

11-10-2010

## Using Virtual Environments as Professional Development Tools for Pre-Service Teachers Seeking ESOL Endorsement

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Using Virtual Environments as Professional Development Tools for Pre-Service Teachers

Seeking ESOL Endorsement

by

Rebecca J. Blankenship

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
Department of World Languages  
College of Arts and Sciences

and

Department of Secondary Education  
College of Education  
University of South Florida

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Date of Approval:  
November 10, 2010

Keywords: collaborative dialogue, critical pedagogy, levels of use, sociocultural theory,  
teacher identity

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## DEDICATION

To my husband – without your constant and unwavering support, I would never have made it through the many challenges that we have faced during this process over the past five years.

I love you.

## ACKNOWLEDGEMENTS

Having reached the end of this journey, I want to take this opportunity to acknowledge the people that have assisted me in reaching my educational and professional goals. I would like to thank the members of my committee for their guidance and support from proposal to final defense. I especially thank my major professor, Dr. Deoksoon Kim, for her continual support and confidence in me in the final two years of my program and throughout the dissertation process. My great thanks to Dr. Tony Erben for his advice and guidance from the first class I had as a SLA/IT student to my final defense. I sincerely thank Dr. Anthony Onwuegbuzie for his assistance throughout the review process; I know that my dissertation is a better product because of him. To Dr. Steve Downey, I really appreciate his help and suggestions in understanding the technologies that I used during my study. A special thanks is also extended to my close professional colleagues and friends, Ana, Sarah, and Sunny, for allowing me to use them as my sounding board and to my “second family”, the Clarks, for all of their love and support throughout this journey. I would be remiss if I did not thank the many teachers – elementary, high school, university - over the years who have challenged me to be a better student, to be curious about the world, and to love learning. Finally, I extend my greatest thanks and love to the most influential teachers in my life – my parents. Much of who I am as a person and professional today is because of their teaching, guidance, and counsel over the years.

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## ABSTRACT

The purpose of this study was to investigate the potential use of Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009) as simulated virtual professional development tools for pre-service teachers seeking endorsement in teaching English as a Second Official Language (ESOL). Second Life is an avatar-based Internet program that allows end-users to interact, using audio and chat features, with a digital representation of themselves (an avatar). Skype is an Internet-based video conferencing program that allows users to see each other by way of a webcam. Of particular interest to this study was how a group of 12 pre-service teacher education students internalized professional knowledge and if that knowledge was actually transferred into active teaching practice and professional identity development. To investigate this knowledge transfer, an exploratory case study (Yin, 2008) was conducted framed around the theories of sociocultural constructivism (Kanuka & Anderson, 1999; Vygotsky, 1978) and critical pedagogy (Freire, 1990). The components of one module from the ESOL II course that addressed hegemonic curriculum and teaching practices were recreated in Second Life and Skype for analysis. Using within-case analysis (Miles & Huberman, 1994), vignettes (Ely, Vinz, Downing, & Anzul, 1997; Spalding & Phillips, 2007), and tallied collaborative utterances (Erben 2001), developmental progressions among the pre-service teachers were examined from the beginning to the end of the module and were evaluated for their relevance to knowledge transfer and self-regulation. The interactions were also



examined for instances of amplifications and reductions of pedagogic practices (Erben 1999) through collaborative dialogue (Bakhtin, 2006; Erben, 2001; Wertsch, 1991). The findings of this study suggested the positive potential of using Second Life and Skype to enable self-regulation and pedagogic transformations to occur among the participants with appropriate considerations acknowledged for the teaching audience, developmental goals, and venue of instruction.

## CHAPTER 1: INTRODUCTION

In 2005, the National Council of State Supervisors for Language stated: Foreign language education cannot afford to look solely to conventional solutions to overcome the shortage of resources and qualified teachers to realize its goals. The foreign language profession must look to technology as one possible avenue for meeting the goals set forth in the national standards. (¶ 2)

If this edict is considered within the research on the efficacy of simulated gaming and virtual environments in education, then it could be asserted that a game would be considered to be most effective if the learner is able to apply practically the simulated lesson within the context of a real-world interaction. Simulation and gaming theory is not a new concept in education; much of what is known about the value of using simulation in learning comes from its use by the United States military during World War II. Although much of the instruction in that era involved audiovisual methods, it was the reality and *real worldness* produced by early military films that facilitated civilian and military training (Reiser, 2006). The audiovisual and radio instructional movement by the military has had a sustained and notable influence over modern simulated instructional design.

The audiovisual movement was particularly used as the instructional backdrop for the old audiolingual method of language learning. This approach was eventually debunked as being ineffective in promoting language learning and acquisition, but it did represent a significant pedagogic realignment in which language learning was made accessible beyond the university. Numerous versions of the audiovisual programs made their way into the educational mainstream as technology advanced over the decades. It was the introduction of the computer as an instructional tool that revolutionized the computer-assisted language learning (CALL) movement during the 1960s and 1970s. Like the military, civilian educators recognized the short-term learning benefits that computer-generated instruction could provide. Most of this instruction was premised on the idea of stimulus-response behavior modification. As such, early computer program instructional design and concomitant teacher training was highly analytic and rational, attributable to the mathematical learning theories of Atkinson and Suppes during their 1972 collaboration with IBM (Reiser, 1987).

