

Beyond the Technical Apparatus: Identity, Connections, and the Use of “*Autonarrativas Virtuales*” Virtual Autonarratives

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### Abstract

The rapid technological changes that have occurred in recent years have become critical for the academic and professional success of novice teachers. This study illuminates the use of digital autonarratives as social transformative pedagogy. The process of telling ones' story—and in the case of our participants, the process of defining and redefining self as teacher through the medium of technology—documents the creation of a bilingual 21<sup>st</sup> century teacher. Findings indicate the need for pre-service teachers to engage in technologically mediated learning to develop a practical understanding of technology integration. The goals of this research lend additional insight into the direction that teacher preparation programs must take to better serve bilingual teacher candidates in their educational journey to become technologically competent teachers who are prepared to meet the needs of an increasingly culturally and linguistically diverse school-age population.

*Keywords:* bilingual teacher education, technology as pedagogy, teacher identity, autonarratives

*Beyond the Technical Apparatus: Identity, Connections, and the Use of Autonarrativas Virtuales*

Technology has changed the way we interact and communicate both at home and work. New faster and smarter technologies such as high-speed cell phones, computers, iPods, and iPhones play a major role in our everyday social interactions. Most everything in today's world involves the use of technological and/or digital media. These technological changes have become critical for the academic and professional success of students. Teachers use Skype and emails as pedagogical tools, while SMART Boards, voice assistants, that return emails, and YouTube videos have replaced hands-on activities. With these current and ongoing changes in technology, many students learn through mediating technological tools. Therefore, it is reasonable to assume that students of the digital generation, also known as digital natives (Prensky, 2001) learn differently than students who did not grow up with the same technology. Given today's globalized world, teaching methods and approaches need to change to meet the needs of these digital natives. Several have called for a change in how students are taught (Buckingham, 2006; Ben-Jacob, Levin, & Ben-Jacob, 2000). Thus, it is critical for Bilingual Teacher Candidates (BTCs) (Author, forthcoming) who will enter a work force that assumes they already have strong technology skills to use digital apparatus and media as pedagogical tools for their own learning. Additionally, U. S. schools face demographic shifts that reflect the burgeoning Latin@ student population (Crouch, 2012). Today's educational workforce requires BTCs to be digitally literate if they are to meet the needs of their young learners, particularly those without access to technology. The presence of digital literate teachers in 21<sup>st</sup> Century classrooms, however, is often dependent on technological skill development while still in teacher preparation programs.

This article, details the impact of the after school technology program for our BTCs' understanding of digital media as pedagogy and media's role in their own professional identity

formation as teachers. The goals of this research will lend additional insight into the direction that teacher preparation programs must take to better serve BTCs and an increasingly technology driven culturally and linguistically diverse school-age population.

In the sections that follow, we provide a brief review of literature on the integration of technology in teacher preparation programs, the use of digital autonarratives as a pedagogical tool, and the significance for teacher identity development in BTCs. We share findings and offer some concluding recommendations for teacher preparation programs.

### **Technology and Teacher Preparation**

There is little doubt that the integration of technology with pedagogy has had a significant influence on how we view and interact with students in K-12 settings and in teacher preparation programs. Use of computers in the classroom has changed the teacher's role from knowledge provider to facilitator, as students use technological tools to explore and guide their own learning experiences (Bullock, 2204; Lee, 2006). Schrum (1999) argued that there are three aspects of pedagogical experience that are crucial for teacher candidates while in their teacher preparation program. He stated that without these it would be difficult for teacher candidates to use technology as part of their everyday teacher experience. According to Schrum teachers must:

1. be exposed to various types of technological tools in skill-based courses
2. learn how these technology tools can be integrated in subject areas
3. be placed in a technology-rich field environment where they can receive on-going guidance as they implement technology-supported lessons

Using technology for personal, recreational use does not automatically equate to the integration of technology in the classroom. Russell, Bebell, O'Dwyer, and O'Connor (2003) noted that although new teachers exhibited higher technology skills than veteran teachers they did not

display higher levels of technology use as part of their classroom pedagogy for two reasons: (1) new teachers focus on learning about how to use technology rather than on how to integrate technology in the content areas and (2) the extremely challenging aspect of their first few years of teaching. Hence, new teachers typically spend most of their energy in developing lessons and in classroom management, leaving little time for technology integration.

