs?
   o Short term teaching workshops
   o Teacher training-related courses in graduate programs
   o Online teacher-training courses
   o Other (please specify)

14. How often do you participate in professional development workshops?
   o Monthly
   o Quarterly
   o Semi-annually
   o Annually
   o Rarely

15. To what degree do you agree with the following statements?
   o It is important to integrate technology into my own teaching.
   o I consider myself a technologically fluent teacher.
   o The training program/workshop is useful in helping me incorporating technology into my classroom.
   o I became a more frequent/better technology-using teacher after the training.
   o I actively seek out new technology inspired by what I

learned in the training program.
- o The technology I learned in the training program/workshop is NOT readily/conveniently available in my school/program.
- o I do NOT find many colleagues who are willing to invest in using technology in my school.
- o I plan to regularly attend technology training program/workshop.
- o Technology training should be more aligned with second language acquisition theories.
- o Most of the materials/contents of the training program are immediately useful for my classroom teaching.
- o There is a gap between the materials/contents of the training program and actual implementation of them in my teaching.

16. Topics covered in the training program are most applicable to my teaching (up to three categories):
- o Presentation (e.g. present information in lecture, activities)
- o Administration/classroom management (e.g. grading, posting instructional materials)
- o Assignment (e.g. audio/video/multimedia project, electronic portfolio)
- o Assessment (e.g. testing, instant feedback, monitoring progress)
- o Communication with students/colleagues (e.g. social media, blog, online chat)
- o Online teaching/course
- o Research and professional development
- o Other (please specify)

17. The most valuable aspect(s) to me of the technology training program includes (up to 5 categories):
- o Theory, conceptual framework, and educational paradigm
- o Practical skills and instructional materials/strategies
- o Lesson planning/organization and activity design
- o Enhance critical and analytical skills
- o Monitor students' performances & assessment

- o  Address individual students' needs and differences
- o  Curricular design, syllabi, & model
- o  Practicum & teaching demonstration
- o  Most up-to-date tools, software, and devices
- o  Community of teachers and practitioners
- o  Fulfillment of degree and certification
- o  Personal development and growth
- o  Other (please specify)

18. After the training program, the most useful aspect(s) for me to apply technology to teach includes (up to 5 categories):
- o  Grammar
- o  Chinese characters
- o  Vocabulary
- o  Pronunciations + Tones Writing
- o  Speaking
- o  Listening
- o  Reading
- o  Culture
- o  Online/distance teaching

19. After the training program, the area(s) that needs to better incorporate technology includes (up to 5 categories):
- o  Grammar
- o  Chinese characters
- o  Vocabulary
- o  Pronunciations + Tones Writing
- o  Speaking
- o  Listening
- o  Reading
- o  Culture
- o  Online/distance teaching

20. The major barrier(s) of implementing technology in my teaching includes (check all that applies):
- o  time
- o  money
- o  state/national standard
- o  selecting materials/tools/resources
- o  other teachers' cooperation/attitudes
- o  institutional support

- o students' support
- o student parents' support
- o IT support
- o technical problems
- o administrative/management problems
- o lack of knowledge, skill, and/or experience (myself)
- o lack of knowledge, skill, and/or experience (students)
- o lack of knowledge, skill, and/or experience (other teachers)
- o lack of mentors or knowledgeable experts
- o lack of research and academic resources
- o Chinese as a foreign/second language does not necessarily need technology
- o pedagogical technology is not a major component in my degree/academic training
- o technology is changing too fast to catch up
- o the coverage/depth of the training program/workshop is not enough
- o Other (please specify)

There are three open-ended questions on this page. Please feel free to answer in either Chinese or English.

21. What was the most useful and/or problematic technology training program/workshop that you had participated, and why?
22. What improvements (e.g. content, structure, methodology, etc) that you would like to see in a Chinese technology training program/workshop?
23. Are there any issues related to Chinese technology training program/workshop that you would like to share with us?

