It Takes a Community to Develop a Teacher: Testing a New Teacher Education Model for Promoting ICT in Classroom Teaching Practices in Chile

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Abstract: This paper adds to the emerging dialogue on best practices in teacher education for preparing future teachers to use technology to promote grounded theory-based practices in their classrooms. In it, I report on an evolving model for such training that resulted from a longitudinal case study examining how teacher trainees' identities, learning and teaching practices changed when exposed to the use of a variety of social networking technologies for language learning in the context of their teacher preparation program. The 12-month classroom-based case study was conducted at a private university in Chile, using a variety of ethnographic tools. I investigated how the integration of certain ICTs into content courses, as opposed to more traditional stand-alone courses on technology use, mattered both in terms of the way the participants viewed themselves as learners and as future teachers of language, as well as of their evolving perspectives on the use of technology for learning and teaching. My aim in conducting the study was twofold: 1) to determine whether innovative technology-infused (TI) courses would serve to enable the beginning teacher participants to shed their traditional, passive, rather narrow cultural mindset as individuals and learners that are contrary to the identities of effective, 21st century teachers; and 2) to see whether opportunities to use a variety of innovative technologies for learning would have an influence on the pedagogies these individuals employed in their teaching practices. While the longitudinal study provided encouraging signs on both accounts within the teacher preparation program, questions remained about whether the model would be supported where it mattered – in 'real' classroom teaching. In this article, I report on follow-up qualitative and numbers-based findings that suggest that, generally, the positive changes were not sustained. These findings provide strong support for the need for teacher education models to be tested in 'real' practice. Importantly, they also uncover the essential ingredient for promoting future teachers' uptake of effective use of ICT's – collective support from all stakeholders within the Teacher Education community

Keywords: ICT in Teacher Education, 21st century teacher identity, ICT-based Teacher Education model, ICT in practice teaching, community-supported teacher training, Teacher Education reform in Chile

1. Introduction

> 'I hope Chilean organizations 'would' have a better role in the future. Nowadays, Chilean people are losing their fear to defend what they want and think if its (sic) correct or not. What we really need as a country is to open our minds to the different opinions and try to be tolerant …and aware of what is happening around us.' (Online post, Marcela, April 2013)

Marcela is a student in a group of pre-service teachers, participating in a 4-year teacher-training program at a large university in Chile. Her comment was posted in an online forum, a virtual site that played a central pedagogical role in a 3rd year English as a foreign language (EFL) course that formed part of the teacher training program. Her words, which are at the same time critical and informed, are atypical of Marcela and many of her classmates. She, like her peers, often struggled to speak in class and to share her views especially on subjects related to political and social issues. Marcela explained her lack of voice in the classroom to her feelings of linguistic inadequacy in front of others and her lack of knowledge and interest in issues beyond her own immediate life. Yet, later in the course, in the online forum, when asked to respond to an article and video on Civil Societies, Marcela adopted a different identity – one of a more empowered, critically-minded and informed individual, when she speaks about the roles that Civil Societies should take and how her Chilean society is changing. Whatever the reason for the dichotomy in learner identities that Marcela displayed earlier in class and then later online, it was clear that the 'in-class Marcela' did not reflect the kind of teacher identity that teacher education (TE) courses are trying to foster. Indeed, Marcela's 'in-class identity' put her at risk of failing to become an effective teacher who would be able to provide the right kinds of knowledge and experience that her future students would need, to become ideal 21st century citizens..

Reference this paper as Charbonneau-Gowdy P. "It Takes a Community to Develop a Teacher: Testing a New Teacher Education Model for Promoting ICT in Classroom Teaching Practices in Chile" *The Electronic Journal of e-Learning Volume 13 Issue 4 2015*, (pp237-249) available online at www.ejel.org

From March, 2013 to July, 2014, over three semesters, I conducted a study of Marcela and her classmates in an attempt to uncover what influence introducing ICT through my technology-infused language courses would have on Marcela and her classmates' emerging teacher identities, as well as on their perspectives of teaching with technology. While technology is being increasingly understood as the driving force in educational change, its importance and influence on pre-service teachers' identities and their own learning and evolving teaching practices, seems to be overlooked in many teacher-training programs. This lack of in-depth discussion on the philosophical and practical issues surrounding technology use that teachers require in the 21st century, is a critical oversight especially in contexts where educational reform, amid other changes, is most needed. Chile is such a context. Despite the relative economic stability Chile enjoys in Latin America, resounding cries for reform in education resonate across the country and are being heard worldwide. The cries reflect a system rife with inequality and caught in traditional industrial-age teaching approaches where information transfer and memorization are still common. Literacy levels are well below international standards and results from OECD standardized tests in many subject areas, are often disappointing. Not surprisingly, teachers are bearing much of the blame, and initiatives to improve teacher training are only beginning to receive government support (Charbonneau-Gowdy, 2012). Regardless of the good intentions of these efforts, technology seems to be off the radar in such teacher preparation programs, or limited to a chapter or two in methodology courses. Without an emphasis on technology, or worse, a critical awareness in the selective use of technology, teacher trainees in these programs risk repeating the very practices that the system is hoping to change. Ignoring such a risk represents a significant concern given that many of these individuals are in the process of forming pedagogical, and importantly, personal beliefs that could potentially influence thousands over the life of their careers.