Pedagogical knowledge and technology integration however, need to go hand-in-hand. Teacher candidates' pedagogical knowledge needs to be complemented by extensive practice in using technology pedagogy to augment student learning (Chen, 2010; Vásquez, 2008a, 2008b). While teachers do use technology, they are not using it as an integral pedagogical tool, but rather for personal use. For many, the use of technology is connected with their own personal identities, language, and beliefs (Gilmore, Hurst, & Maher, 2009; Schlager & Fusco, 2006; Capobianco & Lehman, 2010).

### **Developing a Teacher Identity**

Given that a teachers' identity is connected to classroom pedagogy (Nieto, 2011), we cannot disconnect identity from technological pedagogy as it may serve as a mediating tool for developing current 21<sup>st</sup> Century teaching identities. Although a critical factor in the classroom is the teachers' identity, (Varghese, Morgan, Johnston, & Johnson, 2005) teacher identity may be difficult to articulate and often is easily misunderstood (Olsen, 2008). According to Clarke, (2009) identity involves the "individual and the social, the personal and the political, self and other" (p. 185). Defining teacher identity has been challenging, as it is not static, it is ever changing and evolving. It requires looking at the evolution of mankind and all that moves, affects, and influences us as human beings. For the last twenty years, our identities have been influenced, shaped, and affected by the use of technology (Author, 2009). Palmer (1998) (as

cited in Donovan, 2009) discusses identity as the evolution of all the forces that come together to form a person, including: background, culture, and experience. Understanding that teachers bring these aspects to everything they do, including pedagogy, is key to defining their teaching identity (Donovan, 2009).

It is important to note that developing a teacher identity is a very personal and individual process. Thus, teacher preparation programs must provide “rich, formative experiences” (Dotger & Smith, 2009, p. 162) that will help them develop a professional, positive teacher identity. In today’s digital society this means incorporating how to use innovative technologies as an additional and in many cases, new component of what it means to be a teacher. In forming their own teacher identity, Teacher candidates must reflect on all types of connections with teaching colleagues, such as students, classmates and professors, and non-teaching individuals, such as families and friends (Pearce & Morrison, 2011). They must learn to use technology as a personal individualized reflective tool to make connections between themselves and those around them, in and out of the classroom. Wenger (1998) explains the theory of identity “as a pivot between the social and the individual, so that each can be talked about in terms of the other” (p. 145). Thus, the social interplay between the individual and the larger environment or community goes hand in hand; one cannot be discussed without considering the other.

Teaching is “filtered through [teachers’] cultural lenses: the beliefs, assumptions, and experiences [teachers] bring to the classroom” (Grant & Sleeter, 2011, p. 10). It is impossible to understand other people without first understanding who you are and how your previous experiences have shaped how you interpret others (Grant & Sleeter, 2011). According to Alsup (2006), teachers develop a teacher identity when they can define a personal and a professional ‘self’. Moreover, Alsup (2006) asserts that they also must engage in the “integration of personal

self, and the ‘taking on’ of a culturally scripted, often narrowly defined professional role while maintaining individuality” (p. 4). Hence, it is important that teacher candidates develop a positive teacher identity that includes the use of technology—as a filter—for them to become competent in their use of classroom technology, gain a basic sense of professional determination, and become effective and reliable teachers (Hammerness et al., 2005).

### **Developing Teacher Identity through the Use of Digital Storytelling**

Russell, Bebell, O’Dwyer, and O’Connor (2003) suggest that preparing teachers to use technology should focus on specific instructional uses of technology rather than with technology in general. They add that teaching to use technology should focus on designing and implementing technology-supported projects where students use technology in their own learning. This is particularly important for teachers who work with children from diverse backgrounds who could use technology as a cultural, linguistic, and academic tool that bridges home, school, academics, and language. The use of digital autonarratives is an example of how technology can serve this bridge when working with children and families from diverse backgrounds.