## Appendix C

### Interview Questions

1. What was the most useful training program/workshop (or components within a program) that you had participated in, and why?
2. What was the least useful training program/workshop (or components within a program) that you had participated in, and why?
3. What improvements (e.g. content, structure, methodology, etc) that you would like to see in a Chinese technology training program/workshop?
4. What are the major barriers you have in regards to integrating technology into your own teaching?
5. How do you see your role as a Chinese language teacher in the classroom ? How would you use technology? What do/will you actually use/do? Why?
6. What do you see as the future role of technology in the Chinese language classroom/pedagogy?
7. Are there any issues related to Chinese technology training program/workshop that you would like to share with us

## Appendix D

***Frequency Counts in Chi-square Tests showing a Statistical Link between Variable 1 and Variable 2***

| Variable1 | Variable 2 | | |
|---|---|---|---|
| **Teaching status** | After the training program, the most useful aspect(s) for me to apply technology to teach includes - **Grammar** | | |
| | | No | Yes |
| | Pre-service | 2 | 17 |
| | In-service | 20 | 19 |
| | The most valuable aspect(s) to me of the technology training program includes - **Personal development and growth** | | |
| | | No | Yes |
| | Pre-service | 15 | 3 |
| | In-service | 15 | 23 |
| | To what degree do you agree with the following statements? - **I do NOT find many colleagues who are willing to invest in using technology in my school.** | | |
| | | Neutral | Agree | Disagree |
| | Pre-service | 9 | 0 | 9 |

| | In-service | 5 | 15 | 18 |
|---|---|---|---|---|
| **School Setting**<br><br>**(College vs.**<br>**Non-college)** | The major barrier(s) of implementing technology in my teaching includes<br>- **pedagogical technology is not a major component in my degree/academic training** | | | |
| | | No | Yes | |
| | Non-college | 25 | 0 | |
| | College | 25 | 8 | |
| | After the training program, the area(s) that needs to better incorporate technology includes - **Listening** | | | |
| | | No | Yes | |
| | Non-college | 11 | 14 | |
| | College | 25 | 8 | |
| | After the training program, the most useful aspect(s) for me to apply technology to teach includes - **Speaking** | | | |
| | | No | Yes | |
| | Non-college | 8 | 17 | |
| | College | 20 | 12 | |

| **Types of Training program** | | |
|---|---|---|
| **1. Teacher training-related courses in graduate programs (Attended vs. not attended)** | The most valuable aspect(s) to me of the technology training program includes - **Curricular design, syllabi, & model** | |
| | No | Yes |
| | Not attended     17 | 2 |
| | Attended     29 | 18 |
| | After the training program, the most useful aspect(s) for me to apply technology to teaching - **Grammar** | |
| | No | Yes |
| | Not attended     3 | 15 |
| | Attended     18 | 20 |
| | After the training program, the most useful aspect(s) for me to apply technology to teaching includes - **Culture** | |
| | No | Yes |
| | Not attended     12 | 6 |
| | Attended     14 | 24 |
| | The training program, the area(s) that needs to better incorporate technology includes **- Grammar** | |
| | No | Yes |
| | Not attended     5 | 14 |

| Attended | 26 | 12 |
| --- | --- | --- |

The major barrier(s) of implementing technology in my teaching includes
- **IT support**

| | No | Yes |
| --- | --- | --- |
| Not attended | 17 | 2 |
| Attended | 20 | 18 |

The major barrier(s) of implementing technology in my teaching includes
- **lack of knowledge, skill, and/or experience (myself))**

| | No | Yes |
| --- | --- | --- |
| Not attended | 6 | 12 |
| Attended | 26 | 12 |

The major barrier(s) of implementing technology in my teaching includes
- **lack of research and academic resources**

| | No | Yes |
| --- | --- | --- |
| Not attended | 12 | 6 |
| Attended | 39 | 0 |

The major barrier(s) of implementing technology in my teaching includes
- **pedagogical technology is not a major component in my degree/academic training**

|              | No  | Yes |
| ------------ | --- | --- |
| Not attended | 19  | 0   |
| Attended     | 31  | 8   |

The major barrier(s) of implementing technology in my teaching includes
- **the coverage/depth of the training program/workshop is not enough**

|              | No  | Yes |
| ------------ | --- | --- |
| Not attended | 11  | 8   |
| Attended     | 33  | 6   |

To what degree do you agree with the following statement?  - **I plan to regularly attend technology-training program/workshop.**

|              | Neutral | Agree | Disagree |
| ------------ | ------- | ----- | -------- |
| Not attended | 8       | 9     | 2        |
| Attended     | 3       | 26    | 9        |

| | To what degree do you agree with the following statements? - **There is a gap between the materials/contents of the training program and actual implementation of them in my teaching.** | | |
|---|---|---|---|
| | Agree | Neutral | Disagree |
| Not attended | 14 | 3 | 2 |
| Attended | 14 | 15 | 9 |

| **2. Short-term teaching work shops** | Topics covered in the training program are most applicable to my teaching - **Research and professional development** | |
|---|---|---|
| | No | Yes |
| Not attended | 20 | 0 |
| Attended | 23 | 14 |
| The most valuable aspect(s) to me of the technology training program includes - **Address individual students' needs and differences** | | |
| | No | Yes |
| Not attended | 12 | 8 |
| Attended | 33 | 5 |

