

RETHINKING TRANSFER: LEARNING FROM CALL TEACHER EDUCATION AS CONSEQUENTIAL TRANSITION

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Behind CALL teacher education (CTE) there is an unproblematized consensus of transfer, which suggests a positivist and tool-centered view of learning gains that differs from the sociocultural focus of recent teacher education research. Drawing on Beach's (2003) conceptualization of transfer as *consequential transition*, this qualitative study seeks a cross-contextual understanding of language teacher learning with digital technology as the teachers in this study moved from a CTE course back to their own teaching contexts. Near the end of a CTE course, 19 in-service language teachers were asked to build connections between their experiences in the course and their teaching by creating a presentation. Four types of connections were identified, including thoughtful action planning, past experience refinement, and limited and reluctant use. In-depth interviews eight months later with four of the teachers found that they could seldom use the tools in the ways they had planned. However, they each experienced consequential transition as they struggled to reflect on their CTE course experience in everyday teaching. These results challenge the view that transfer in CTE must be about using technology. It is suggested that a focus on critical reflection of technology use may encourage teachers to continue reflective engagement in the ever-changing and complicated digital learning and teaching context.

Keywords: Teacher Education, Sociocultural Theory, Language Learning Methodology

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INTRODUCTION

One feature of computer assisted language learning (CALL) teacher education (CTE) studies is that there is a high expectation for teachers to actually use the technological knowledge, skills, and tools taught in the CTE courses to achieve transfer (Egbert, Paulus, & Nakamichi, 2002; Kessler, 2007) and classroom integration (Hegelheimer et al., 2004; Hong, 2010, Oxford & Jung, 2007). Hong (2010), for example, directly and clearly stated that, “the ultimate goal of CALL teacher education is to enable L2 teachers to integrate CALL technology into their classroom with confidence and knowledge” (p. 53). Technology use as the ultimate goal of CTE is therefore assumed and often accepted as unproblematic.

This emphasis on technology use as the ultimate goal of CTE, however, requires careful examination so that tools do not become the only focus: tools cannot be the only focus. With the rapid development of technology, it makes little sense to simply transfer and use what was learned some time earlier in a CTE class, because newer development often leads to the obsolete of past learning. For example, some earlier CTE courses taught teachers how to make a webpage from scratch (i.e., using html codes). Now, with word processing software, blogs, FaceBook, and course management applications—to name just a few—anyone can easily publish information on the web using menu-driven functions without knowing any of the complicated codes and processes that go on behind the scenes. Thus, the newer and more convenient technology has made it so that web-page creation skills are not as useful as they used to be. Furthermore, human teachers, working closely with learners, play the fundamental role, not the technology itself. As Seymour Papert (1990), a pioneer in educational technology who coined the word *technocentrism* based

on Piaget's 'egocentrism,' put it, "The question is not 'What will the computer do to us?' The question is 'What will we make of the computer?' The point is not to predict the computer future. The point is to make it" (n. p.).

Thus, instead of expecting transfer to be simply using specific types of technology in specific ways, teacher educators may need to help teachers think more deeply about their attitudes and positions toward technology, particularly at a time when digital devices have already occupied an indispensable part of every day classroom life and when newer ones are expected to emerge at a high speed. If not tools, what else might be useful to help teachers meet the challenges of engaging language learners with the technology? Furthermore, if teachers need to think critically and creatively about how to work with or around barriers that exist now and are yet to come (Hubbard & Levy, 2006), then the ways in which teachers build connections as they move between a CTE class and their own teaching contexts be the focus of investigation.

Current thinking in second language teacher education emphasizes teachers' ways of knowing as situated, interpretative, and reflective. Teachers are considered "legitimate knower[s], as producer[s] of legitimate knowledge, and as capable of constructing and sustaining their own professional development over time" (Johnson & Golombeck, 2002, p. 3). If this is the case, teachers will be building their own connections during and after a CTE class. In fact, with the prevalence of network computers and digital devices, many teachers entering CTE classes already have rich experience with technology in their teaching or personal contexts, or have existing classroom practices that they could build upon. However, there has been little understanding of how teachers produce personal knowledge as they build on such experiences with their learning from CTE classes.

This study, therefore, aims to develop a cross-contextual understanding of CALL teacher learning: how language teachers build connections with their existing teaching practice during a CTE class and how they engage in a critical review of CALL knowledge afterwards. Most importantly, to what extent do the teachers' experiences support, problematize, or suggest an alternative to the transfer, tool-centered, and product-oriented assumptions of CALL teacher learning? The research questions are stated as:

1. In what ways do language teachers build connections and develop pedagogical solutions during a CTE course?
2. Eight months after the CTE course, to what extent has what the teachers learned or experienced influenced their language teaching practice?