The aim of the classroom-based study in which Marcela and her classmates participated, was in part to determine if the TI content courses in language learning with a hands-on selective use of technology, would lead to signs of Marcela and her classmates constructing evolving 21st century identities as language learners and future teachers. It was also aimed at determining if the exposure to opportunities to develop 21st century skills supported by technology would have implications for their own use of technology in their teaching practices. The study focussed on developing a preliminary model for course design that could offer a practical example of how TE programs might incorporate the use of technology in their curriculum planning, in order to exploit and promote its advantages in preparing teachers to be effective educators and users of technologies in their own classrooms. The rationale behind developing the model is that conventional teacher-education programs in Chile in particular, may have limited relevance in preparing teachers for responding and teaching students, who are increasingly mediating their social, communicative and informational needs in digital spaces. I also argued that without offering practical hands-on guidance towards meeting these needs during the teacher formation stage, the prevailing practices of analog epistemologies and classroom hierarchies would most probably continue to flourish (Thorne & Reinhardt, 2008: 562) – not the fertile ground for developing critical thinking, innovation, teamwork and the strong communication skills that success in this new millennium is demanding. Nor would this prolonging of the current educational scenario lead to developing the kinds of citizens that social change agents in Chile, as elsewhere, are so desperately seeking.

2. Perspectives/theoretical framework

Facing the new realities of teaching offers multiple and complex challenges as anyone involved in education can attest. In a recent study of five novice teachers, He and Cooper (2011) observed that novice teachers bring their personal experiences and beliefs with them into TE programs (Beijard, Meijer & Verloop, 2004; Levin & He, 2008). Understandably, for teacher candidates torn between developing content knowledge and facing classroom practice for the first time, it is little wonder that many assume the teaching methodologies of their past or have much time for reflecting on the teacher identities that they assume in their first teaching in classrooms. The theories they are being exposed to in their TE programs and the personal resources they bring to their first practice classrooms seem to take a backseat. Instead, intuition and repeating practices that they are most comfortable with from their own previous schooling seem to take precedence. For example, in my experience as a teacher educator, while many of the pre-service teachers attest to spending considerable time interacting and discussing online with friends and acquaintances or working on a project that is due in the context of their university program, when they enter the classroom as practicing teachers they seek silence and demand students to quietly work alone, often banning the use of digital devices. Or even more surprising, while students in my TE courses will claim to be digital natives, at the same time they will plan their lessons for their teaching practices entirely based on textbook exercises and paper-based resources.

Despite the pressure that the explosion of new technologies is having on traditional learning practices in our every day lives (Lund 2014), the use of these networked-based technologies still seems to be ignored or misunderstood in some of the TE programs with which I am familiar. Yet, educational theories that have emerged over the last thirty years and that have led to deep shifts in the way we view learning, point directly to the value of some, although not all, of these technologies in promoting the kinds of changes to which 21st century educational aims aspire. The highly influential theories that emphasize the social-based, dialogic nature of learning (Vygotsky, 1978; Bakhtin, 1994) and that view learning as an act of moving peripheral participants to legitimate participants through promoting of a community of practice (Lave and Wenger, 1991), are deeply reflected in many social communication technologies currently available and their expanding affordances – blogs, wikis, gaming, audio/video web conferencing and virtual worlds. Also, in the context of the use of these tools, theories of identity, especially of interest in the field of language learning (Norton, 2011), have helped to draw a close connection between the use of technology and social change. Indeed, it is being increasingly recognized that the use of technology in our everyday lives is not only profoundly influencing what and how we learn, but also who we are as individuals.

Given the grounded theories mentioned above that would support and promote the use of certain technological tools in formal education settings, as well as a cross-section of more recent research support, (see Varli 2013; Carpenter & Krutka 2014; Kop et al. 2011, for example), the adoption of technology in classrooms has not been without challenges. In many cases, these challenges are deeply imbedded in traditional perspectives of learning at the teacher level and TE programs that fail to alter such views. Recent discussions around the limitations of teachers employing technologies in their practices has led to models targeted at teacher educators, such as the Technological Pedagogical Content Knowledge (TPACK) Model (Misha & Koehler, 2006; see figure 1). The model has been considered promising especially for pre-service teacher instructors who are seeking answers to the challenges they face in preparing teachers to use technology (Polly & Brantley-Dias, 2009). The model supports the idea that at the basis of effective teaching lies the complimentary combination of pedagogical, content and technological knowledge in a way that requires an understanding and the negotiating of all three.

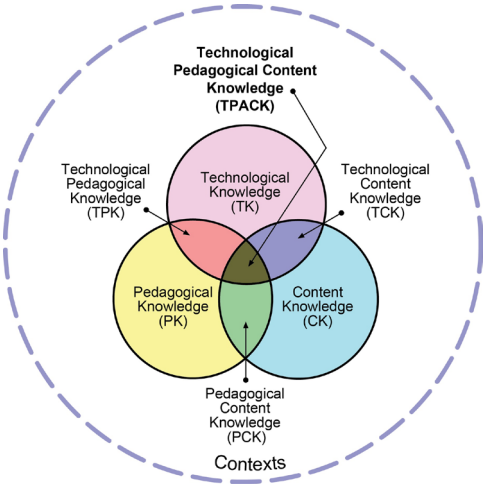


Figure 1: The technological, pedagogical content knowledge model (TPACK). From http://tpack.org. Used with permission.

Yet, while models such as TPACK help us to explain the rationale in incorporating content and pedagogical knowledge building with technological training in TE for example, they fall short in providing what that training would look like in 'actual' TE practice. Calls for further research to determine activities and course designs that would support the kinds of advantages that a teaching framework such as TPACK could lead to, underline the urgency of adapting such a model to specific contexts (Cox & Graham, 2009; Wetzel et al., 2014). Part of this call is in response to the emerging recognition since the beginning of the century that stand-alone technology training courses, where they do exist, are not providing optimal incentive for teachers to incorporate technology into practice (Bielefeldt, 2001). Increasingly, seeking alternatives to stand-alone course approaches are resulting in discussions around the value of incorporating technology practices into content and/or methodology courses.