Teacher education presents an especially unique challenge when considering simulated learning as a professional training tool. Emerging technologies have led to additional interest among teacher education and training programs regarding the influence of these technologies on how and where teachers receive professional training. In 2006, The Horizon Report (a *think-tank* consortium between the New Media Consortium and the Educause Learning Initiative) produced its annual report identifying technologies that are having a significant impact on learning and teaching. The report identified four technology trends: (a) the widespread acceptance of social networking and dynamic knowledge creation; (b) the recognition that personal and mobile technologies

are being used increasingly as platforms to engage services (educational and otherwise) of all kinds; (c) the expectation among educational consumers that the technologies will be personalized to their specific needs; and (d) the acknowledgement that multi-institutional collaboration, both internal and external to the institution, is critical to advancing the consistent use of these technologies (pp. 5-6). Within the context of these trends, the report identified six specific technologies that were having a significant impact on classrooms in the United States: (a) social computing; (b) personal broadcasting; (c) mobile phones and personal digital assistants (PDAs); (d) augmented realities; (e) context-aware environments; and (f) educational gaming (p. 5). The acknowledgement of this multidimensional collaboration is of particular interest to designers of any professional training, especially with the noted and recent attention being given by the media to the advantages of virtual training. Among these technologies and of specific interest to the research proposed here is the impact of virtual, simulated environments for the professional development of pre-service elementary education teachers (especially those charged with teaching nonnative learners of English).

Here, it is important to emphasize the significance of offering a simulated, virtual development experience for teachers of language learners, especially for those students learning English as a second language. Between the academic years of 1990-1991 and 2000-2001, this student population experienced greater than 100% growth, whereas the overall student population grew by only 12% (Kindler, 2002). Certain states such as Arizona, California, Florida, North Carolina, New Mexico, New York, and Texas experienced growth among the English language learning (ELL) population ranging anywhere from 10% to 50% as a direct result of the migration patterns of Spanish

speakers. The result of these trends is an ELL student population numbering more than 10 million (Kindler). In combination with the existing need to teach second languages to the native-speaking English population, there is a direct and immediate need for teachers of all languages to be in-serviced regarding the latest research and pedagogy in language learning and acquisition. The implication of servicing native and nonnative speakers of English affects all classroom subjects, and teachers are increasingly finding themselves teaching English language and literacy in addition to their regular content. Thus, as in other states, the state of Florida, to address the needs of ELL students, is requiring teachers of all subjects to acquire professional development in ELL instructional methods. Because non-language teachers are faced with teaching not only the academic skills of their particular subjects but also English literacy skills, providing all teachers with a dynamic virtual development model has the potential of enabling the collaborative exchange of teaching ideas within the context of authentic activities (Borko, 2004; Perry, VandeKamp, Mercer, & Nordby, 2002).

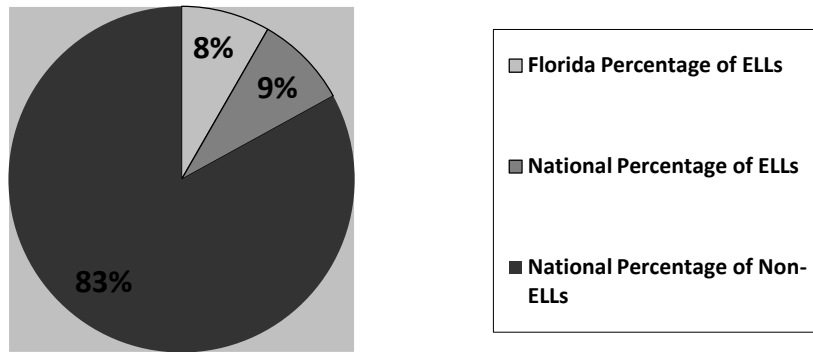
In 1990, the state of Florida attempted to address the need to train unilaterally administrators and teachers on the educational needs of its growing population of ELL students. This need was particularly critical for elementary educators, and teachers of language arts. In considering the staggering statistics on ELLs, Florida, especially because of the large immigration movements at the outset of the 1980s and 1990s, has seen a dramatic surge in the number of ELLs living across the state (see Table 1).

Table 1.  
*Percentage Increase of ELLs in the State of Florida between 1997 and 2007*

Race	School year (% increases)	
	<u>2006-2007</u>	<u>1997-1998</u>
Caucasian	1.0	0.8
African American	4.6	3.9
Hispanic	27.6	28.1
Asian	15.9	16.1
Native American	3.9	4.0
Multiracial	2.7	4.7
Total (regardless of race)	8.7	6.4

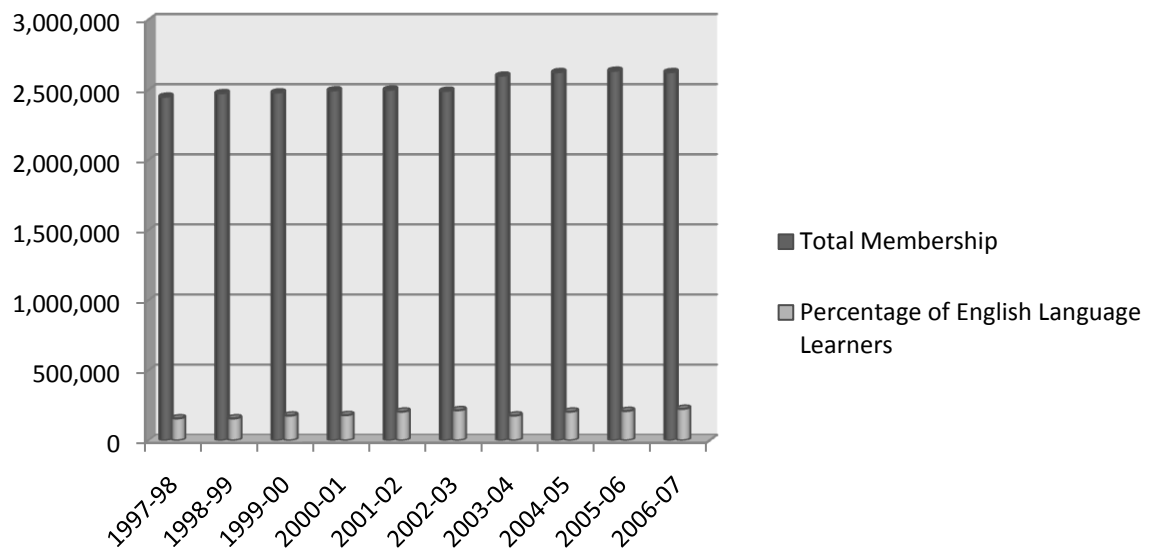
Note: From the National Center for Education Statistics,  
<http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004035>