LITERATURE REVIEW

Much interest in researching CTE has been observed in recent years, including two dedicated volumes on this topic: Hubbard and Levy (2006) and Kassen, Lavine, Murphy-Judy, and Peters (2007), as well as special journal issues published by *Innovation in Language Learning Technology* (White & Reinders, 2009), *ReCALL* (Guichon & Hauck, 2011) and *Computer Assisted Language Learning* (Thang & Gobel, 2012). Other papers are also published in major journals that routinely publish papers in CALL or second/foreign language education. According to Hegelheimer et al. (2004), CTE studies tend to address two major issues: teachers' views on technology (including their attitudes, assumptions, and beliefs) and transfer from teacher education (including integration and impact). Guichon and Hauck (2011) identified four key topics: (a) how teachers use technologies, (b) what attitudes they hold towards technologies, (c) what counts as competences for teachers to teach a language with technologies, and (d) how they reflect on the teacher education or professional development experiences. It is clear that interest in the effect of CTE is strong and that there has been a high expectation for teachers to use the knowledge and skills learned in a CTE class, preferably, in Ertmer's (2005) term, "high-level use" (p.25), or using technology in a student-centered or constructivist way.

There have been many different conceptions of transfer over more than a hundred years of research (Tuomi-Gröhn & Engeström, 2003), including concepts of transfer that are based on tasks, cognitive processing, situations, social participation, and many others. The underlying theoretical framework for most of the transfer studies in CTE can be considered as classic transfer, which aims for direct transfer of knowledge and skills between similar tasks or contexts. For example, Egbert et al. (2002), one of the most widely cited studies on the transfer of CTE, asked teachers who had taken a CALL class during the previous ten years to fill out a survey. There were also interviews, trying to understand how teachers used the knowledge and skills obtained in the class experience over the years. They identified four separate but related factors for transfer to happen: (a) how teachers learn technology, (b) the interaction between coursework and the classroom, (c) factors affecting technology use, and (d) professional development in technology use (pp. 108-109). Ertmer (1999), on the other hand, argued that well-designed professional development experiences can lead to technology integration. Particularly, challenges related to teachers' beliefs, assumptions, and knowledge levels can be resolved by school-based professional development experiences. Hong (2010) also considered insufficient teacher education to be one factor that can hinder technology use. As can be gleaned from these studies, it is clear that transferring what is learned in a CTE class-to classroom practice is expected, although many contextual challenges are involved. Specifically, sufficient and appropriate resources, materials, on-site support, curriculum flexibility, time, technical knowledge, skills, and attitudes are all crucial for transfer to happen (Egbert et al., 2002).

But, the core of the matter is actually cross-contextual challenges, such as how teachers' agency interacts with the particular context that they work in as they move from the university CTE class to their own classrooms. While in the university CTE classroom, they may develop views that are more consistent with the teacher educator's. But, in the school classroom, teachers would surely have their own views toward CALL that are based more on the particular teaching context they are situated in. Their agency as CTE learners can be very different from that as CALL teachers in the classroom. This does not mean they fail to transfer what is learned in the CTE course; on the contrary, it could be a deeper level of learning.

This thought is inspired by the sociocultural view of transfer. Acknowledging the importance of sociocultural contexts for transfer, Beach (2003) proposed a new conception called *consequential transitions*—critical changes that come about through deep and struggling reflection. Examples of consequential transitions all involve some kind of boundary crossing, such as moving from school to work after graduation, taking part-time jobs after school, experienced teachers responding to educational reform, as well as becoming an apprentice. Such changes often involve identity shifts and have lasting impacts as the individual moves across different contexts and learns to be a professional.

There has not been much research on language teachers' knowledge construction and identity shift as they move from a CTE class to a school context. Many past studies depended on survey or other self-reported data to identify the results of teacher education (e.g., Bai & Ertmer, 2008; Egbert et al., 2002). Other studies employed the case study approach, documenting the course design as well as experience and also using student comments as evidence for positive outcomes (e.g., Bauer-Ramazani, 2006; Hampel, 2009). Fewer CTE studies actually embrace the concept that teachers are agents capable of creating knowledge of their own (Johnson & Golombek, 2002). For example, Slaouti and Motteram (2006) focused on teachers' reconstruction narratives that were reflective and based on "a critical review of an area of interest to the teachers" (p. 89), but the study does not report any products created by the teachers. Chao's (2006) teacher participants created WebQuests, or web-based inquiry projects, in a CTE course for their teaching contexts, but the teachers' consequent development was not discussed. Studies focusing on both teacher-created products in the CTE class and their thoughts developed later in a concrete context would better inform the meaning making process based on the CTE course experience in the teachers' overall professional development. Such studies would also lead to a deeper understanding of what is learned a certain period of time afterwards, when many personal and contextual factors stand as barriers or are perceived by the teacher as affordances.

METHODOLOGY

This study focuses on teachers' perspectives on their learning from a CTE class through the lens of a qualitative case study. Gall, Gall, and Borg (2007) use four features to define case study research: It is "(a) the in-depth study of (b) one or more instances of a phenomenon (c) in its real-life context that (d) reflects the perspective of the participants involved in the phenomenon" (p. 447). As will be described later, these features are also present in the current study: an in-depth study of CTE learning in the natural context focusing first on 19 teachers' presentations during a CTE course, and later on four of the teacher participants' evolving experiences and perspectives. Through layers of data collection and analysis procedures, this study expects to develop an understanding of how the teacher participants made sense of their CTE course experience as they moved across the boundary between the CTE course and their own teaching contexts.