The most valuable aspect(s) to me of the technology training program includes - **Curricular design, syllabi, & model**

|  | No | Yes |
|---|---|---|
| Not attended | 8 | 12 |
| Attended | 30 | 8 |

After the training program, the most useful aspect(s) for me to apply technology to teach includes - **Reading**

|  | No | Yes |
|---|---|---|
| Not attended | 14 | 6 |
| Attended | 36 | 2 |

The major barrier(s) of implementing technology in my teaching includes - **IT support**

|  | No | Yes |
|---|---|---|
| Not attended | 8 | 12 |
| Attended | 30 | 8 |

The major barrier(s) of implementing technology in my teaching includes - **lack of knowledge, skill, and/or experience (students)**

|  | No | Yes |
|---|---|---|
| Not attended | 17 | 3 |
| Attended | 37 | 0 |

|                                | The major barrier(s) of implementing technology in my teaching includes - **lack of knowledge, skill, and/or experience (other teachers)** | | |
|--------------------------------|-------------|-------|---------|
|                                | No          | Yes   |         |
| Not attended                   | 20          | 0     |         |
| Attended                       | 28          | 9     |         |
|                                | The major barrier(s) of implementing technology in my teaching includes - **Chinese as a foreign/second language does not necessarily need technology** | | |
|                                | No          | Yes   |         |
| Not attended                   | 20          | 0     |         |
| Attended                       | 30          | 8     |         |
| **3. Online-training course**  | To what degree do you agree with the following statement?  - **I do NOT find many colleagues who are willing to invest in using technology in my school.** | | |
|                                | Neutral     | Agree | Disagree |
| Not attended                   | 12          | 9     | 26      |
| Attended                       | 2           | 6     | 2       |

# References

Bax, S. (2003). CALL-Past, present, and future. *System*, *31*(1), 13-28.

Bax, S. (2011). Normalisation revisited: The effective use of technology in language education. *International Journal of Computer-Assisted Language Learning and Teaching*, *1*(2), 1-15.

Betrus, A.K., & Molenda, M. (2002). Historical evolution of instructional technology in teacher education programs. *TechTrends*, *46*(5), 18-21.

Bitner, N., & Bitner, J. (2002). Integrating technology into the classroom: Eight keys to success. *Journal of Technology and Teacher Education*, *10*(1), 95-100.

Bourgerie, D.S. (2003). Computer Aided Language Learning for Chinese: A survey and annotated bibliography. *Journal of the Chinese Language Teachers Association*, *38*(2), 17-47.

Britzman, D.P. (1991). *Practice makes practice: A critical study of learning to teach*. Albany, NY: SUNY Press.

DelliCarpini, M. (2012). Building computer technology skills in TESOL teacher education. *Language Learning & Technology*, *16*(2), 14-23.

Doughty, C. (1987). Relating second-language acquisition theory to CALL research and application. In W.F. Smith (Ed.), *Modern media in foreign language education: Theory and implementation* (pp.133-167). Lincolnwood, IL: National Textbook Company.

Egbert, J., Paulus, T. M., & Nakamichi, Y. (2002). The impact of CALL instruction on classroom computer use: A foundation for rethinking technology in teacher education. *Language Learning & Technology*, *6*(3), 108-126.

Egbert, J. (2006). Learning in context: Situating language teacher learning in CALL. In P. Hubbard & M. Levy (Eds.), *CALL teacher education* (pp. 167-181). Philadelphia, PA: John Benjamins.

Egbert, J., Hanson-Smith, E., & Chao, C. C. (2007). Introduction: Foundations for teaching and learning. In J. Egbert & E. Hanson-Smith (Eds.), *CALL environments: Research, practice, and critical issues* (2nd ed.) (pp. 1-18). Alexandria, VA: TESOL.

Ertmer, P.A., Ottenbreit-Leftwich, A.T., Sidiki, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration

practices: A critical relationship. *Computers & Education,* 59, 423-435.

Garrett, N. (2009). Computer-assisted language learning trends and issues revisited: Integrating innovation. *The Modern Language Journal*, *93*, 719-740.

Gass, S., & Madden, C. (Eds.) (1985). *Input in second language acquisition*. Rowley, MA: Newsbury House.

Godwin-Jones, R. (2011). Mobile apps for language learning. *Language Learning & Technology*, *15*(2), 2-11.