According to the National Center for Educational Statistics (Meyer, Madden, & McGrath, 2004), 8.3% of Florida’s population is nonnative English speaking, which is only 0.4% below the national average (see Figure 1). In addition, the last 10 years has shown a significant increase in Florida’s ELL population, with a 2.3% increase between 1997 and 2007 (see Figure 2). Given these numbers, it was important that the state act to retrofit its teacher education programs to come into compliance with the accommodations needed for ELL students and public schools.



NOTE: From the National Center for Education Statistics, <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004035>

Figure 1. Percentage of students who are English Language Learners, 2005-2006.

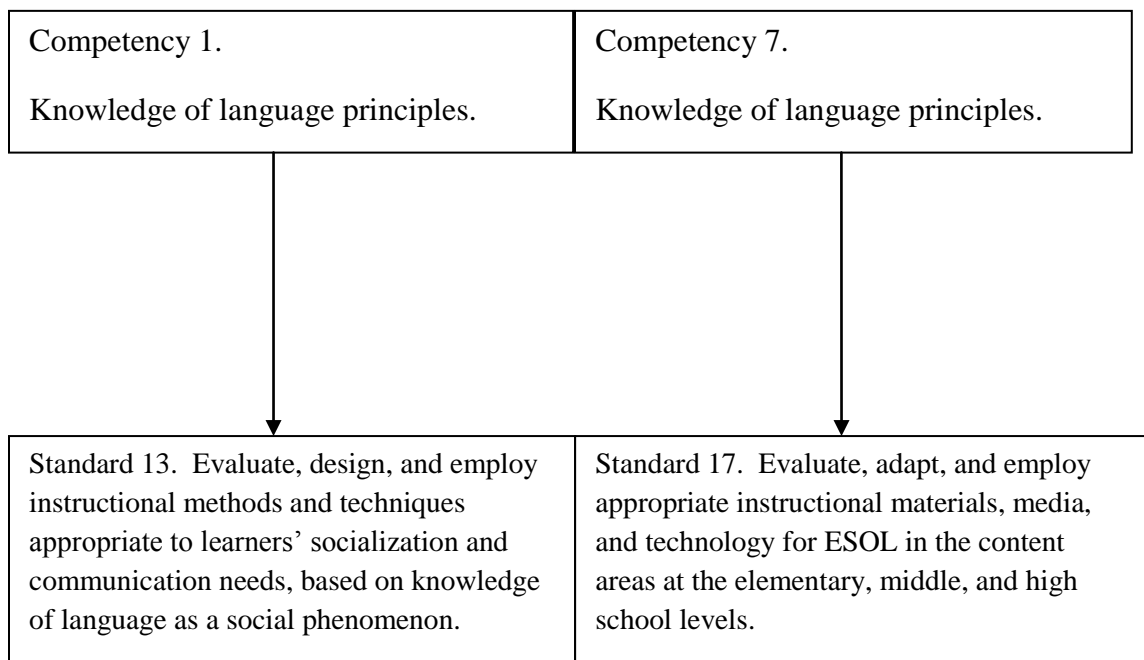


NOTE: From the National Center for Education Statistics, <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004035>

Figure 2. Ten-year comparison of ELLs to non-ELLs.

By 2004, the state of Florida implemented the ESOL Integration Curricular model throughout its university teacher education programs. The ESOL Integration Curricular model delineated a set of 25 standards and 11 competencies that each ESOL-endorsed teacher must demonstrate in compliance with the parameters set forth by the applicable

Florida consent decree. Of particular interest to the study proposed by this research are Competencies 1 and 7 and Standards 13 and 17 (see Figure 3). These competencies are the essence of the curricular and technology skills that the modern teacher of ELLs should be able to demonstrate when modifying lessons to accommodate the needs of students whose first language is not English. Because current research in CALL, Second Language Acquisition (SLA), and Instructional Technology (IT) points to the need for instruction that enables the co-construction of knowledge among students, it is reasonable to suggest that an ESOL-endorsed instructor should be able to integrate cogently these principles into his or her lesson planning.



NOTE: From the Florida Department of Education,  
<http://www.coedu.usf.edu/main/ESOL/ESOLStandards.html>

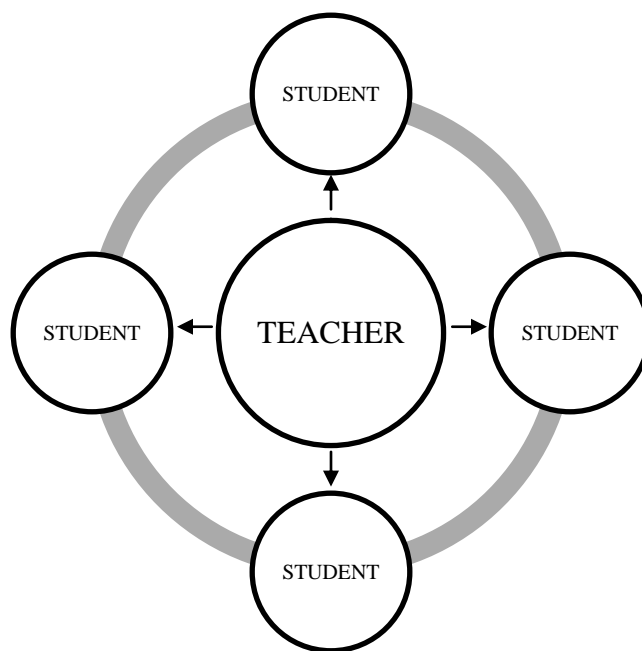
*Figure 3.* Competencies and related standards under focus in proposed research.