As a follow-up on the TPACK model, in an effort to connect theory to practice, a number of studies have been conducted to determine the development of TPACK in pre-service teacher candidates. Some of these studies, (Pamuk, 2011; Chai et al., 2010) have had rather limited application. They have been confined to examining teachers in a narrow subset of the teaching field, for example, future teachers of technology, or future secondary teachers only. Among these studies and relevant to our own preoccupations in the Chilean context, is Ögün Koca et al's (2010) inquiry. In their attempts to combine concurrently the development of pedagogical, technological and content knowledge in a course for pre-service secondary teachers of mathematics, data from participant surveys and assignments indicated that development was connected to *changes being constructed in the identities of the participants* from learners to teachers of mathematics. Also and more recently, Wetzel et al., (2014) seeing the need for studies that are longer term and that are not contained only to pre-service secondary teachers, examined the transition from *stand-alone* technology programs for teachers from K-12 to two *technology-intensive* methods courses. Data collected through recorded interviews clearly indicated that "greater modelling of hands-on learning with a focus on content and pedagogical uses of technology from trained instructors" (2014: 89) was required for pre-service teachers becoming more confident teachers of content with technology. In other words, their findings suggest that there is a potential for positive identity changes, i.e. confident teachers, and the adoption of technology in teaching practices of future teachers, if the conditions of teacher instructor modelling and sustained content-based hands on practice with technology are met. Yet, their study's findings were limited only to the pre-service teachers' *perspectives* of whether they would incorporate technology into their future teaching practices. No evidence was sought on actual teaching on the part of these individuals. Indeed, at this point, little follow-up of pre-service teachers' adoption of ICT in their actual classroom teaching has been conducted (Gao & Mager 2013).

A recent study in TE for English as a foreign language, conducted in Taiwan by Tai (2015), was also based on the TPACK model. It investigated the impact of TE workshops on 24 teachers' classroom practices. Her findings revealed there was an impact on the teaching practices of the participants, in terms of their competencies and motivation to use technology in their teaching. On the other hand, the results weighed heavily in favour of teachers using ICT tools for content learning and rote practice of language skills. Findings were less impressive in terms of the teacher participants using tools to promote 21st century skills, not surprising given that the majority of tools that were modelled in the workshops favoured language practice tools rather than social media-based, communicative ones. It is these latter social media-based tools, on the other hand, that have the most potential for fostering 21st century learning and identity changes.

This connection between identity change and the incorporation of technology into teaching practices suffers from a dearth of attention in the research in technology in general, not to mention in TE. Yet the connection is an interesting and a crucial one (Warschauer, 2011 Gee, 2003). Indeed, in the educational contexts of evolving countries, such as Chile, where TE and its success are determined by the extent to which these TE programs produce individuals who can be the drivers of deep social changes, the degree of empowerment of these future teachers to combine their pedagogical, technological and content knowledge and skills in their practices *at the classroom level* is essential. As Wetzel and al. remark (2014), the alternative of: "waiting for the ocean liner ...to turn" (p.101) in referring to expecting direction for change to come from above at the institutional or ministerial policy level, requires accepting only distant hope (Charbonneau-Gowdy et al. 2012).

In the field of language learning wherein lie our particular research interests, Warschauer (2003), for example, has shown through his extensive work in K-12 schools, including those in low socio-economic status (SES) classroom environments, that improved integration of technology in schooling combined with teachers' abilities to promote critical thinking, entrepreneurship and innovation among their students, are key factors in tackling the major challenge that formal learning contexts face today. The challenges he refers to are in updating teaching and learning practices to meet the demands of the 21st century (2003: 17). Warshauer's findings offer further evidence that those teachers who themselves have the identities of enlightened 21st century citizens and who use technology in their teaching practices to promote the skills that are needed for this century, will be the leaders of social change. His work opens the door for research that is needed to find ways to promote the development of teachers with such a profile.

Warschauer, like a growing number of educator/researchers, is aspiring to promote 21st century effective teaching approaches with technology based on a sociocultural view of learning. A sociocultural approach assumes that learning is a context-specific social-based activity. From this perspective, learner agency and interaction with more capable others, including peers is critical to cognitive and human development as well as

to autonomous and life-long learning. Recent research in technology in foreign language education has also underlined the essential role of TE in fostering the kinds of teachers with profiles that reflect a sociocultural approach to teaching/learning with technology. This research points to the need to form teachers that can a) incorporate learners' recreational, non-institutional digital practices into formal and instructional activity (Meskill 2013), b) who view technology as an opportunity for learners to develop socially and psychologically throughout life, rather than finished products or commodities (Norton and McKinney 2011) and c) who see the value of social media technology to promote collaborative dialogue and collective cognition and where learners can experience new ways of being (Lund 2013).

In the Chilean study that I conducted, I described and shared the results of my individual researcher/instructor's initiative to put in place such conditions in TE and to foster such a teacher profile in my pre-service teacher students. This initiative included my instructor modelling of the pedagogical use of technology within a content course on language learning. I sought to offer the pre-service teachers opportunities to participate in the hands-on use of various social-based technologies in constructing their knowledge of content and pedagogy as well as their 21st century learning/teaching skills. The research questions that guided that study were:

1. In what way do the technology-infused activities and assignments that form the basis of language learning courses for pre-service teachers of English as a foreign language influence their learner and teacher identities?