Context and Participants

The context of the study is a summer graduate-level CTE course for in-service K-12 teachers, taken at a university in Taipei, Taiwan. The course focused on multimedia in English language instruction, teaching less the technology skills themselves, but rather more a combination of all the components of technological pedagogical content knowledge, or TPACK, as discussed by Koehler and Mishra (2008) and Mishra and Koehler (2006). In other words, the course aimed to take into consideration the complex interaction among language learning content (i.e., reading, writing, speaking, listening, and others), pedagogy (i.e., communicative language teaching and task-based approaches), and technology (i.e., affordances and constraints of different technological tools). The other emphasis of the course was developing attitudes and skills for teaching English in a learner-centered way while also reflectively meeting the challenges brought by digital media. In addition to CALL concepts and applications, discussions also covered more current concepts, such as multiliteracy and game-based learning mediated by Web 2.0 social media and mobile devices. (See [Appendix](#) for the course agenda).

The researcher was the teacher educator and instructor of this course, while the participants were 19 practicing K-12 English teachers (18 female, 1 male), with teaching experience ranging from two to ten years. All of them already had experience using computers in the English classroom prior to the class, but mostly with applications such as *PowerPoint* (PPT), *Word*, and *YouTube*. In addition, they generally practiced a teacher-fronted instructional style. This CTE class, on the other hand, placed a large emphasis on the concept of learner-centeredness and creative language learning encouraged by new digital media. The differences between the course emphases and the participants' existing practices created a tension; it was within this tension that the teachers were asked to demonstrate how they connect their classroom practices and knowledge development through a presentation at the end of the course.

The Presentation

The requirements for the presentation were stated in an open-ended way:

There is no limitation to the format of your presentations, not even the number of pages, but it must show your efforts to connect your world and the [expected] course content. "Your world" means who you are as an English teacher, your teaching/learning contexts, your needs, and your identity. You are also expected to demonstrate the linkage to the class discussion. It is not something you put together off-handedly before the presentation in order to make do.

Most of the teachers presented projects that they would like to have students engage in using presentation software, such as *PowerPoint*, but others used a word-processing document or a weblog to document their own learning and thoughts. The projects the teachers designed for their students, as well as their narratives on the projects during the presentation captured by videos constituted the data for the first stage of the current analysis. All of the teachers were also required to complete a reflection form after the

presentation. The data sources for the first stage of analysis thus include the video presentations, *PowerPoint* slides, word files, or web pages that the teachers used in their presentations, and the completed reflection forms handed in by the teachers at the end of the course.

Eight months after the course, four of the teachers were contacted for a follow-up visit and with their informed consent, we conducted an in-depth interview with each of them. These teachers were chosen mainly because their work represented one of the four types of teacher-made connections identified in the data, including a thoughtful action planner, a past experience refiner, a limited user, and a reluctant practitioner. The purpose of these follow-up interviews was to inquire about teachers' plans and how their thoughts about CALL learning had evolved since the course. The interviews were semi-structured and conducted by graduate assistants with training provided by the researcher. The languages used during the interviews were either Mandarin or English, depending on the teacher's preference. Each interview lasted from 45 to 60 minutes and took place at a location chosen by the teacher. The interviews were captured using a digital recorder and were later transcribed verbatim for analysis.

Data Analysis

There were two stages of the data analysis procedure: first, all the presentations were transcribed, then a constant comparative analysis (Miles & Huberman, 1994) method was adopted to analyze the data. Looking at the videos of the presentations and their transcripts, the researcher and her assistants worked to categorize and identify types of connections the participating teachers made. Through repeated discussions, debate, and comparison and contrast while triangulating among all the other data sources, it was decided that four general types of teacher connections could be identified. Teachers who had a thoughtful and concrete plan for application were identified as thoughtful action planners. Those whose presentation mainly focused on a past practice and a refinement based on the learning from the course were labeled as past-experience refiners. When the teachers' understanding seemed to have missed the point or made seemingly little connection between the project and the curriculum, we identified them as limited users. Finally, there was a case of reluctant application because this teacher's presentation was brief, appeared to lack preparation, and did not delve deeply into her concerns. Thus, the first stage of analysis yielded seven cases of thoughtful action planning, four cases of past-experience refinement, seven cases of limited use, and one case of reluctant application.

As for the interview data collected eight months after the CTE course, there were also two steps to the analysis. The first was reconstructing each of the four participants' profiles based on their narratives detailing how they used technology when teaching English before and after the course. The second step followed the content-holistic procedure in narrative inquiry (Lieblich, Tuval-Mashiach, & Zilber, 1998) which allowed the study to derive themes through comparing and contrasting the four teachers' experiences. When taken together, both of the analysis procedures helped to address the research questions, the results of which are discussed in the sections below.

RESULTS

As discussed earlier, four general types of connections were identified among the 19 teachers' presentations during the first stage of analysis, and four teachers were visited and interviewed eight months later. They were (a) Athena, a thoughtful action-planner, (b) Pan, a past-experience refiner, (c) Lily, a limited user, and (d) Rebecca, a reluctant practitioner. (All names are pseudonyms.) These teachers' profiles and the connections they made at the end of the course are presented in detail below in order to provide the reader with a concrete idea of how the teachers' thoughts evolved. It is important to keep in mind that these teachers' stories are unique and not to be generalized to the other teachers who were not interviewed. However, their experiences are valuable in terms of revealing teachers' CALL knowledge construction process in context.