## Problem Statement

It is the need for teachers to become active rather than passive learners that has redirected much of the current research in pre- and in-service teacher training programs. Rather than become self-regulated through these development activities, teachers have traditionally are the vessels of canned professional knowledge received through the training (Green, 2000). Most training is meant to elicit what are considered standard professional knowledges and related instructional behaviors. Teachers typically will either apply these new knowledges and instructional practices in their classrooms without self-imposed alteration or pass the information on to their colleagues unchanged.

Further, it is the era of postmodernist thought in educational research that has perpetuated an artificial separation of the teacher in relation to the subject matter and the student (see Figure 4). As Zembylas (2003) pointed out, in the United States and England, teachers and administrators have focused on individualism and isolation in teacher-student relationships (p. 219). Thus, teachers, regardless of subject, have engaged in pedagogic isolationism based on a separatist identity constructed from an idealized set of teacher knowledge received through some type of professional training. As Shulman and Hutchins (2004) suggested, this can be a limiting factor for the development of a teacher's authentic knowledge and true identity.



*Figure 4.* Traditional model of teacher-learner interaction.

It could be argued, then, that the challenge of any instructor is to demonstrate how using virtual rather than face-to-face professional training can be applied practically in a real-world setting. Emerging technologies have enabled the development of training programs that digitally mirror what a teacher might encounter in the real world. These digital realities have been made possible by advancements in multimedia seen in Internet- and non-Internet-based programs. Better and more realistic graphics, more user-friendly interfaces, and mobile technologies have contributed to the popularity of using virtual programs for training. However, when faced with providing teachers with real-world scenarios, instructors must frequently contend with providing situations so detached from the teacher's reality that it renders their introduction and future application almost useless (Shulman & Hutchins, 2004). Thus, rather than attempt to modify the training materials and settings to illustrate what might potentially occur in an actual classroom, it is more cost- and time-effective to maintain the status quo (p. 140). In considering the traditional

face-to-face ESOL course, much of the information is presented in a lecture-type format with few to no references to real-world application. Instruction is meant to elicit standards and behaviors with little follow-up of what the teacher might encounter in his or her actual classroom. Collaborations are frequently reduced to represent predetermined bites of information that are considered relevant not by the actual participants but by the trainer or requesting administrator (Freeman & Richards, 1996).

In addition, the *simulations* or opportunities to practice the new strategies are most often conducted peer-to-peer; as such, professionals are practicing on each other rather than with students who might represent their classroom demographic. Therefore, peer reactions during trainings are predicated on what they *think* the trainer wants to *hear* (Kwo, 1996). The detraction from real world teaching further distances the teacher from understanding the practical applicability of the training to their actual classrooms. Thus, more often than not, teachers will often store away the information or training as impractical and unrepresentative of their authentic teaching climates. The virtual classroom, then, could provide pre-service teachers with an opportunity to apply practically, in a simulated classroom setting, specific ESOL competencies while simultaneously interacting with other education students. This type of scaffolded interaction, it was theorized, would enable internalization (and later application) of the pre-service teachers' ESOL training by opening the Zones of Proximal Development (ZPDs; Vygotsky, 1978) using Second Life (Linden Labs, 2004) as the mediational instructional tool.

## Purpose of the Study

The purpose of this study was to demonstrate if and how pre-service teachers form pedagogic identities and concomitant professional knowledge while participating in simulated professional development activities using Second Life (Linden Labs, 2004). An ongoing gap between what an ESOL-endorsed or ESOL-trained teacher actually internalizes and alters by way of reflective practices and what is left unaltered has generated an ongoing dialogue among educational researchers (Freeman, 1996; Wallace, 1996). What is consistently either missing from research or is heavily debated among scholars is how these teachers become self-regulated, given their routine engagement in traditional face-to-face professional development activities. Also of interest is how collaborative and *in-the-head* learning among teachers engaged in these development opportunities become cognitively unpacked through reflection and practice (Erben, 1999). Evidence of this gap in the research and variance among researchers and their findings is demonstrated in the writings of Cole (1991); Elmore (2002); Hiebert, Gallimore, and Stigler (2002); and Lave and Wenger (1991).

## Research Questions

Suggesting the reconceptualization of traditional face-to-face teacher pre-service training into a virtual training environment raised the following questions for empirical consideration:

1. What instructional delivery issues emerge when Second Life (Linden Labs, 2004) is used as the setting for interactions between an avatar ELL and pre-service teachers in an ESOL II endorsement class?

2. What are the interactive characteristics that are exhibited among the teacher-participants while in the virtual training environment?
3. In what ways do the dialogic engagements of pre-service teachers regulate professional growth and identity transformation?

### Conceptual Framework

Imposing any episteme over a research design implies that the methodologies underlying the theory's basic assumptions will be followed. If a particular model is followed to its paradigmatic ends, it can be asserted that the learner's needs become inherent in the theoretical construct of the present research. Although sociocultural constructivist theory was used as the theoretical foundation to answer the first two research questions, it first might be instructive to examine some element of the theory of critical pedagogy, particularly when considering institutional contexts (Kincheloe & McLaren, 2005; Norton Pierce, 1995). A critical lens enables a researcher to separate the issues (e.g., legislation, finances, security) that might be the most important in setting an institution's climate. Further, as Norton Pierce pointed out in her 1995 article, "[c]ritical researchers aim to investigate the complex relationships between social structure, on the one hand, and human agency on the other, without resorting to deterministic or reductionist analyses" (p. 571). Thus, it would not be unreasonable to suggest that using both a sociocultural and critical approach would yield data that are particularly relevant to finding the authentic teacher voice. Norton Pierce asserted, "[c]ritical researchers are interested in the way individuals make sense of their own experience" (p. 571); it was that individual sense-making that was of interest here.