In her study of volunteer pre-service teachers, Cattley (2007) associated the pre service teachers’ written reflections (autonarratives) and their identity formed during their field experience and concluded that “reflective writing or narratives is a valuable tool for professional identity formation for this group of pre-service teachers” (Cattley, 2007, p. 345). These types of projects will help teacher educators gain insight into the connections pre-service teachers make between theory and practice with technology in real-life situations (Franklin, 2007). When real-life connections are made through the medium of technology, social pedagogy is enacted—leading to reflexive ways of exploring self and all its experiences and surroundings. In the

following section we will look at an example of how social pedagogy is enacted via the use of digital storytelling.

Benmayor (2008) identifies digital storytelling for example, as a social pedagogy, approaching learning as a collaborative process. The process of story development is one of refinement through the telling and re-telling of ideas; digital storytelling is self-reflexive and becomes a recursive process (Benmayor, 2008). Introducing multiple media into this process allows learners to express their understanding visually as well as verbally. Technology-mediated learning becomes transformative pedagogy (Vásquez, 2008b) “to achieve new ways of enhancing the intellectual capacity of learners” (p. 183) through creative technology-based pedagogy. This is important because how pre-service teachers perceive their experiences and how they view their roles in teaching and learning are important for designing pedagogical tasks that meet the needs and interests of learners (Dexter& Riedel, 2003; Shellens, van Keer & Valcke, 2005). This study illuminates the use of digital autonarratives as social transformative pedagogy. The process of telling ones’ story—and in the case of our participants, the process of defining and redefining self as teacher through the medium of technology—documents the creation of a bilingual 21<sup>st</sup> Century teacher.

### **La Clase Mágica @UTSA**

The *La Clase Mágica* at The University of Texas at San Antonio (LCM@UTSA) is an after-school technology project that brings together young bilingual learners and BTCs. LCM@UTSA is designed to promote the academic achievement of bilingual Latino/a children, ages 4-10, particularly in the areas of bilingualism, biliteracy, and technology. Using meaningful learning activities through the medium of technology, BTCs engage with young Latino/a learners and their families (see Vasquez, 2003 for a detailed description of *La Clase Mágica*). Programs

such as LCM@UTSA have become an avenue to increase Latino/a families' access to technological literacy skills (Ek, Author, Author, & Sánchez, 2010). LCM@UTSA has created opportunities for children to develop their technological skills along with their family. While the children collaborate with LCM@UTSA BTC, family members work with a UTSA faculty member who teaches them how to use the iPhone, netbooks, iPads, and iPods including educational applications their children use in the LCM@UTSA program. Having a teacher that knows "how to" and uses technology as a way to engage and teach is critical in helping students bridge some of these technological gaps that exist, particularly among low-income Latino children and families in the 21<sup>st</sup> Century (Gorski, 2003). It is therefore crucial for teachers to feel comfortable with the use of technology as they work with young Latino learners.

### **Methodology**

The methodological approach used in this study was that of a qualitative survey (Knobel & Lankshear, 1999). This approach involves comprehensively examining a context and includes field-based observations, interviews, questionnaires, and artifact collection. Qualitative survey designs maximize data collection within a minimum amount of time and thus allow qualitative data to be efficiently gathered and analyzed (Marsland, Wilson, Abeyasekera, & Kleth, 1999). The approach enabled a team of four researchers to gather data from the after-school technology project over a 1.5year period.

### **Participants**

Because the study sought to focus on the relationship between technology and academic preparation, BTCs from the Division of Bicultural Bilingual Studies were chosen as target participants. A total of 20 BTCs participated in the study. The majority were first-generation college students in their early 20's and in the third year of their teacher preparation program. All

were of Mexican origin with varying levels of Spanish/English bilingualism and technology experience.