Athena: A Thoughtful Action Planner

Athena's students were 7th graders who "grew up with the computer." In her presentation, she stated that her goal was to create a learning environment in which students would "learn English holistically and comprehensively" through a CALL project that integrated four skills and took into consideration multiple intelligences and students' diverse learning abilities. She wished that her students would be able to "communicate, express [themselves], cooperate with others, and possess self-learn[ing] ability" (taken from PPT slides). She also hoped they would abandon some of their misconceptions toward the English language, such as taking it as merely an academic subject and not as a real language. Athena's previous experience of assigning a picture book project to her students showed her that they had "difficulty presenting, with obstacles of delivery, [due to] affective factors [i.e., being nervous] and personality reasons [i.e., being shy]." The students' picture book projects also had "few connection[s] to their lives, either [looking] too much [like] a fairy tale or too childish" (taken from PPT slides). Students' posters for promoting a book that they had read also "appeared too wordy and unattractive." Athena seemed to have used many computer tools and project ideas with her students, but she also revealed some dissatisfaction with her students' performance.

To resolve the issue, Athena derived insight from a discussion on game-based learning in the CTE class. In the past she said she had considered computer games as "totally mind-damaging and a great waste of time," involving nothing but lower-level thinking and lots of meaningless mouse clicks. She described herself as "eagerly wanting to see students achieve English competence, overnight." She wished that students would "write well-structured essays, give error-free speaking and confident presentations, show strong motivation and willingness to communicate, and learn English as a lifelong endeavor." Through the CTE class, she now understood there were actually new kinds of literacies that students might be acquiring as they played online games. She also saw the wisdom in the guided design of computer games. A guided design model, in her understanding, was when the computer game uses many tactics and small successes to familiarize, motivate, and lull the new player into learning the rules and operations required to play the game. When looked at in this way, Athena felt that game design offered much insight for her as a language educator.

Following the guided-design model, Athena, in her CTE class presentation, designed multiple tasks aiming to guide her students through an e-book project. She planned to have her students read a set of young adult novels that depicted lives closely resembling their own. While reading, she would use the opportunity to promote reading strategies such as skimming, scanning, looking at the cover, the book's back, and the illustrations as she had usually done. Then, students would read the book with an aim to provide both written and spoken reports to the class. The students would work in groups to provide three different endings to the story, all of which had to be consistent with the personalities of the characters and logic of the storyline. The three endings would then be posted on *Facebook* for a class poll. All students would be required to participate in the poll and provide comments. Using the results from the poll, the student teams would decide which of the three endings they would use for their storybook. They would then finish the story using *Photostory*, a tool introduced in the CTE class, and post the story to a designated e-book website. In the process, Athena said she would provide many resources to help the students, including a timeline with important benchmarks for the project, video tutorials for *Audacity*, a sound recording and editing program introduced in the CTE class, and a sample e-book created by Athena herself. At the end of the presentation, she specifically linked her ideas back to the CTE course, carefully elaborating on how her project was consistent with the game concepts discussed in the class. She also discussed expected benefits and challenges of this newly designed e-book project. With the concreteness of the steps and the links between her activity and the CTE class, there seemed no doubt that Athena would implement her plans in the following school year; this is why she was considered a thoughtful planner at the first stage of analysis.

Eight months later, when Athena was interviewed, she had not been able to implement her plan and

actually had very little memory of it. She said,

To tell you the truth, it is really difficult to use [the tools experienced in the CTE class] ... because school has its own agenda. You can't say just because I have learned it I have to use it. ... Students in the third year of junior high ... their grammar lessons are becoming a lot more challenging, and I know they may not have mastered [what they will be tested on] ... Under this circumstance, I cannot have them play multimedia simply because I want to. It is true that there are many things [from the CTE class] I cannot use.

In terms of what Athena felt the point was of learning various applications in the CTE course, she said “I got to know the existence of many applications.” She fondly mentioned her experience working on *Asia Inspire* (1998) with her colleagues in the CTE class, even though this software was not discussed in her CTE presentation, nor was it actually used in her current teaching. Even though she could not remember the title, and the software was not available at her school, she still found this experience unforgettable. She said it opened her eyes to the possibility of encouraging cooperative learning with the combined force of a piece of software and some print-based materials—a simple idea that was beyond her experience before the course.

Pan, A Past Experience Refiner

Pan was identified as a past experience refiner because she used the insights from the course to review, refine, or build on her past CALL experiences. Having worked in a subordinate capacity within an external research team, she repeatedly said during her presentation, “I finally understand what I have been doing with a university-sponsored project since two years ago. ... I didn't know it was something I should actually feel proud of.”