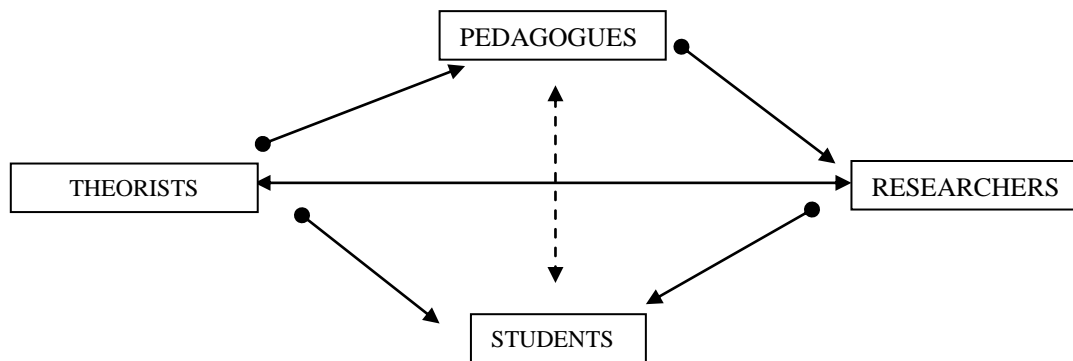
In 2005, Kincheloe and McLaren defined critical theory as focusing on issues that are relevant to underrepresented populations. They went on to suggest that, through the critical lens, the researcher is able to isolate the voice of a particular group by liberating it from institutional constraints. Populations typically considered underrepresented and examined by critical research could include women, racial or ethnic minorities, and the elderly. That being said, what population was considered as underrepresented in the present study? Much of what is reported by educational researchers regarding how a teacher develops professional knowledge and identity is what Windschitl and Joseph (2000) referred to as a “constrained reality” (p. 140). As Freire (1990) pointed out, the knowledge that the teacher receives is viewed as *gifted* to them by the all-knowing institution. So, unless the researcher is able to examine critically and subjectively a teacher’s development, then it can be asserted that a teacher’s reported development is just a mirror image of the institution’s culture. Therefore, the authentic teacher voice, similar to the voice of other underrepresented populations, becomes subjugated to the institution’s dominating ethos.

Although sociocultural constructivist theory helped explain how knowledge can be scaffolded and jointly constructed using some meditational tool, it stopped short of explaining how that construction can be transformational for a learner’s identity. For learning to be truly transformational, learners must use their “own intelligence to take control of their lives” (Windschitl & Joseph, 2000, p. 140). Here, critical pedagogy, as defined by Freire (1990), was used in conjunction with sociocultural constructivist theory to help explain how this group of pre-service teachers developed knowledge and identity as it related to the instruction of an ELL in a virtual environment. The dialogic, or what

Freire (1990) referred to as the “essence of education” (p. 8), becomes the liberator when the pedagogue can make the transition from being a subjective (integrated) agent to an objective (adapted) agent of the teaching profession. The objective, then, of using a virtual environment for teacher education was to liberate the teacher in such a way that his or her true identity and knowledge base could be freed from contextual restraints. Accordingly, by removing a teacher from the more prescribed context and placing him or her in a freer virtual environment, the identity and knowledge base could theoretically be revealed through new technologically mediated socially constructed interactions (Clark & Mayer, 2006).

In the case of sociocultural theory (SCT), the traditional linear approach from input to output and teacher to student is abandoned in favor of an environment where knowledge is harmoniously and jointly constructed (see Figure 5). The novice and more advanced learner, then, are cooperative participants in a biosocial ecosystem in which each moment of higher mental construction by the learner contributes to the cognitive synergy experienced among participants. Bravmann (2000) pointed out that “students helping one another, in community, facilitates both the learning and wholesome social interactions, whether under the guise of peer tutoring, cooperative education, or some other rubric” (p. 75). The learner, then, is never considered deviant or inferior to the teacher. Approaching the learner-teacher relationship in this way is a direct abandonment of the more instructionist model that has characterized many pre-service and in-service teacher training programs used in the United States. Thus, it can be argued, as Kanuka and Anderson stated in 1999, that “[a] major problem with instructivism, then, is that it

discounts the reality of the ambiguous, complex, and continually changing world in which we live” (p. 2).



NOTE: Adapted from *A Philosophy of Second Language Acquisition* (p. 4), by M. Johnson, 2004, New Haven, CT: Yale University Press.

*Figure 5.* Reconceptualization of the traditional linear teacher-to-student paradigm.