The 20 BTCs were asked to take two undergraduate courses simultaneously to create an LCM cohort. One course emphasized Latino/ cultural experiences with children's literature and focused on the use of literature as a pedagogical tool. The other focused on the relationship between children's play and cognitive, social, and affective development in early childhood classrooms. Both of these courses were taught primarily in Spanish with some English by two of the faculty in LCM@UTSA study. The BTCs took both university classes one day of the week and spent an additional three hours a week at the elementary school's computer room—the LCM classroom. Funded through the UTSA Academy for Teacher Excellence, teacher candidates were provided with netbooks, iPhones, iPods, and more recently iPads to use with elementary school students.

UTSA undergraduate BTCs and their professors attended the LCM program every Tuesday afternoon for three hours for a 10 to 14-week period over three semesters. Each UTSA teacher candidate was assigned to a young elementary student in grades K-5. In an effort to develop rapport and *confianza* (trust), adult-child pairs were considered *amigo/as* and *amiguitos/as*. This pairing was organized to create an opportunity for children to negotiate meanings with a more experienced peer to develop children's language and literacy through digital media such as, computer games, digital stories, and other educational software (Vygotsky, 1978).

### **Data Collection**

Data collection occurred over the three-semester period at the school site. Because the goal was to document BTC growth in their development as future teachers and to record any

teacher identity shifts through the use of technology, data was collected in several different ways and at different times during their experience as LCM@UTSA *amiguitos/as*. This was done in order to get a more holistic and clear picture of the process of growth and identity development as documented by BTCs use of technology. Therefore, the following sources of data were collected: 1) digital field notes, 2) in-class discussions, and 3) technology and digital artifacts.

**Digital field notes.** BTCs documented their experiences in the afterschool technology program through weekly digital field notes. Through this activity, they were asked to become researchers and observers of the development of biliteracy and digital literacy development. They were asked to record, write, and upload their weekly field notes into the program's on-line course platform. Their detailed accounts of interactions with the *amiguitos/as* were modeled after field notes taken by seasoned ethnographers (Emerson, Fretz, & Shaw, 1995) as they revealed teacher candidates' ideas related to the project and their reactions to weekly assignments.

**In-class discussion.** Following participation in the LCM after school technology and literacy program, BTCs engaged in weekly in-class discussions. These discussions; led by university faculty focused on BTCs' experiences, struggles, and lessons learned at LCM. They had an average duration of thirty to forty-five minutes and were audio or video recorded in order to document LCM@UTSA development through the program. The recordings were then professionally transcribed for data analysis.

**Technology/Digital artifacts.** Drawing on Darder's (1991, 1995) notion of bicultural voice, digitally based assignments were used to interpret the observations, reflections, and experiences of the BTCs in the program. Autonarratives were based on the premise that, as human beings, we come to understand and give meaning to our lives through story (Andrews, Squire, & Tambokou, 2008). Grounded in interpretive hermeneutics and phenomenology, it is a

hybrid form of qualitative research that involves the gathering of narratives—focusing on the meanings that people ascribe to their experiences, seeking to provide "insight that (befits) the complexity of human lives" (Josselson, 2006, p.4). BTCs developed "*narrativas auto-digitales*" (autonarratives) which are a technology based digital means of exploring BTCs' experiences related to their development of a teacher identity. With the many digital possibilities currently available, exploring and exposing teacher identity and narratives of transformation provide BTCs innovative ways to get "out of the box", beyond the basics and incorporate multisituational and multiple views of "self". Therefore providing an alternate way to view, represent, and explore their identity.

### **Data Analysis**

All of the data, including the digital autonarratives, digital field notes, and in-class discussion transcriptions, were coded and analyzed to identify salient themes, patterns, and relationships (Emerson, Fretz, & Shaw, 1995). In addition the type of technology utilized by BTCs was also coded in the process, giving us a better idea of the types of technological tools BTCs preferred. These codes helped identify emerging themes and patterns. To ensure interrater reliability, the researchers independently analyzed the same set of transcripts, digital field notes, and technology/digital artifacts, meeting approximately every other week for 3 months over the 1.5 year term to compare and make decisions in identifying and coding the data for themes. Three major themes emerged from the data: 1) the role that digital media plays as a learning tool for BTCs; 2) the power of digital autonarratives as pedagogical tools for learners; and 3) the need for a new bilingual/multilingual digital/technology toolkit for bilingual teacher candidates.