2. What are the implications of these technology-infused courses on the pre-service teachers' learning and teaching practices?

3. Method

In the study, I used a case study methodology from the qualitative research paradigm because of the opportunities this research method affords to describe and explore a phenomenon and where context is essential to that exploration. Meskill (2013) argues that when it comes to researching learning and teaching with technology from a sociocultural perspective, the tools used to observe and study these contexts must be sensitive to the complex local as well as multi-contextual factors – for example, social, cultural, institutional, historical and political factors operating within these human activity settings. Such tools are available within the qualitative, ethnographic paradigm.

An explanatory case study methodology allows practitioners to examine communities and programs through a variety of lenses or data sources, and thus to evaluate them (Yin, R. K. 2003) which was a partial aim of the study. A qualitative case study supports the process of deconstructing a phenomenon, in this case the innovative series of courses, and reconstructing it in order to understand its multiple facets and the program effects. Another advantage of this approach is the collaborative relationship between researcher and participant and the emphasis it places on participant voice (Baxter & Jack, 2008). A collaborative relationship was fostered through shared researcher/participant responsibility for the teaching activities during the courses and six hour per week contact hours. Formative data collection and analysis allowed me as researcher/ practitioner to adjust and improve the course design over the research period. The phenomenon that was explored in the study was a series of three innovative TI language-learning courses and the influence of these courses on students in the TE program. The view of this long-term initial study was confined the influence on participants as they mediated their learning and development as teachers within the context of the TE program. Reference to what was happening in actual practice teaching sessions in schools was reported by a few of the participants, but only anecdotally.

In a second follow-up phase of the study (See Table 1), ethnographic tools – individual and group interviews plus a questionnaire, were used to further elicit data with a group of 23 of the participants, and focussed on 16 of whom had been part of the original study. At this point, these individuals were in their final semester and were spending 24 hours per week in elementary and secondary school classroom teaching settings. The aim of this phase was to widen the research lens and examine whether there was an influence of these TI courses on the teaching practices of the participants in 'real' classrooms. In this phase, a Practice Teaching Supervisor (PTS) was also interviewed. The PTS observed the pre-service teachers' classroom teaching on two occasions during the semester as well as offered individual guidance and support to the participants. The recorded and transcribed data from the PTS interview provided a further "insider" perspective to the findings and served to help prevent researcher bias.

In the next section, I describe details of the longitudinal study and report both the findings of that study and then of the follow-up phase.

3.1 Context

The longitudinal study began in 2013 with the first in a series of 3, 4-month courses in language learning, based on the theme of Global Issues. The participants involved 3 successive groups of 16, 24 and 18 pre-service teachers respectively, although a core group of 12 students assisted in all three courses. These groups collectively consisted of 8 males and 50 females. The students began the series of courses in their 5th semester of an 8-semester program. The courses, which took place at a large private university in Santiago Chile, were innovative in theme and design. Generally, other Program courses, including earlier language courses taken by the pre-service teachers in the English Language Pedagogy Program, were textbook-based and the use of technology was limited to PowerPoint and audio/video resource materials. It is important to point out too that previous to the IT-infused Language courses, the participants had had only 2 brief stand-alone courses in the use of technology. These courses offered didactic instruction on how to use Microsoft Word, Excel, PowerPoint and Videomaker for editing videos.

The content courses that I initiated sought to exploit social-based technology tools for language learning. Emphasis in the teaching approach was on student-driven and generated ICT materials. The technologies used to support the innovative pedagogy that I was implementing in the Language courses included: a) a student and instructor built class blog for weekly discussion and comments; b) group Skype calls with native speaking subject experts for student-led discussions; c) cellphone recorded audio rants on global themes; c) Web-based reading, writing and listening activities; d) use of MS Office for peer feedback and evaluation; e) individual weekly journals shared through group e-mails.

To help answer the research questions, data was collected from a variety of sources (see Table 1). These multiple data sources served to clearly enhance the credibility of the findings and each source served as a piece of the puzzle (Baxter & Jack, 2008: 554), which contributed collectively to understanding the whole innovative course phenomenon and its implications for the pre-service teachers.

Data analysis

In the first phase of the study, data collection and its analysis took place concurrently throughout the 12-month period of the study. To ensure credibility, ongoing discussions with students in the program were conducted to verify that the assertions and conclusions that were being made in the analysis reflected the views of the participants. The data from all sources was organized around three themes that surfaced in the initial stages of the analysis. In the second phase, data was collected over a 4–week period in the latter part of the semester. This data was also coded and examined for emerging themes. In the following sections, I briefly describe the results under those themes.

Table 1: Research design, data collection and analysis overview

	RESEARCH QUESTIONS	METHODOLOGY	INNOVATIVE COURSE DESIGN AND TIMELINE OF IMPLEMENTATION	DATA SOURCES ANALYSIS
PHASE 1	1. In what way do the technology-infused activities and assignments that form the basis of language learning courses for pre-service teachers of English as a foreign language, influence their learner and teacher identities?	Qualitative Explanatory Case Study	Series of EFL courses using innovative program design infusing the use of technology	- Observations - Blog conversations - Group Interviews - Student journals - Audio files - Field Notes
	2. What are the implications of these technology-infused courses on the pre-service teachers' learning and teaching practice?		3 Courses offered, 4 months each during a period of 18 months, 12 months total instruction	-Formative analysis linking data to propositions
PHASE 2	1. How has a group of learners' pedagogical experiences over the course of a 4-year teacher education program prepared them to use SM technologies in their teaching practices?		12 weeks	-Questionnaire -Group and Individiual Interviews
	2. How has this group of pre-service teachers applied, if at all, the knowledge and experience that they have gained with regard to SM, to their intensive practice teaching sessions in their final semester of the program?			-Theme-based coding and analysis