Accordingly, one of the underlying tenets of sociocultural theory (SCT) is the understanding that learning (and thus cognitive development) is enabled through the scaffolded interactions between novice and expert (Vygotsky, 1978). This internalization is facilitated by the communicative system used among interlocutors (in the case of SCT, the primary communicative system relies on language) and knowledge is viewed as transferred when the novice becomes self- rather than other- or object-regulated (Luria, 1976; Smagorinsky, 1995). The objective is for the teacher and learner to interact in such a way that the learner internalizes knowledge and can become more cognitively independent. In the case of pre-service ESOL teacher training, the virtual environment was used as the intervening device or tool that enabled intramental development of the educator-in-training. Intramental activity and self-regulation ultimately were achieved when the interlocutive tools resulted in the opening of the Zone of Proximal Development (ZPD) for cognitive development. What is documented in the literature on



pre- and in-service training is that, typically, teachers are isolated cognitively through the use of conventional linear training techniques (Freeman, 1996). This cognitive isolation results from training that is limited by an institutionally imposed curriculum that accepts only the status quo (Green, 2000). According to Kaplan (1997), institutionally bound training results in learners who are “passive recipient[s] of doctrine and technique” (p. 425). Because trainings are social units, following the principles of SCT helped explain the intrapsychological development that occurred across this socially interactive plane (Wertsch, 1985).

Vygotsky (1978) suggested that higher mental functioning is a socially constructed process, where the “social dimension of consciousness is primary in time and in fact” (p. 30). The individual’s awareness is considered by Vygotsky to be a secondary by-product of these interactions. Knowledge, then, is based on the associations between the knower and the known (Kanuka & Anderson, 1998). Windschitl (2000) viewed constructivism as a process in which learners enable each other’s cognitive (knowledge) development through collaboration. Kanuka and Anderson (1999) also pointed out “that knowledge is constructed as a social process rather than an individual process,” and it necessarily follows that “constructing the knowledge [involves] examining and understanding the experience where the process occurred” (p. 5). Thus, in considering the use of a virtual environment for teacher training, a sociocultural model was more allied with a virtual program such as Second Life (Linden Labs, 2004) that relies on multiple realities that were environmentally sensitive.

Although some members of the instructional technology field might contend that sociocultural theory, particularly the constructivist paradigm, cannot be applied

practically to a cohesive design process, one need only be reminded that it is the socially interactive nature provided by virtual worlds that offer a viable setting within which learning could be scaffolded. It could also be argued that, unlike a traditional electronic learning (e-Learning) tool where the end user is acting in response to predetermined commands set by the program designer, in a virtual world, users directly interact with each other through the use of an avatar (the digital expression of the self, according to Kim, 2005) and, perhaps, a voice- or chat-enabled feature (see Figure 6).



*Figure 6.* Avatars chat in a virtual café during a foreign language lesson in Second Life (Linden Labs, 2004).

#### Significance of the Study

The use of virtual environments for teacher training represents an under-researched area in educational research. The significance of this study, then, is that it has the potential of providing teachers with the opportunity to transcend *what is expected* with face-to-face training to *what is transformative* in a more realistic setting (Shulman & Hutchins, 2004). In addition, examining interactions in a virtual training venue, which could serve as the meditational device, might provide educational researchers with a better opportunity to unpack in-the-head professional knowledge (Erben, 1999; Wertsch, 1991). Accordingly, using critical pedagogy and sociocultural constructivism as theoretic

guides, relocating the teacher in an unrestricted virtual environment might provide the truest gauge of how a teacher develops from novice to master teacher. Of course, this relocation cannot be effected as long as the teacher feels cognitively bound by the conventions of existing face-to-face training. The contextual pressures of most public school districts (e.g., budgetary concerns, achieving benchmark standards, facility issues) have resulted in teachers' professional knowledges and identities being subjugated to a fixed, linear model.

One of the potential advantages of relocating face-to-face training to a virtual environment was the opportunity for a teacher to respond more authentically to simulated instructional conditions. Traditional face-to-face training has been designed to be entirely product-oriented. The intent is to maintain the status quo which obviates the ability of teachers to be considered as public intellectuals essential to the development of any quality pedagogy. As a result, Young (1998) stated that public schools in the United States have not been organized as learning communities in which teacher learning has been maximized. Rather than viewed as the subject of professional development and knowledge, teachers have been managed as the objects of canned in-service trainings provided by school districts (Lingard, 2003). While in the virtual environment, if the dialogic engagements among these pre-service teachers revealed language that was transformative, then the results of this study would have significant impact on pre- and/or in-service teacher training.

### Methodology

The qualitative case study protocols set by Merriam (2009), Stake (1995), and Yin (2008) were used to guide the design, conduct, and analysis of this particular study. The

research questions for this study were of an exploratory nature (as defined by Yin), so it was determined that an exploratory case study would be conducted. In his 2008 work, Yin proposed a four-stage process in case study methodology: (a) designing the case study; (b) conducting the study; (c) analyzing the data gathered from the study; and (d) developing conclusions and suggesting areas of future research. The data were gathered from the virtual interactions and organized into thematic clusters that were determined *a posteriori* to the design and concomitant analysis. Then, using with-in case analysis (Miles & Huberman, 1994), collaborative episodes were unpacked over the course of the virtual interactions especially as the interactions related to productive, constructive, and destructive collaborations (Erben, 2001). Finally, using vignettes (Ely, et al., 1997; Spalding & Phillips, 2007), the interactions were evaluated for their relevance to scaffolded professional development and pedagogic transformation.

Merriam (2009) stated, “[a]ll aspects of the study are affected by its theoretical framework” (p. 47). Therefore, a sociocultural constructivist approach served as the methodological starting point to answer the first two research questions because of interest is how the participant’s knowledge was continually changing through an interactive synthesis observed over time (Kanuka & Anderson, 1999; Vygotsky, 1978). Critical pedagogy was used as the theoretical lens to answer the third question; of interest here was whether a subjective transformation occurred during the interactions in the virtual environment. These paradigmatic evolutions also evinced other parallel theoretical considerations. These considerations were: (a) theories of self-regulated learning (Butler & Winne, 1995; Zimmerman, 1994; Zimmerman & Schunk, 2001) and

(b) models of collaborative professional development (Englert & Tarrant, 1995; Kremer-Hayon & Tillema, 1999; Perry et al., 2002).