### Findings and Challenges

Becoming a technologically competent teacher in today's society is a need that must be met in order for teachers to meet the needs of students—who for the most part are technologically driven, and who use technology not only as a way to communicate socially but also as a form of individual expression, and as a learning tool. This skill is one that must be met early on in a BTCs' development—while they are developing and exploring what it means to be a teacher. The afterschool project provided practical applications for BTCs to see meaningful and purposeful uses of technology—technology they will someday use in their own classrooms (Author, forthcoming). A significant activity was the creation of digital autonarratives. BTCs perceived the autonarrative project as an important tool for learning and teaching because it promoted situated learning, facilitated a social construction of knowledge, and afforded customized learning experiences. For this activity, BTCs used digital media with children as they reflected on their own biliteracy journey to create collaborative digital autonarratives entitled *Cómo aprendí a leer y escribir en mi primer y segundo idioma* (How I learned to read and write in my first and second language). Elementary school amiguitos/as enrolled in the afterschool technology program became co-authors and co-editors on the assignment, which included a three to five page paper and a virtual narrative. These autonarratives included BTCs' experiences as children and students, their process of developing bilingualism/biliteracy and their process of becoming teachers. It also included the amiguitos/as' autonarratives which included family background and personal reactions to their BTC's autonarratives along with their own. Additionally, BTCs were asked to view each other's experiences and explore similarities in the development of their collective identity as teachers, and finally how the use of technology to

explore social issues and identity at *La Clase Mágica* enabled them to express and connect with their *amiguitos/as* in a unique innovative way.

Findings reveal the significance of the activity for helping BTCs' understanding of (1) who they are (*quién soy yo*), (2) how they, in many ways, are similar to the young children they work with, (*Somos diferentes pero similares*) and (3) their new role/identity as teachers (*Yo la maestra*).

*¿Quién soy yo?: Conexiones entre la maestra y la persona* (Who am I?: Connections between the Teacher and the Person)

In the field of education, teachers are often encouraged to learn from their children by practicing what Moll and González (1992) refer to as Funds of Knowledge. Research tells us the use of a child's funds of knowledge serves as an efficient way to connect with students' prior knowledge, cultural, and linguistic capital. Yet, often as BTCs attempt to incorporate students' funds of knowledge into their lessons, they may forget the importance of their own personal experience--who they are and why they decided to become teachers. Estela reflected on this process:

*Una de las preguntas que más me impacto fue la de que porque quería ser maestra. Ya me lo han hecho muchas veces, pero la manera que la profesora nos pidió que lo hiciéramos me hizo pensar muchísimo. Es la primera vez que me tomo tanto tiempo responderlo. Tuve que buscar imágenes que representaran por qué quería ser maestra. Primero, explicárselas a mi compañerita y luego ponerlo en la autonarrativa. En clase siempre nos dice la profesora que nuestra vida es un lente que ocupamos para ver/jugar cuando ya somos maestras y esta actividad me ayudo a ver esto. (One of the questions that impacted me the most was why I wanted to be a teacher. I have been asked this*

before but the way the professor asked us to do it, really made me think about it. This is the first time that I take so much time to respond. I had to find images that represented why I wanted to become a teacher. First I had to explain it to my *compañerita* and then I had to place it in the autonarrative.)