4. Results

> 'In order for outsiders or newcomers to begin towards becoming "insiders" they need to begin by participating somewhere. '(Lankshear & Knobel, 2011: 3)

Reporting on the complex phenomenon that takes place over the period of a qualitative case study, especially within a classroom setting, is extra challenging. This is particularly the case when we compare this reporting to that for more numbers-driven research reports (Lincoln & Guba, 1985). An important factor in the reader appreciating the results of qualitative inquiries involves having a comprehensive understanding of the contextual factors that were at play in the lives of the pre-service participants and that were revealed through the data collection process. These factors, based on my proximity and considerable time spent with the participants, are woven throughout the explanation or analysis of the findings and should help the reader to understand conclusions that I have reached. At the same time, I recognize that my account is not the sole way that this data could have been interpreted.

In order to help the reader gain a better understanding of the results, in the next section I present categories that were used to organize the data. Within each category, the key themes that evolved in the data are

described and examples from the data sets are provided to support the claims made. The themes are organized and listed according to the phases of the study: Phase 1, the longitudinal study and Phase 2, the follow-up to the larger study. After each section, an analysis of the findings and a reflection is provided.

4.1 PHASE 1

4.1.1 Changes in identity

Marginalized Learner Identities

Many of the participants in successive groups of pre-service teachers taking the TI courses displayed learner identities that reflected a reticence to engage in the course in-class activities, especially those that involved discussion. Online data from the forum conversations mirrored a similar lack of engagement – only 7 of 16 students chose to write on the first and second themes. Some of this evidence of what I have come to recognize as a feeling of being marginalized in the classroom, was explained by the participants as a lack of linguistic confidence – or knowledge of content, in this case English. When writing in their initial Expectations Forms for the courses, students expressed what I heard over and over again from other participants:

> 'I didn't talk too much in English because I'm afraid of make a mistake.'
>
> '[I] don't [want to] be behind for [from] the rest of my classmates.'
>
> 'I hope [to] stop feeling uncomfortable with my level of English.'
>
> '[I would like] to learn how to communicate with others. '
>
> 'I think and I hope that they've [teachers] got to know that each class has different levels of English because not all of us have the same education so they have to be patient and not ignore that there are many people who are lack[ing] of knowledge. '

Most participants also reported that their previous language education experiences were characterized by information transfer, teacher-led approaches, and that their role was to memorize facts. These approaches led many to lack faith in their ability to express what they wanted to say and thus remained silent. Or, as in the case of Marcela above, they failed to believe that they had any valid opinions at all. Many indeed admitted that prior to the courses, they rarely or ever read newspapers in English or even in their own language.

As the Language courses continued, the daily requirements for participants to read, view and react in writing in weekly journals and to online media news stories appeared to have a dramatic influence on the identities of many of the participants. Lively debates in class and higher order thinking and analysis were evident in online conversations among students even when input from the instructor was less apparent. I observed that growing linguistic confidence coupled with critical and more worldly views were outward signs of some participants developing empowered identities as language learners and increasingly globally aware citizens.

Evolving Learner and Teacher Identities

Over the period of the successive TI Language courses, the course participants took increasing responsibility for choosing the course materials and activities and had access to greater opportunities to use various technologies. Many of these individuals began to display signs of the confidence and leadership qualities that are reflective of good learners and effective teachers as well. Examples of these evolving effective teacher identities were evident in the kinds of feedback they gave to one another after group presentations. Whereas earlier on in the courses, they tended to give automatic top marks and few comments to their peers, later they were more constructive in their feedback and more careful to have their marks reflect their views of the activities being conducted by their peers. I saw these behaviours as evidence of participants having a greater sense of seeing themselves as teachers working to develop their craft rather than passive learners of methodologies. Some spoke of being more empowered in their teaching practice and insisting on certain strategies and approaches despite resistance and hesitancy on the part of their teacher supervisors who were responsible for them out in the schools. Others became more proactive in improving their language skills in an effort to be better able to conduct their classes. When an optional guided technology-based reading program was offered to students in the second course of the series, 10 of the 24 signed up and sustained interest in

more active reading for over 3 months despite the added commitment it meant to their already busy schedules. As the series of courses in the study came to an end, one student had already left for a job in the US to improve her language and be better prepared as a teacher; several others in the group were making similar plans. These and other signs of the general growing self-directed nature of some of the participants' evolving teacher identities were encouraging indications of future effective educators.

4.1.2 Changes in teaching practices

Traditional Teaching Practices

As stated above, the content courses were designed to be a source of development for the participants not only in terms of content knowledge but pedagogically as well. Earlier in the study, despite the various social learning technologies that were being modelled for the participants in the context of the course, many chose to simply use PowerPoint presentations to present their Global Issue topics. Several participants continued to show signs of preoccupation with providing teacher-generated question periods and passive video viewing in their class presentations. I observed that this clinging to old traditional ways of practicing teaching among many of the participants was difficult indeed to relinquish. It was only in course 3 in the series that I saw encouraging signs of change.