Good, T.L., McCaslin, M., Tsang, H.Y., Zhang, J., Wiley, C.R.H., Bozack, A.R., & Hester, W. (2006). How well do 1st-year teachers teach: Does type of preparation make a difference? *Journal of Teacher Education*, *57*(4), 410-430.

Gordon, M. (2007). Introduction. In M. Gordon & T.V. O'Brien (Eds.), *Bridging theory and practice in teacher education* (pp. xi-xvi). Rotterdam, The Netherlands: Sense Publishers.

Hanson-Smith, E. (2006). Communities of practice for pre- and in-service teacher education. In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL* (pp. 301-315). Philadelphia, PA: John Benjamins.

Healey, D., Hanson-Smith, E., Hubbard, P., Ioannou-Georgiou, S., Kessler, G., & Ware, P. (2011). *TESOL technology standards: Description, implementation, integration*. Alexandria, VA: TESOL International.

Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational Technology Research and Development*, *55*(3), 223-252.

Hubbard, P. (2008). CALL and the future of language teacher education. *CALICO Journal*, *25*(2), 175-188.

Hubbard, P., & Levy, M. (2006). The scope of CALL education. In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL* (pp. 3-20). Philadelphia, PA: John Benjamins Publishing Company.

Kassen, M., Lavine, R., Murphy-Judy, K., & Peters, M. (Eds.). (2007). *Preparing and developing technology-proficient L2 teachers*. San Marcos, TX: CALICO.

Kern, R.,& Warschauer, M. (2000). Theory and practice of network-based language teaching. In M. Warschaucer and R. Kern (Eds.), *Networks-based language teaching: Concepts and practice* (pp.1-19). New York: Cambridge University Press.

Kessler, G. (2007). Formal and informal CALL preparation and teacher attitude toward technology. *Computer Assisted Language Learning*, *20*(2), 173-188.

Kessler, G. (2010). When they talk about CALL: Discourse in a required CALL class. *CALICO Journal*, *27*, 376-392. Retrieved from https://www.calico.org/memberBrowse.php?action=article&id=801

Kessler, G. & Bikowski, D. (2011). The influence of SLA training in curricular design among teachers in preparation. *CALICO Journal*, *28*(2), 522-545.

Kessler, G., & Plakans, L. (2008). Does teachers' confidence with CALL equal innovative and integrated use? *Computer Assisted Language Learning*, *21*(3), 269-282.

Kleiner, B., Thomas, N., & Lewis, L. (2007). *Educational technology in teacher education programs for initial licensure* (NCES 2008-040). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

Knezek, G., Chiristensen, R., & Rice, D. (1996). Changes in teacher attitudes during information technology training. *Technology and Teacher Education Annual,* 1996, 763-766.

Koehler, M.J., & Mishra, P. (2005). What happens when teachers design educational technology? The development of technological pedagogical content knowledge. *Journal of Educational Computing Research*, *32*(2), 131-152.

Kolaitis, M., Mahoney, M.A., Pomann, H., & Hubbard, P. (2006). Training ourselves to train our students for CALL. In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL* (pp. 317-332). Amsterdam: John Benjamins.

Lam, Y. (2000). Technophilia v. technophobia: A preliminary look at why second language teachers do or do not use technology in their classrooms. *Canadian Modern Language Review, 56,* 389-420.

Lawless, K.A., & Pellegrino, J.W. (2007). Professional development in integrating technology into teaching and learning: Knowns,

unknowns, and ways to pursue better questions and answers. *Review of Educational Research*, *77*(4), 575-614.

Lee, L. (2004). Learners' perspectives on networked collaborative interaction with native speakers of Spanish in the US. *Language Learning & Technology*, *8*(1), 83-100. Retrieved from http://llt.msu.edu/vol8num1/lee/default.html

Maddux, M., Badger, R., & White, G. (2001). Changing values: What use are theories of language learning and teaching? *Teaching and Teacher Education*, *17*(8), 949-963.

Maddux, C.D., & Johnson, D.L. (2006). Type II applications of information technology in education: The next revolution. *Computers in the Schools*, *23*(1/2), 1-5.

McLaughlin, B., Rossman, T., & McLeod, B. (1983). Second language learning: An information processing perspective. *Language Learning*, *33*(2), 135-158.

McMeniman, M., & Evans, R. (1998). CALL through the eyes of teachers and learners of Asian languages: Panacea or business as usual? *On-CALL Online, 12*(1), 2-9.

Okan, Z. (2008). Computing laboratory classes as language learning environments. *Learning Environments Research*, *11*(1), 31-48.