The particular project that Pan discussed in her presentation is called, *Tomorrow's Classroom*, a computer program that allowed students in her second-grade class to use a touch-screen tablet computer to study math and literacy skills. Usually, she said, it would be very difficult to have a second grader write just one composition in one semester, but in her school it was not difficult for children to write ten. She thought the reason for this was the large number of books in the classroom serving as input as well as the 30-minute silent reading time every morning. “Everybody would be seriously reading. Nobody would be making any sound. The teacher would also be demonstrating silent reading—that's when I did my own graduate school reading for the past year.” After 30 minutes, the students would use *Tomorrow's Classroom* to record their reading, including how much and what they read in those 30 minutes, what they think about, and whether they liked the book (i.e., their review). *Tomorrow's Classroom* then kept and managed the data, by providing statistic to show group and individual progress, which allowed both the teacher and the students to monitor their learning. The program also allowed the pupils to draw on their understanding of the text, consistent with the multi-literacy concept discussed in the CTE class. In addition, classroom activities could be designed to ask students to report their readings to the class or in small groups, or to participate in story-telling competitions. She remarked excitedly, “This activity could literally engage the students in the integrated development of all four skills.”

Pan reported that the design of the program uses the metaphor of a solar system to organize the different user functions according to the hierarchy of the school community: it assigns a particular star for a class, a cluster of stars for a grade level, and several star groups to form a solar system, which represents the entire school. It also assigns tasks for students differentiated according to levels of understanding and packaged in a way similar to missions in a computer game. “For example, you could be a prince and you need to save a princess from distress by solving the assigned puzzles... or as the owner of a restaurant, you need to collect certain ingredients in order to make a curry dish.” The keeping of reading records at the individual level also took the metaphor of a bookstore. Pan said,

When you enter a record of a book that has been read, the book icon would show up in your personal bookstore. Pretty soon you will have a big collection of books in your store with your evaluations and comments. When other readers heed your recommendation, you would earn an amount of token money, which allows you to buy ornaments for your store.

These designs and metaphors did not come easily, Pan explained. She and the other teachers on the team had been attending workshops and meetings every Wednesday afternoon for the previous two years, but she did not understand the importance of these meetings until the CTE course. As to what was discussed in the workshops, she reported that the teachers made suggestions based on their observations and experiences. For example, the program used to provide questions with only two options to choose from as the answer. If the child failed to answer correctly the first time, she could easily figure out the right answer. The teacher team therefore suggested redesigning the questions to give only hints, not the correct answer. If the child still had problems with the hint, the program could give the child similar questions to make sure that she really had developed the expected capability. “That’s the kind of thing we discussed on Wednesday afternoons,” she said.

At the end of the presentation, Pan revealed her regrets. She said she set a strict rule that whenever the computer was in use, nobody should be talking. She would say to her class:

I don’t want to hear a single sound. If you have questions, the program will give you hints. If you still have questions, go check out the textbook. If after consulting the textbook and there are still questions, please come ask me.

Now that she understood many aspects behind the design of a computer game, and also that the *Tomorrow’s Classroom* project was meant to both develop skills and to motivate, Pan explained “I feel that I failed to encourage them to work cooperatively.” Pan said that *Tomorrow’s Classroom*, the whole project, was actually the result of close collaboration among many different stakeholders on many different levels. Even the parents’ voices could be heard and considered during the discussion. “It’s just that my teaching strategy was not made consistent with the key principle of the program. ... My own understanding of CALL teaching at the time was insufficient.”

Eight months later, when we interviewed Pan again in her school, *Tomorrow’s Classroom* was still in use, and Pan was still concerned about cooperation and interaction. She noted:

Before the CTE class I was skeptical. I saw the kids each working on their own and making their own progress, and I was concerned that there would be a certain level of remoteness and coldness among them. ... After the course, my observation shows that this concern may [not be warranted]... It all has to do with personality because some children who are eager about finishing the tasks would actually work closely with their peers to reach their goals. ... Now I know the computer does not stop human interaction. It just makes it happen in different ways.

Another concern was the limitations of the program:

As a teacher, I hope the kids will learn how to figure out the answer by themselves, but the program tends to give it out directly. After the course, I understand that it is the teacher who should design different mechanisms or classroom activities to make sure that learning and interaction happen.

Pan also said, “Technology is not a dead artifact. It interacts with you, and it changes with your thoughts. I developed a totally different kind of thoughts toward the technology in the class.” As the only member of the CTE class who was able to engage in the same project she had discussed in her final presentation,

Pan's struggle and thoughts were continuously focused on the human aspects of the activity, wanting to understand her students better as they worked on the computer.

Lily, A Limited User

Lily was a teacher who collected everything experienced in the course; there was little of her personal touch in her presentation. As a part-time teacher at a small private kindergarten which had few resources or support for the teacher's use of computers, she knew there would be few opportunities for her to apply what she had learned in the CTE course and thus decided from the very beginning to simply collect information and thoughts as faithfully as she could by using a web blog. "I want all my experiences 'to go.' I also want convenient access whenever I need them."

The tool that Lily used in her presentation and to show her connection between the CTE class and her teaching was a blog, supported by some photos that she took during class, that recorded her experiences and thoughts as they emerged in the CTE class. She seemed to take much of her learning from the CTE class as knowledge that must remain intact. There was little application, synthesis, or analysis of her own, at least not in a way that the other teachers such as Athena and Pen attempted to think about.

She titled her blog *A Treasure Chest of CALL*, within which she collected notes, photos, insightful statements to remember, and her own thoughts and responses, all organized chronologically. She added,

I didn't try to change my earlier thoughts or wording because I could see, as time goes by, how my thoughts change from simple to more complex ... from shallow to becoming deeper into the meaning of technology in language education.