Although this question may be asked at the beginning of many professors as Estela indicates (*ya me han hecho muchas veces*), teacher candidates may answer superficially as this type of inquiry may require learners to engage in reflective and critical thinking. Additionally, BTCs may be asked to reflect on this question too early in their teacher preparation program to adequately respond—therefore, answers may be superficial. Estela goes on to explain how this time was different:

*Es la primera vez que me pongo a pensar “deeply, why I decided to become a teacher”. Esta actividad me gusto y me emociono mucho porque me reconecto con la razón que decidí ser maestra. Y lo más bonito fue compartir esto con mi compañerita, porque se miraba el interés en sus ojos. Creo que la motive y talvez hasta la aspire para que se convirtiera en maestra. (It is the first time that I think “deeply, why I decided to become a teacher.” I liked this activity and it excited me because it reconnected me with the reason I decided to become a teacher. The most beautiful thing was sharing it with my *compañerita*, because I could really see the interest in her eyes. I think I motivated her and maybe even inspired her to become a teacher.)*

Estela’s reflection reveals the significance of this activity for “reconnecting” with the reasons for her decision to choose an education career. Creating a digital autonarrative added an element of technological possibilities and provided her with creative options in the ways she introduced

herself to her *amiguita*. The activity of searching through artifacts allowed Estela to view her funds of knowledge in concrete ways and reflect on her life choices and experiences.

While it was the professor's inquiry that helped Estela reflect on her decision, it was the child that helped Alicia with her reflective process.

When I told my *amiguita* why I wanted to be a teacher she started asking me many questions--which forced me to go deeper. I was giving answers to things that I never had to respond to before, like; "if your dad did not want you to become a teacher and now he's happy--que le dijiste para que te dijera que si?" (What did you tell him so that he would say Yes?) Really, I did not tell him anything I think I convinced him because I was so determined and happy. And she said, "What do you mean you looked happy?" And this is where I had to explain myself and really talk about me as the teacher and how that brought me joy, how this is what I wanted and needed to do. Then she tapped me on the back when she saw I was getting emotional and she said, "You are the best teacher".

For Alicia, remembering how important this decision was for her helps her realize that teaching is what she "wanted and needed to do." The passion for teaching comes from a place that is difficult to explain and often decipher as we move into our roles as professionals. It is a passion that we want our BTCs to feel and act on as they embark on their journey recognizing that their teacher identity is deeply rooted within their sense of self. Additionally, the use of autonarratives provided a way for BTCs and their amiguitos/as to connect beyond a trivial level, providing a rare opportunity to "*conectar y compartir*" via their own life experiences. The process provided an opportunity to engage in meaningful organic dialogue to mediate their life experiences even before actually digitalizing it; simultaneously interconnecting the role of the learner and teacher. Helping BTCs understand how their personal experiences led to where they are today also

provided them with a means to understand that their young students' journey is often very similar to their own.

*Nuestras Historias y Relatos de Conexión: Somos diferentes pero similares* (Our Histories and Stories of Connection: We are different but Similar)

The identity evolution for these teachers and young children was explored through the creation of the autonarratives, the co-construction of knowledge, the interconnectedness of the teacher and learner, and the environment of trust that was created between the pairing all through the medium of technology. Each BTC was unique, yet they were similar in the ways they and their *amiguitos/as* explored who they are and where they come from.

Maribel, best captures the connection she felt with her *amiguita* Lucia:

*La autonarrativa me ha dado la oportunidad de usar la tecnología para conocer a Lucia más. Ella trajo fotos de su casa y su familia y yo de la mía. Esto nos ha ayudado a hablar acerca de donde vinimos y de que va primero y porque en la narrativa. Hemos hablado mucho de cómo va a ser la autonarrativa y ahora siento que ella me conoce más y yo a ella.* (The autonarrative has given me the opportunity to use technology to get to know Lucia better. She brought photos from home and her family and I brought my own. This helped us talk about where we came from and how we are going to organize it in the narrative. We have talked a lot of about how we are going to create the autonarrative and now I feel that she know me better and I her.)

In the case of Maribel, the use of technology provided her with an opportunity to connect her personal experiences in creative, significant, and personal ways. It also allowed Maribel and the student to explore each other's narratives—therefore, increasing opportunities for focused

dialogue and inquiry. These relationships help build the self-efficacy of our BTCs as they develop their identities as educators.

Agustina discovered how we all go through similar learning processes and how prior knowledge impacts how children learn.