Ottenbreit-Leftwich, A.T., Glazewski, K.D., Newby, T.J., & Ertmer, P.A. (2010). Teacher value beliefs associated with using technology: Addressing professional and student needs. *Computers & Education*, *55*(3), 1321-1335.

Ottenbreit-Leftwich, A.T., Brush, T.A., Strycker, J., Gronseth, S., Roman, T., Abaci, S., vanLeusen, P., Shin, S., Easterling, W., & Plucker, J. (2012). Preparation versus practice: How do teacher education programs and practicing teachers align in their use of technology to support teaching and learning? *Computers & Education, 59*(2), 399-411.

Oxford, R., & Jung, S-H. (2007). National guidelines for technology integration in TESOL programs: Factors affecting (non)implementation. In M. Kassen, R. Lavine, K. Murphy-Judy, & M. Peters (Eds.), *Preparing and developing technology-proficient L2 teachers* (pp. 23-48). San Marcos, TX: CALICO.

Peercy, M. M. (2012). Problematizing the theory-practice gap: How ESL teachers make sense of their preservice education. *Journal of Theory and Practice in Education*, *8*(1), 20-40.

Pellegrino, J., Goldman, S., Bertenthal, M., & Lawless, K. (2007). Teacher education and technology: Initial results from the "what works and why" project. *Yearbook of the National Society for the Study of Education*, *106*(2), 52-86.

Project Tomorrow. (2009). *Learning in the 21st century: 2009 trends update*. Retrieved http://www.tomorrow.org/speakup/learning21-Report_2009_Update.html

Romano, M. T. (2003). *Empowering teachers with technology*: *Making it happen.* Lanham, MD: Scarecrow Press.

Slaouti, D., & Motteram, G. (2006). Reconstructing practice: Language teacher education and ICT. In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL* (pp. 81-97). Philadelphia, PA: John Benjamins.

Smith, E.R. (2007). Integrating theory and practice in an English methods course: Developing a teaching stance. In M. Gordon & T.V. O'Brien (Eds.), *Bridging theory and practice in teacher education* (pp. 47-60). Rotterdam: Sense Publishers.

Stockwell, G., & Hubbard, P. (2013). *Some emerging principles for mobile-assisted language learning*. Monterey, CA: The International Research Foundation for English Language Education. Retrieved from http://www.tirfonline.org/english-in-the-workforce/mobile-assisted-language-learning

Van Deusen-Scholl, N., Frei, C., & Dixon, E. (2005). Coconstructing learning: The dynamic nature of foreign language pedagogy in a CMC environment. *CALICO Journal*, *22*(3), 657-678.

Wheeler, M., Renchler, R., Conley, K., & Summerlight, S. (Eds.) (2000). *National educational technology standards for students: Connecting curriculum and technology*. Retrieved from http://files.eric.ed.gov/fulltext/ED473132.pdf

Wildner, S. (1999). Technology integration into preservice foreign language teacher education programs. *CALICO Journal*, *17*(2), 223-250.

Wilson, S.M., Floden, R., & Ferrini-Mundy, J. (2001). *Teacher preparation research: Current knowledge, gaps, and recommendations*. Seattle:

University of Washington, Center for the Study of Teaching and Policy.

Xiao, Y. & Wong, K. (2014). Exploring heritage language anxiety: A study of Chinese heritage language learners. *Modern Language Journal, 98*(2), 589-611.

Yao, T. (1997). A review of some Computer-Assisted language Learning (CALL) software for Chinese. In S. McGinnis (Ed.), *Chinese pedagogy: An emerging field* (pp.255-284). Chinese Language Teachers Association Monograph #2.    Columbus, OH: Foreign Language Publications.

Yao, T., Xiao, Y., Magrieny, C., & Wong, K. (2011). Teaching Chinese through interactive and collaborative online social networks. *Journal of Chinese Language Teaching and Research in the U.S.*, 2011, 103-114.

Yao, T. (2013, November). Xiaweiyi daxue he Meiguo de zhongwen jiaoxue [University of Hawaii and Chinese Language Instruction in the United States]. A paper presented at the International Conference on Chinese Language Education Commemorating the 60th Anniversary of the Chinese Language Institute at Jinan University, Jinan, China.

Zhao, Y., & Cziko, G. A. (2001). Teacher adoption of technology: A perceptual control theory perspective. *Journal of Technology and Teacher Education*, *9*(1), 5-30.

Zhao, Y. (Ed.). (2003). *What should teachers know about technology: Perspective and practices.* Charlotte, NC: Information Age Publishing.