Teaching with Technology

The changes that began to occur in the teaching practices of some of the participants in terms of pedagogical approaches evolved in tandem with a growing use of technology. This use of technology was evident in the context of their course work. Technology supported games and interactive videos were examples of the kind of tools that some participants used. Importantly, several of the pre-service teachers mentioned that they were beginning to routinely incorporate technology into their practice teaching sessions. I observed too that a few of these individuals seemed more enthusiastic about their teaching, urged on presumably by the apparent engagement of their students in their technology-supported lessons. As Piero and Constanza, students in all three TI courses, expressed:

Before, I used to just use the textbook to teach my classes, now watching the way you teach listening activities (with the news), I am copying the same strategies. The students really like what I am doing. (Piero)

This course is more than just about learning a language; it's about learning good teaching strategies as well. (Constanza)

Based on these comments, Piero and Constanza seemed to recognize the advantages they saw to their teaching practices of the prolonged modelling of effective teaching approaches that they were exposed to and that included the use of technology.

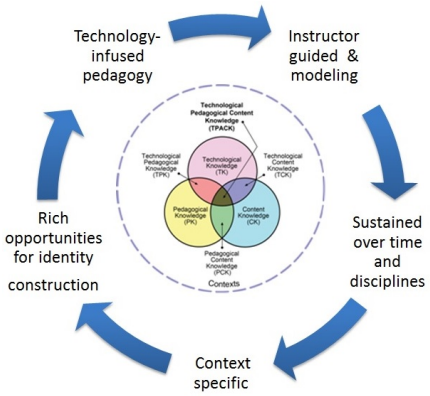
4.1.3 Reflections on Phase 1

> 'Last semester, I finished my teaching practices. Obviously, I used a lot of technology. I really enjoy [sic] planning my classes and using different tools to engage my students. Sometimes, I tried to imitate your classes. I learned that my classes have to be focus [sic] on my students.' (Marcela, e-mail August 2014)

The substantial data that was collected and analyzed over the period of the study allowed me to conclude that the sustained modelling of the use of technology had positive implications both for the participants' evolving teacher identities as well as their teaching approaches. The excerpt from Marcela's written post-course feedback indicated that she was aware of such changes in herself. The combination of social learning technologies with innovative social cultural-based pedagogy in the context of a content course provided substantial evidence to support the fact that for several individuals in this group of pre-service teachers at least, there was significant development in their approach to teaching and to their professional development as teachers. I based those claims on the dramatic changes to many of the individuals' 'ways of being', i.e their identities, both in terms of learners and as teachers of language that were evident in the data analysis. At the same time, it was clear that the data was collected exclusively in the context of the TE and any reference to teaching in the classroom, as in the case of Marcela, although encouraging, had not been substantiated with follow-up or in-depth research.

The longitudinal study provided valuable insight into a preliminary new model for TE (see Figure 2). The new model goes beyond the earlier TPACK version. In the TPACK model the three overlapping concentric circles representing pedagogical, technological and content knowledge illustrate the value of combining all three knowledge-making processes in one course. The data findings from the longitudinal study, while supporting the TPACK, clearly indicated the importance of *context* and *personal and professional identity* in this 3-pronged knowledge construction process. I argued that these factors are critical in TE planning. Important as well is the fact that the sphere of identity is dynamic in the model, ever moving either forward or backwards in tandem depending on the complimentary growth and development of the connected knowledge spheres and the specific context where that process takes place. From the data findings generated by the longitudinal study and the experiences gathered as instructor/researcher in that process, I saw encouraging hope, albeit hinging closely on further study of the model, for social and educational change.

Figure 2: Adapted TPACK Model for Fostering ICT in Teacher Education



(Charbonneau-Gowdy 2014, adapted from Misha & Koehler, 2006)

4.2 PHASE 2

4.2.1 Findings in Phase 2

At the conclusion of the longitudinal study, I responded to my own call for further testing of the adapted model (Figure 2). I sought to determine what would happen if that hope was followed-up on with the study of the participants in '*real classroom teaching practice*' in their final semester of their TE program. The following are the themes that emerged in the analysis of the data sets (see Table 1) that resulted from the follow-up study.

4.2.2 Power structures in learning with technology

Power structures that existed within the participants' teacher education program and in their practice teaching context determined the extent to which the participants showed that they were inclined to see technology as a an effective learning tool in sustained practice both for themselves and their students. Poor technology infrastructure at the university, as well as heavy academic and personal demands, generally left them with little time to envision technology as a viable learning tool in their classrooms. This apparent lack of inclination to consider technology was further compounded in their practice teaching. In these settings many mentor teachers demonstrated an unwillingness to "allow" their student teachers the opportunities to experiment with current ICT tools in their practice teaching sessions. Kathy, the PTS, reported that in many cases mentor teachers felt threatened by the pre-service teachers presence and abilities to use technology. While lack of technology infrastructure in all but the exclusive private schools could be also be viewed as an important factor, Kathy explained:

> 'It's not really a matter of not having the resources; those things are not expensive. They [the teachers] don't see how they [using social-based technologies] motivate students for learning.' (Interview, January 4, 2015).

I understand from Kathy's unique perspective derived from extended personal contact with all the schools where the practice teaching took place, that the lack of support for viewing technology as a learning tool is intertwined with a lack of insight and fears of a loss of control of one's established ways of doing on the part of the mentor teachers. The pre-service teachers were not only exposed to poor opportunities to learn best practices in the context of their practice teaching from their mentor teachers. They also had scarce opportunities to use technology for learning in their own academic lives, due to university infrastructure and academic demands beyond their control. Just one semester later, the data sets in the second phase not surprisingly revealed that the participants displayed little evidence of viewing creative possibilities for using technology for the kind of learning that they had had during three semesters in the TI courses.