Eight months later, when the research team interviewed Lily and asked why she thought it was important to collect information and thoughts as she had done in her blog, she said she had always felt regretful about forgetting what she had learned in the summer courses when she returned to teach. A blog was the best way she knew to help her remember.

When asked what the most impressive experience was from the CTE class, she discussed her insights derived from the online game discussion. In addition to the guided-design instruction similar to what Athena (the thoughtful action-planner) pondered on, the online game discussion also made Lily reflect on her previous teaching practice:

I have been teaching for a long time... almost 11 years. I was always very clear about pointing out whether or not the students did it right. When you are right, you get an apple [sticker] right away. When you are wrong, I'd give you a big X. ... But, after this CTE course, I started to think ... it is important to give students opportunities to try.

This insight came from a discussion on the design of online games in class, which she still remembered eight months later:

...good online games ... they never let kids feel strong frustration. Even when you die, you can still come back and try again. Thus, when they [students] make a mistake, it is important to help them stand up straight again—just like in an online game, as long as you find a way to recharge your energy level, you can always come alive and you can still play.

She concluded by saying, "I no longer feel frustrated about student mistakes. It's all right to make a mistake. We could always try again. I myself became a happier teacher because of this." Lily also talked about how, before taking the class, she saw nothing but the negative side of online games:

Online games are indeed interesting, but my thought toward them before the class was completely

negative. . . . Let me put it this way: I had no good impression toward anybody who was addicted to games. Before the class it had never occurred to me that there would be some researchers trying to figure out the tactics that online games used to lull players into playing the game and what these might mean to language educators. This deeper level of thinking about games was something I had never thought about. I was very surprised that there were actually rich insights in games.

Although her context did not encourage technology use, Lily actually used many of the tools introduced in the CTE class over the next eight months, specifically *Audacity* and *Picpick*. She said, “*Audacity* allows me to edit songs for kids, and *Picpick* is useful for creating pictures for classroom activities.” Since it was inconvenient for her and her students to use computers in the classroom, Lily used these tools to prepare her teaching material. This use is different from the kind of learner-centered use that the CTE class had advocated, but given the confinement of Lily’s teaching context, this usage and her memory collection through her blog are both based on the unique features of her context. The connection she made might not be as complex as the others’ in terms of technology use, but the reflective thinking she demonstrated was certainly no less profound than the other participants’ reflective thinking.

Rebecca, The Reluctant Practitioner

Rebecca, a junior high school teacher, was considered a reluctant practitioner when her final presentation was analyzed. During her presentation, she spoke in a tone that was rather disinterested, touching on her concerns very briefly and quickly; she gave the impression of resistance. For example, when online games were mentioned, Rebecca said,

I asked my students why they liked online games. They said they could get real money, kill time, and experience things that were not possible in real life . . . I also enjoy playing online games, and from time to time I think about whether or not one could use it in language teaching. But, I still have a lot of doubts. What if they [the students] enjoy the game more than learning English? I am still thinking how to overcome challenges like this. Maybe it will be possible in the future.

As I have already discussed in the previous sections, the point of the online game discussion was actually not about “using it in language teaching,” but rather to encourage a deeper insight into language instruction. Thus, at the first stage of analysis, Rebecca’s statements, in addition to being short and offhanded, also suggested that she did not grasp the meaning of this discussion. In other words, she could also be placed under the limited user category.

Eight months later, when we interviewed her, Rebecca said the CTE course was new and interesting, but the final project assignment was difficult and too abstract. She was constantly anxious about what to present, to the point that she often questioned why she had taken this course. This comment explained why there seemed to be resistance in Rebecca’s presentation. She admitted, “I was not a particularly good student at the time.”

Rebecca also said that she “was not going to accept the invitation for this interview, but then I realized I did have a few things to say about what I learned last summer.” In fact, she actually expressed pride toward what she had learned:

English teachers in my school had no idea what we had experienced in the [CTE] course. I am not the youngest teacher, but [after the course] I could help the computer teacher to help my colleagues. This, I think, is the most remarkable. I thought I wasn’t a good student and didn’t learn anything from the course, but the truth is I didn’t know what I had learned until I returned.

The biggest gain from the CTE course for Rebecca was that she “didn’t know that it was possible to

integrate everything that is fun into language teaching.” She said she was actually more excited about the technology than she was about using it for educational purpose. “Even if I was concerned, the digital media will still be ... continuously developed. I don’t think I have any power to stop it. ... Up to now, most digital media for me are exciting.”

Rebecca said that after she returned to school, when she sometimes thought about the CTE course experience, she realized that she could revise some of the ideas in minor ways to make them work for her. For example, instead of using technology tools for the actual teaching of language, Rebecca used them to interact informally with her teenage students. She positioned herself as an adult who enjoyed playing the most popular games just as much as her students. This method successfully brought the students close to her:

I play games on computers or on cell phones so I will have some topics to talk [to the students]. I encourage them to discuss with me and sometimes to teach me some tactics to pass [through challenges in] a game. I would try my best to learn something that interests them so that we have some common topics to talk about. I encourage them to speak in English with me when discussing games. I think that’s one way [to help them]. Yes, it is helpful ... even though I can’t use most of the digital media to teach them English. I think this [method] helps me have more topics or opportunities to access their lives, and sometimes they are willing to tell me their feelings. I think it’s great.