Participants for this study were selected using a criterion-based nonrandom sampling scheme (Onwuegbuzie & Collins, 2007). The use of nonrandom sampling methods was acceptable for this type of exploratory study because the participants were selected based on a set of criteria determined *a priori* to the study. The participants were 12 pre-service teachers attending a private university in the southeastern United States, the ESOL II course instructors, and a Level 2 ELL. The pre-service teachers were undergraduates majoring in elementary education who were enrolled in an ESOL II course needed to meet their endorsement and state professional licensing requirements.

As the researcher, I also participated as an observer of the interactions in Second Life (Linden Labs, 2004). As Stake (1995) suggested, “[o]f all the roles, the role of interpreter, and gatherer of interpretations is central” (p. 99). Because this study was an exploratory case study, my role as the researcher was one of recognizing and substantiating new meanings. As the conceptual framework for this study was primarily based on sociocultural constructivist theory, I was also able to clarify, through my interpretations as a constructivist, the descriptions that I made in such a way as to enable the reader to make his or her own generalizations (i.e. the naturalistic generalizations as described by Stake, 1995).

Additional participants in this study included the course co-instructors, Dr. Marquis and Mrs. Rosenblum, and a Level 2 ELL, Mrs. Darbyshire (pseudonyms given to these participants to ensure their anonymity). Dr. Marquis was the primary instructor for the ESOL II course and was the supervising professor for the 12 pre-service teacher participants. Mrs. Rosenblum was a practicing foreign language teacher in the same school district where the students were completing their practica. She was a Level 6 ELL, was ESOL endorsed, and had a Master's degree in Foreign Language Teacher Education. Mrs. Darbyshire was a 78 year old from Argentina with Spanish as her first language. She was a low Level 2 ELL, was a retired small business owner, and had education only to the high school level.

### Limitations of the Study

#### *External Credibility*

*Role of the researcher.* Merriam (2009) pointed out that in qualitative research, the researcher is the “primary instrument for gathering and analyzing data” and is responsible “for collecting and producing meaningful information” (p. 20). She also asserted that, because the qualitative researcher is human, “mistakes are made, opportunities are missed, personal biases interfere” (p. 20). Thus, in addressing the limitations of this study, I must acknowledge my role as the researcher, which could potentially threaten the external credibility of this study. As Onwuegbuzie and Leech (2007) pointed out, if the researcher is unable to bracket his or her biases a priori to the data collection and analysis stages, those biases could pose a threat to the legitimation of the results. Further, because I used a constructivist lens, I would be collecting the data. Onwuegbuzie and Leech stated, relative to researcher bias and constructivism,

“[r]esearch bias is a very common threat to legitimation in constructivist research because the researcher usually serves as the person (i.e., instrument) collecting the data” (p. 236).

*Participant selection.* Population generalizability (Onwuegbuzie & Leech, 2007) presented a possible threat to external credibility. There were only 12 participants in this study, which necessarily suggested that the findings might not be generalizable to the larger population of pre-service teachers. By using the nonrandom sampling scheme, this group of pre-service teachers was not ethnically diverse. Of the 12 teachers, all were Caucasian, not of Hispanic origin, suggesting that the findings of this study were most likely not generalizable to pre-service teachers representing other ethnic groups. Furthermore, of these 12 teachers, only 1 was male, which also suggested that the findings were likely not generalizable to the larger population of male pre-service teachers. Again, because a nonrandom criteria-based sampling scheme was used to select the participants, ecological and temporal generalizability might also have posed threats to external credibility. These pre-service teachers were attending a private university; students attending private universities have different academic, monetary, and social needs than did their peers attending public universities. Additionally, these teachers were pre-service teachers in their final year. Their teaching experiences were limited to the classes they are observing and the students/grade levels they were teaching. Therefore, external credibility might have been threatened because the findings of this study might have been limited by the location (ecological) and context (temporal) in which the data were gathered.

Reactivity presented another threat to external credibility (Onwuegbuzie & Leech, 2007). Because these students were aware that they were participating in a study, their

responses might not have been the same as they would have been had they not been participating in a study. Also, as Kwo (1996) pointed out, most pre-service teachers' responses are a reaction to what they think their course instructors and cooperating teacher expect. Because these interactions were presented as an assignment in the syllabus for the course, the likelihood that the reactions were artificial necessarily increased. Also, there was the potential that a novelty effect might occur due to the technology used to gather data for the study (Onwuegbuzie, 2003). In other words, the participants' reactions might have been an artificial response to the novelty of using an avatar while they were interacting in Second Life (Linden Labs, 2004) rather than authentic responses to the tasks.

#### *Internal Credibility*

*Reactivity.* As with threats to external credibility, reactivity also posed a threat to internal credibility of the findings (Onwuegbuzie & Leech, 2007). Again, the different types of technology used to gather data for this study could present more of a novelty to the participants, thereby producing responses that might not have occurred had these technologies not been used (Onwuegbuzie, 2003). Using Second Life (Linden Labs, 2004) could have been problematic due to the amount of resources (computer hard-drive space as well as server bandwidth) required for the program to run efficiently. Therefore, if the participants did not have adequate resources to support the program, their interactions with the ELL avatar could be limited. Also, because this was an avatar-based program, using the avatar efficiently could have presented logistic challenges that might have hindered their participation with the ELL. Also, the debriefings between sessions were videotaped and later transcribed. Because the videotaping occurred outside of the



Second Life interface, this might have resulted in data loss, which could potentially have led to observational bias.