4.2.3 Power structures when teaching with technology

Questionnaire data, coupled with data from individual and group interviews indicated that the participants had limited modelling of teaching with technology in their TE courses during the 3.5 years in the program. Their courses were mostly characterized by the routine use of PowerPoint, audio files, textbook multimedia materials, You Tube videos or movies for listening comprehension purposes. Examples of social-media-infused teaching, as was the case in the courses that I offered, were barely mentioned in the various data sets. Roxana, one of the participants remarked:

> 'Just a few teachers used technology in their classes [sic] and even fewer were willing to teach us how to incorporate [social-based] technologies in our own classes. What we know about technology comes from our own experience from life and friends.' (Questionnaire, Roxana, December 2014)

Roxana's comments, while deeply critical in nature, expose her disappointment in the quality of guidance, either direct or indirect, for integrating social-learning-based tools in teaching that she received during her years in the TE program. At the same time, she reveals what Downes (2010) has observed, that increasingly as teachers, or teacher educators, are unable, or indeed unwilling to risk providing responses to learners' pedagogical needs (Howard, 2013), learners go elsewhere to other communities, other 'experts', including those in online spaces, for aid in scaffolding the skills they require.

In their practice teaching, most expressed feelings of powerlessness to make even the most basic changes to the kinds of traditional, information and text-based teaching that were being practiced in their schools. Only three of the novice teachers claimed they used community blogs, interactive online games and *Facebook* – tools that reflected community-sharing advantages of technology that they had been exposed to in their language courses. The remainder of the participants reportedly considered Power Point and videos innovative and effective enough in gaining the interest of their students, in view of mentor teachers who restricted themselves to the textbook or radio and infrastructure limitations. These tools seem appealing perhaps in terms of using technology, per se. Yet, from a sociocultural perspective, and in my fifteen years experience researching technology, such tools are often employed to support passive learning and information-transfer pedagogies that undermine 21st century teaching approaches. When Carlos, one participant who made active use of more collaborative-based technologies in his teaching, was asked why others are reluctant to do the same, he explained: "*We don't live in a society that fosters creativity, so I guess you lose it*." (Interview, January 2014). Indeed, many students spoke about their marginalized positions as 'outsiders' in the mentor teacher's classroom with little or no power to make creative, technological and pedagogical decisions.

5. Reflection and Conclusion

> 'Human agency may be frail, especially among those with little power, but it happens daily and mundanely, and it deserves our attention.' (Holland et al., 1998)

After three semesters of teacher modelling of effective use of technology for collaborative learning and learner-centred teaching, on their first opportunity to "immerse" themselves in 'real' classroom teaching', the effectiveness of this group of novice teachers in terms of their capacity to be innovative with SM tools could be considered disappointing on many levels. Powerful structures that existed not only in the context of their practice teaching sessions but also in their formal teacher education courses, denied them the agency to take advantage of their highly developed technology capacities to exploit technology tools for learning and teaching. Like Marcela in the longitudinal study, in the follow-up study some of the pre-service teachers spoke

excitedly about using technologies in their practice teaching. On closer examination of their actual practices, it was revealed that many of these individuals were reverting to 20th century tools such as PowerPoint and videos in their teaching. I had witnessed many of these individuals willingly, adeptly and innovatively using various innovative learning and 'teaching' tools in the classroom projects they organiized at the university. Yet, it became apparent that they did so presumably because those experiences took place within the safe setting that included classmates and an approving teacher/promoter of social learning technology tools, and in view of a 'carrot', i.e. their grade on the course, at stake.

In their practice teaching contexts where the community structures were more threatening in terms of the risks of uncontrolled young learners or more powerful and disapproving teacher mentors, most novice teachers expressed that they took on powerless and self-effacing subjectivities which prevented them from being creative or innovative. Their choice to avoid using technologies that supported more social learning activities, I understood was predicated on their fear of loss of face or negative reactions from their mentors. A few did attempt to include technology in their lessons but avoided creative use of innovative social communication-based tools, despite the prolonged exposure to those tools they had had in the TI courses and in one or two random lessons in other courses. Instead, they reverted to basic PowerPoint and videos, reflective of teacher-fronted modes of didactic practices that were most commonly employed by many other faculty members in their university Pedagogy Program.

It is often remarked in education circles that it takes a community to raise a child. The same apparently is the case for novice teachers. The longitudinal initial study offered great hope for fostering empowered teacher identities and agency to use technology through TE modelling of ICT in content courses over a sustained period of time. The evidence and the new model that ensued while underlining the importance of context, laid bare as well the essential need for that the modelling to be sustained over time and *importantly across disciplines.* Thus, as the follow-up evidence clearly indicates, the most valuable conclusion to draw from the latest findings is that in order for new teachers to take advantage of their own technology facilities in their teaching practices will require the support and involvement of the larger TE community, as opposed to one or two mavericks. If our goal as teacher educators goes beyond simply content-based acquisition to being instrumental in developing empowered teacher identities and 21st century teaching and learning approaches in our students, then our TE community will need to align with school and university administration communities to foster such goals. I consider the individual and community knowledge building as well as the democratic settings that these technology tools support, if "allowed" into education contexts, can help break down powerful barriers that stand in the way of such sustained pedagogical and ultimately social changes. Further social cultural-based research within these settings is clearly called for to mediate such changes.

References

Bakhtin, M. M. (1994) The Bakhtin reader: Selected writings of Bakhtin, Medvedev and Voloshino, Morris, P. (ed.), London: E. Arnold.

Baxter, P. and Jack, S. (2008) 'Qualitative case study methodology: Study design and implementation for novice researchers', *The Qualitative Report*, vol. 13, no.4, pp. 544-599.

Beijard, D. Meijer, P. and Verloop, N. (2004) 'Reconsidering research on teachers' professional identity', *Teaching and Teacher Education,* vol. 20, pp.107-128.