Very different from the way that she presented at the end of the CTE course, there was a lot of excitement and passion in her voice:

[As a person of] my generation, I am so proud that I am not afraid of digital media, and I always try my best to know new things. Yes. I try to learn something [the students] know but [people] of my age don’t.

Rebecca also expressed deeper insights about supporting student learning with digital media:

Even though [the students’] computer skills are getting better than before, we still need to teach them [proper ways] to use digital media. ... I think students now only know how to ... google. In fact, they are not as familiar with some programs [as we think]; they don’t even know. ... They don’t know they’ve already had *Movie Maker* on their computer and don’t know how to use it. ... If we use these tools in our teaching, maybe we can attract [them and raise] their interest more. ... they can understand more about the English lessons, not just the computer.

From being reluctant in the course presentation to being excited about what she did eight months later, Rebecca’s change could be considered the most dramatic and exciting among the four teachers. It is possible that she was not reluctant at all but needed more time to think about and process what she had experienced in the CTE class.

DISCUSSION

Based on the results of the study, there are two assertions to be discussed in this section.

1. The participating teachers seldom used the digital technology neither as they nor as the teacher educator had expected.

The four teachers’ experiences demonstrate that the teachers did not often use the tools in ways that the teachers or the teacher educator had expected them to. Consistent with previous studies (Egbert et al., 2002; Ertmer, 1999), the teachers had few opportunities to use the particular tools or applications as they

had planned or to use the tools with their learners in a learner-centered way, as had been advocated in the CTE class, unless one had already been engaged in an organized project before the class, such as Pan, the past experience refiner. Transfer did not happen even for Athena, who was considered a thoughtful action planner at the end of the course and was thought likely to implement her project. Her reason for not implementing her project was that her students had more important goals to achieve (i.e., mastering certain grammar points). This comment suggests that Athena perceived conflicting agendas between the school and the graduate CTE class, so much so that she now considered her project, which was originally highly praised at the end of the course, to be unhelpful for students in achieving the more important learning goals.

For the teacher educator, this response can be disheartening, but it is true that the particular context a teacher works in is going to be much more influential and capable of determining whether or not and to what extent the teacher uses what is learned from the CTE class. In fact, Lily, the limited-user teacher, was confined exactly because she thought about the scarce resources and opportunities that would be available to her while she was taking the CTE course. Taking into account what previous researchers have found regarding the conditions for transfer to happen (Egbert et al., 2002; Ertmer, 1999; Hong, 2010), this result is not surprising. Perhaps CALL teacher educators need to take it as the norm, rather than the exception, that teachers will most likely not use the digital technologies, or at least not use them in the way that is expected. Instead, newer ways of using the knowledge, skills, and tools will emerge, if the teacher is willing.

2. The teachers continuously engaged in deep reflection regarding their interaction with the digital technologies in the context that they teach in, which led to unexpected thoughts, classroom practices, and a change of teacher identity.

If teachers are not going to use the tools or use them in the way teacher educators expect them to, what then is the purpose of taking the CTE course? When asked about the meaningfulness of taking the CTE course, teachers typically gave a “storage for the future” kind of answer, implying that they thought the course did not have a real use. Such answers still justify participating in the CTE course, as it is an opportunity to collect a large amount of information to be used later; information that the teacher could dig up and use when they identify a need in the unspecified future. However, a different and better reason than this was found in the teachers’ narratives.

What was really surprising in the interview data was the depth of reflection and understanding that the four teachers demonstrated eight months after the class, when they were interviewed in each of their own teaching contexts. One such case of reflection was provided by the only teacher that was still engaged in her project eight months after the course: Pan, the past experience refiner, who had been part of a large-scale project team before the CTE class and still was during the time of the interview. During the presentation, Pan said that thanks to the CTE course, she finally understood what she and her team had been doing with the *Tomorrow’s Classroom* over the previous few years. Pan also revealed her concern with collaboration: that students seemed to be working individually and independently in the program. During her course presentation, she said she felt guilty about the ways she had been conducting her class, including not being able to encourage collaboration when the computer was in use. Eight months later, she said she understood how the computer program functions were not a given, and that as a teacher she could help make a difference. Only after time had passed did she understand her own position in the project: she was no longer a passive teacher member who could only take in whatever the computer gave her.

Through reflection, the other teachers also applied the tools and/or concepts discussed in the CTE course in their own ways, although again, not as they had expected. Lily, for example, who is considered a memory collector, trying to pack all the knowledge so she could take it “to go,” turned out to feel continuously inspired by the game discussion. The CTE advocated learner-centered usage. That is, it is

the students who should be the ones using the technologies in creative projects, not the teacher. However, Lily used the tools introduced in the CTE course more than her students did. She used them for preparing her lessons, but she could not have the children use the tools in class as the CTE course had advocated. Given the limitations of her teaching context—a private language school that did not have convenient computer and Internet access in the classroom, and some of the parents’ disapproval of computer use with small children—Lily’s application of the tools was useful and indeed made her teaching life easier than before. According to a reflection on her context, this was a good use of the technology. On the other hand, Rebecca, the reluctant teacher during the presentation, engaged informally in computer games with her students in order to understand the students more and strengthen teacher-student relationships. She also became more confident and excited because of her enriched capability.