*What I liked best was creating my autonarrative with Nico in Spanish. I loved the way we added phrases that you can only understand in Spanish. I loved it and Nico did too. For me it was so good to practice my Spanish and to have to learn technology words in Spanish. It was so much fun and also good because he does not speak English good. So he was able to feel really good because we were doing it in Spanish. I also learned about how we all learn write and write and some differences that mostly depend on how they learned it at home.*

As stated above, the creation of the digital narratives provided Agustina and her *amiguito* with a unique opportunity to engage in technology-based activities in the child's native language giving Nico the opportunity to be the expert, to feel comfortable and connected to Agustina. It also gives Nico and Agustina a culturally and linguistically diverse activity that incorporates culture, language, past experiences, and new technology knowledge—a means to bridge Nico's funds of knowledge in the acquisition of technology knowledge and skills.

*Yo la maestra: Usando tecnología para Enseñar, Cambiar, e Impactar* (Me the Teacher: Using Technology to Teach, Change, and Impact)

The ability to explore their “maestra” (teacher) identity with technology illuminates how technology is more than an apparatus but can be used in a direct way for teaching and learning in meaningful settings. As BTCs progress through their preparation program they begin to see

glimpses of themselves as teachers who impact young lives. Paola had this to say about her experience:

I have done fieldwork hours before in the classroom as part of my classes that I have to take for the degree. But LCM is different, for the first time--I felt like "me the teacher". I not only got to interact with Susana but I also got to get to teaching--and in different ways. Like about myself, technology, literacy through books and apps, and even music. I really felt that I was "teaching". And although I was not in front of a classroom I was teaching Susana about so much. But I also realized that I was teaching her and she was learning because I knew her. So it is true. A teacher needs to know her students to be able to connect with them and for them to connect with you and what you are teaching.

This experience allowed Paola to feel like she was "teaching" for the first time. More importantly, technology became a mediating tool that helped her realize the significance of students' funds of knowledge in the learning process, while at the same time, realizing her own funds of knowledge are just as critical in shaping the "*maestra en ellas*" (the teacher in them). It becomes an exploratory experience that allows for the exploration of teacher identity and the fluidity of simultaneous interaction between the role of the teacher and the role of the learner. This connection between theory and practice is an experience BTCs may not experience during their teacher preparation program. It also provides BTCs experiences in bridging home and school; a collaborative process between student and teacher. Identifying themselves as teachers allows BTCs a sense of responsibility within the profession and an opportunity to see themselves as effective teachers as they acquire knowledge of their intrinsic efforts and obligations within the teaching realm (Hammerness et al., 2005).

To be effective in our globalized society, a teacher must shift the perspective of technology, that has traditionally been seen as an add-on to curriculum and instead embrace it as a pedagogical tool that can promote increased academic results, stronger teacher-student interactions, and engaging student practices. Agustina reflects on her role as a “*maestra*” in using technology as a tool:

*No soy una persona que creció con la tecnología. Todo lo contrario, yo llegue a utilizarla hasta muchos años después. Por eso es la idea de las auto-narrativas... la verdad es que me forzó a ver la educación de una manera menos tradicional y más divertida, y tal vez hasta más valiosa. Creo que estar en la clase mágica y especialmente hacer esta actividad, me ha convertido en una maestra moderna y menos anticuada que puede llegar a tener resultados de sus estudiantes sin tener que ser tan formal o repetitiva. Y si aunque es algo que leemos en libros, esta actividad me ha dado la oportunidad de hacerlo.* (I am not a person who grew up with technology. Quite the contrary, I began to use it many years later. That’s why the idea of the autonarratives...the truth is it forced me to see education less traditionally and more entertaining, and maybe even more valuable. I think being in *la clase mágica* and especially doing this activity, has changed me into a more modern teacher and less outdated who can get results from her students without having to be too formal or repetitive. Even though it is something we read in books, this activity has given me the opportunity to do it.)

Agustina’s experience with education is one that is shared by many--one filled with rigid traditional pedagogical practices that often involve a top down approach to education (Nieto, 2003). For Agustina creating a virtual autonarrative provided an authentic connection between

what she learned from texts and actual classroom practice. It was a way of experiencing how technology serves as a powerful pedagogical tool.