Bielefeldt, T. (2001) 'Information technology in teacher education: A closer look', *Journal of Computing in Teacher Education*, vol. 17, no. 1, pp. 4–15.

Carpenter, J. and Krutka, D. (2014) 'How and why educators use Twitter: A survey of the field", *Journal of Research of Technology in Education*, vol. 46, no. 4, pp. 414-434.

Chai, C. S., Koh, J. H. L., and Tsai, C. C. (2010) 'Facilitating pre-service teachers' development of technological, pedagogical, and content knowledge (TPACK)', *Educational Technology and Society*, vol. 13, no. 4, pp. 63–73.

Charbonneau-Gowdy, P.; Cechova, I. and Barry, E. (2012) 'Web 2.0 technologies for 21st century learning: Creating conditions for sustaining change in institutions of higher learning', *Proceedings of the 7th International Conference on e-Learning*, Hong Kong, pp. 18-26.

Cox, S. and Graham, C. (2009) 'Diagramming TPACK in practice: Using an elaborated model of the TPACK framework to analyze and depict teacher knowledge', *Tech Trends*, vol. 53, no. 5, pp. 60–69.

Gao, P. and Mager, G.M. (2013) Constructing embodied understanding of technological pedagogical content knowledge: Pre-service teachers' learning to teach with Information Technology', *Journal of Social Media and Interactive Learning Environments*, vol. 1, no. 1, pp. 74–92.

Gee, J.P. (2004) *Situated language and learning: A critique of traditional schooling*, London: Routledge.

He, Y. and Cooper, J. E. (2011) 'Struggles and strategies in teaching: Voices of five novice secondary teachers', *Teacher Education Quarterly*, Spring, pp. 97-116.

Kop, R., Fournier, H. and Mak, J.S.F. (2011) 'A pedagogy of abundance or a pedagogy to support human beings? Participant support on Massive Open Online Courses (MOOC's)', *International Review of Research in Open and Distance Learning*, vol. 12, no. 7, pp.

Lankshear, C. and Knobel, K. (2011) *New literacies: Everyday practices and social learning*, New York Open University Press.

Lave, J. and Wenger, E. (1991) *Situated learning. Legitimated peripheral participation*, Cambridge, MA: Cambridge University Press.

Levin, B. B. and He, Y. (2008) 'Match or mismatch? How congruent are the beliefs of teacher candidates, cooperating teacher and university-based teacher educators?', *Teacher Education Quarterly*, vol. 34, no. 4, pp. 37-55.

Lincoln, Y.S. and Guba, E.A. (1985) *Naturalistic inquiry*, Beverly Hills, CA: Sage.

Lund, A. (2013) 'Collaboration unpacked: Tasks, tools and activities', in Meskill, C. (ed.) *Online Teaching and Learning,* New York: Bloomsbury.

Meskill, C. (ed.) (2013*) Online teaching and learning*, New York: Bloomsbury.

Mishra, P. and Koehler, M. (2006) 'Technological pedagogical content knowledge: A framework for teacher knowledge', *Teachers College Record*, vol. 108, pp.1017–1054.

Norton, B. (2011) 'Identity, language and social change', *Language Teaching*, vol.44, no. 4, pp. 412-446.

Norton, B. and McKinney, C. (2011) 'An identity approach to second language acquisition', in Atkinson, D. (ed.) *Alternative Approaches to Second Language Acquisition*, New York: Routledge.

Ögün Koca S. A., Meagher, M. and Edwards, T. E. (2010), 'Preservice teachers' emerging TPACK in a technology-rich methods class', *The Mathematics Educator*, vol. 19, no. 2, pp. 10–20.

Pamuk, S. (2011) 'Understanding pre-service teachers' technology use through TPACK framework', *Journal of Computer Assisted Learning*, vol. 28, no.5, pp. 425–439.

Polly, D. and Brantley-Dias, L. (2009) 'TPACK: Where do we go now?', *TechTrends*, vol. 53, no. 5, pp. 46–47.

Tai, S.-J. D. (2015). 'From TPACK-in-action workshops to classrooms: CALL competency developed and integrated', *Language Learning & Technology*, vol. 19, no. 1, pp. 139–164. [Online], 15, Feb. Available: http://llt.msu.edu/issues/february2015/tai.pdf.

Thorne, S. and Reinhardt, T. (2008) 'Bridging activities: New media literacies, and advanced foreign language proficiency', *Calico Journal*, vol. 25, no. 3, pp. 558-572.

Varli, O. (2013) 'An exploration of 3D virtual worlds through ESL/EFL teachers' perspectives in Second Life', in Meskill, C. (ed.) *Online Teaching and Learning: Sociocultural Perspectives*, London: Bloomsbury Academic.

Vygotsky, L. S. (1978) *Mind in society: The development of higher psychological processes*. Cole, M., John-Steiner, V., Scribner, S. and Souberman, E. (eds.), Cambridge, MA: Harvard University Press.

Warschauer, M. (2003b) *Technology and social inclusion: Rethinking the digital divide*, Cambridge, MA: MIT Press.

Warschauer, M. (2011) *Learning in the cloud: How (and why) to transform schools with digital media*, New York: Teachers College Press.

Wetzel, K., Buss, R., Foulger, T.S. and Lindsey, L.A. (2014) 'Infusing educational technology in teaching methods courses: Successes and dilemmas', *Journal of Digital Learning in Teacher Education*, vol. 30, no. 3, pp. 89-103.

Yin, R. K. (2003) *Case study research: Design and methods*, 3rd edition, Thousand Oaks, CA: Sage.