These various forms of use were unexpected and developed through time and a deep reflection in the teachers’ teaching contexts. As these forms of practice were not mentioned in the teachers’ final presentations, it is possible to look at these as cases of “transition,” as discussed by Tuomi-Gröhn, Engeström, and Young (2003), which “involves reconstruction of knowledge and skills, rather than merely application or use of something that has been acquired elsewhere” (p. 3). The teachers were able to discuss how their teaching practices and teacher identities had been impacted on multiple levels of complexity. The teachers realized both they and their students were surrounded by new digital technologies, and were willing to examine their previous assumptions as well as attempt new types of teaching practices in order to grow over time and with their students. Particularly, all four teachers mentioned that the discussion of game-based learning had inspired them to reflect on the design of their previous teaching and to provide sufficient scaffolding to help students succeed, just as a game designer would do, including using games as a way to interact with the students on a deeper level. Drawing on Beach (2003), it is fair to say that these teachers actually experienced *consequential transition*. And, interestingly, the transition is not limited to CALL learning environments; it motivates teachers to examine their teaching even when technology is not involved.

This result challenges the conventional view that transfer in CTE must be about using technology; particularly in the ways that teacher educators advocate for before teachers return to their teaching contexts. Based on the four teachers in this study, the experiences that left an impact are related to the deeper reflection of language teaching concepts and classroom practices. A focus on critical reflection of technology use encouraged the teachers to continue reflective engagement in the ever-changing and ever-complicated digital learning, teaching, and living context. This observation resonates with Lawless and Pellegrino’s (2007) contention that “the most important impact a professional development activity can have on a teacher is that of pedagogical practice change ostensibly reflecting a deeper change in pedagogical content knowledge” (p. 595). It is clear that teachers are true agents (Johnson & Golombek, 2002), and they are bound to build and reconstruct their CALL learning in their own ways based on what their teaching contexts provide. Teacher educators may find it useful to think of the result of CTE learning as serendipitous, not as something to be transferred, because the connection is likely to be made in multiple places and in complex forms based on what the teacher’s sociocultural ecology affords and what the teacher perceives to be possible.

CONCLUSION

This study began with a suspicion that transfer may be an inappropriate concept for CTE when examining the impact of CTE curriculum. Informed by Beach’s (2003) conception of *consequential transitions*, (i.e., critical changes that come about through deep and struggling reflection) the study sought to develop a cross-contextual understanding of language teachers’ learning and the connections that they made between their own teaching contexts and a CTE class. Consistent with previous studies (e.g., Egbert et al., 2002), the four teachers interviewed in this study were seldom able to use the tools in the ways that had been introduced to them or that they had planned or expected to, but they were able to continuously

review and refine their understanding and practice based on the CTE experience, whether or not the technology was involved. The reflective engagement that these teachers demonstrated is indeed important for the ever-changing technological context that the teachers work in and should be considered an important objective of the CTE course, if not more so than tool use. It is also important that teacher educators review their own assumptions toward what counts as valuable CALL teacher learning so that they can help teachers develop the necessary skills and wisdom to continuously meet the teachers' contextual needs and challenges.

The study addresses a need for language teacher educators to rethink the goal of CALL teacher education. As digital technology continues to develop and become an indispensable part of everyday classroom life, teacher educators can no longer expect teachers to simply use what was learned from a CTE course in a way that could be anticipated. The results from the study strengthen the view that teachers are agents of their learning and their classroom practice (Johnson & Golombek, 2002) and that CTE courses need goals other than the simple transfer of tool use. Although it is still important to engage teachers in experiencing emerging tools and exploring how the tools may be used in language education, teachers also need to be inspired in a CTE course. The experiences reported here suggest that engaging teachers in critical examinations of their positions toward issues of digital media may lead to continuous reflection on CALL pedagogy long after the course. More research is needed to understand the link between CALL teacher reflection, changing pedagogy, and bringing out the best of the language learner of the 21st century.

APPENDIX: Course Agenda.

Date	Topic	Application
Part I: Social media and language learning: (r)evolution?		
7/9	Pronunciation	<i>MyET</i> (2008)
7/11	Listening/ speaking	<i>PhotoStory</i>
7/16	Multiliteracies	<i>Audacity</i>
7/18	Communicate	<i>LiveMocha</i>
7/23	FB	<i>Facebook</i>
7/25	Online Game	Online games, <i>Second Life</i>
7/30	Tandem Learning	Forms of Tandem Learning
Part II: Mobile Assisted Language Learning (MALL)		
8/1	MALL Introduction	Project-based learning and <i>Webquest</i>
8/6	Dictionary	MALL functions
8/8	Reading	<i>Moviemaker</i>
8/13	Writing	Creative Common, <i>Flicker</i> , <i>Picpick</i> and <i>Toondoo</i>
8/15	Classroom Practice	<i>Zuvio</i> and classroom response systems (CRSs)

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