This is reiterated in Chrissy's reflection:

As a future teacher doing the autonarratives gives me an idea of all the cool things I can do when I become a teacher. It really made me see that I can use activities like this one [the creation of the autonarrative] to connect and get to know my students but also to make it interesting and not scary. I think that before *tenía miedo* (I was afraid) but now I know that I will do this again when I have my own class.

Chrissy's reflection emphasizes the work by Shellens, et al. (2005) that stressed the need for pre-service teachers to connect their learning experiences and their roles in teaching and learning for designing relevant and meaningful pedagogical tasks for children (Shellens, van Keer & Valcke, 2005). Creating their own virtual autonarrative moves the BTC beyond the student mentor capacity to the teacher capacity and allows for the understanding that you have to know the children academically, socially, and personally, to connect with them on those different levels. Perhaps this can best be summarized by one BTC:

When you are in charge of one child for the whole time, you become like a mentor but really beyond a mentor you become a teacher who needs to know their academic weakness, their strengths, and how to better community with the student. It taught me the things I have to do as a teacher to be able to connect and really teach in a more collaborative way. And I think as I teach I like this best. I think now that I am a teacher I will do this more.

In the process of serving as mentors for young children our BTCs discovered their sense of self, how they were connected to the children, and their role as '*maestras*' using technology.

### **Implications, Recommendations, and Future Research**

The purpose of this study was to investigate the impact of the after school technology project for our BTCs understanding of technology mediated learning. The ability to create autonarratives provided the BTCs with an educational opportunity to see digital media as a tool for learning in multi-situational settings because they were able to apply their personal funds of knowledge in the contexts of technology use.

The increasing availability of new technologies suggests that teachers' preparation may be fundamentally different from previous approaches (Brewer & Klein, 2006). Learning to teach requires a new way of learning. Consequently, teacher educators must require teacher candidates to use technology in their own learning (Schellens et al., 2005). This approach provided the participants with opportunities to use technology as a mediation apparatus to create innovative learning environments and allowed us to study its effect on the creation of a teacher identity for BTCs. We have found that multi-dimensional technology use will only be effective if BTCs education have access to the latest technologies as well as an understanding of how these innovative tools can mediate learning and teaching. Hence, educators in teacher preparation programs must have a better understanding of technology as a significant tool for preparing teacher candidates. As such, there are some recommendations for educators in teacher preparation programs.

One recommendation is to develop a design-based approach to preparing teachers where efforts would focus on implementing technology-supported projects into the curriculum. In this approach teacher candidates would utilize technology and collaborative learning in their own education while they are engaged with young children. It would also include the strategic placement of teacher candidates in the field. Placements would need to be strategic in schools

where technology is seen as a viable pedagogical tool. In addition, there is a need for teacher preparation programs to have bi-directional relations of exchange where both parties benefit from the placement of BTCs and the collaboration between schools and universities (Author, forthcoming).

Integrating technology into teacher preparation programs helps pre-service teachers utilize the available technologies when delivering content (Chapelle, 2005). More importantly, they learn how to use this knowledge to reach diverse learners. Other research is needed to validate the positive outcomes of technological pedagogy for language and vocabulary development, understanding of content concepts, problem-solving skills, and social skills development.

However, additional dimensions of research must consider the evolving views of teacher candidates as they gain additional expertise over time. Specifically, research needs to help us understand digital media as pedagogy and its benefits for students and teachers. Finally, future research should also explore the media's role in the formation of teachers' professional identity.

### **Conclusion**

It is critical for teachers in training to get technology-supported projects that will help them mediate their own learning. Knowing how to use technology is no longer an option. After school programs like *La Clase Mágica*, illuminate the importance of preparing bilingual teacher candidates to meet the demands of the 21<sup>st</sup> Century classroom in terms of pedagogy and cultural and linguistic global relevance, but most importantly it will expose the increasing need to be bilingual, multilingual, and multimodal both linguistically and technologically.

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