*Researcher and observational biases.* Researcher bias could have affected the internal credibility as well because, as the researcher, I was making the decisions regarding how the study would be conducted. As noted previously, because I was using a constructivist approach, I was the person collecting the data. Here, it was important that I recognized, *a priori*, any potential biases that might potentially taint my data collection and analysis. To help mitigate these biases, I debriefed with my co-instructors at different points during the data collection in an effort to uncover preconceptions that I might not be recognizing. Debriefing can help mitigate potential observational and research biases that might arise (Leech & Onwuegbuzie, 2008).

Observational bias might also have occurred during data collection. This might have occurred due to the limited amount of interactions that the pre-service teachers had in Second Life (Linden Labs, 2004) with the ELL, Mrs. Darbyshire. Data were collected from the participants across four discrete interactions. As Onwuegbuzie (2003) pointed out, the data were subject to such observational bias when an inadequate sampling of behaviors occurs during collection. This type of bias also could occur during the data analysis stage if the sampling of behaviors was insufficient during data collection (Onwuegbuzie & Leech, 2007). Because the sampling time for these interactions was discrete, observational bias had to be taken into consideration during data analysis.

#### *Illusory Correlation and Voluptuous Legitimation*

Two additional threats to legitimation might potentially have occurred at the data interpretation stage. The use of a virtual program for teacher training represented an

under-researched area in simulation and gaming and teacher training. The interactions that these pre-service teachers had with Mrs. Darbyshire in Second Life (Linden Labs, 2004) were particularly characteristic of the lack of research in these areas. Therefore, at the data interpretation stage, the potential to assign mistakenly a relationship between the participants and their interactions in Second Life could have threatened the internal credibility of the data. This threat could have arisen due to voluptuous legitimation. Because this type of pre-service teacher training has not been thoroughly examined in the literature on simulation and gaming and teacher education, the tendency to interpret the data beyond what the data actually revealed could have threatened the internal credibility of the findings. Accordingly, it was important throughout the data analysis stage to refer back to the actual data to help mitigate potential threats to the internal and external credibility of the findings.

#### Definition of Key Terms

The following are a list of key terms that were used throughout the course of this study and assisted in setting the definitional parameters around which literature was gathered, data analyzed, and conclusions drawn. These definitions appeared throughout the documentation, and their use was confined to the definitions articulated below. These terms were representative of terminology frequently encountered in literature related to collaborative dialogue, critical pedagogy, teacher development, teacher identity, sociocultural constructivist theory, and virtual environments.

*Avatar.* According to Kim (2005), an avatar is the digital expression of the self. Avatars are used in virtual worlds as the substitute for or enhancement of the end user's real-world persona. The capabilities of avatars vary depending on a program's interface

and can include the virtual approximation of the actual self or a fictionalized representation.

*Constructivism.* Windschitl (2000) defined constructivism as a family of learning theories being premised on the belief that learners actively create and restructure knowledge, constantly comparing ideas introduced in formal instruction to their existing knowledge, which has been assembled from personal experiences, the intellectual, cultural, and social contexts in which these ideas occur, and a host of other influences that serve to mediate understanding (p. 99).

*Conscientization.* In his 1990 book on cultural action and critical pedagogy, Paulo Freire described human beings as active agents existing in and with the world. This existence is reflective and transformational, as man is an open being capable of altering the world through action.

*Constructive collaborations.* As defined by Erben (2001), “constructive collaborations are utterances that promote social cohesion within the group” (p. 325).

*Critical consciousness.* According to Freire (1990), man’s critical consciousness develops when he is able to recognize a society’s “epochal themes” and is able to make critical choices in order to change a society’s accepted reality.

*Critical pedagogy.* As defined by Freire (1990), critical pedagogy explains how, through dialogic practice, that education can be an instrument of liberation rather than one of oppression.

*Destructive collaborations.* In 2001, Erben defined destructive collaborations as those collaborations in which moves by the participants jeopardize the social cohesion of the group (p. 325).

*ESOL endorsement.* In the state where this study was conducted, elementary education majors and language arts (English) teachers are required by the professional licensing board to complete a series of competencies in teaching students whose first language is not English. Endorsement is achieved at the conclusion of coursework and upon receipt of the state's professional teaching license.

*Knowledge base.* A teacher's knowledge base (both as novice and master teacher) represents a combination of basic content skills, in-depth content knowledge, and general pedagogic skills (Shulman & Hutchins, 2004). This includes the capacity of the teacher to identify critically and understand a set of basic content ideas to be taught to students (p. 100).

*Identity.* Here, the definition of identity is considered in terms of how the role of the teacher is enumerated in U.S. public schools. As Zembylas (2003) pointed out, in the United States and England, teacher-student relationships have been characterized by a marked detachment and isolationism.

*Intersubjectivity.* As defined by Wertsch (1991) to explicate better the Vygotskian claims of intermental functioning, "[intersubjectivity] concerns the degree to which interlocutors in a communicative situation share a perspective" (p. 111).

*Master teacher.* Shulman and Hutchins (2004) defined the master teacher as one who can "transform understanding, performance skills, or desired attitudes or values into pedagogical representations and actions" (p. 92).

*New comprehension.* Based on Shulman and Hutchins' 2004 model of pedagogic reason and action, new comprehension represents the moment of internalization in a teacher's instructional processing from content to comprehension.

*Ning.* Developed by Marc Andressen (creator of the Internet search engine *Netscape*) and Gina Bianchini, Ning (Andreesen & Bianchini, 2004) is a social networking program that enables end users to interact and share information using features such as blogs, chat walls, and forum discussions.

*Novice teacher.* Shulman and Hutchins (2004) suggested that the novice teacher is one that is in transition between being an “expert learner” of his or her particular content area to a pedagogue who can actually transform students’ understanding of that content.

*Pedagogic reasoning.* Shulman and Hutchins (2004) stated that pedagogic reasoning, from the teacher’s perspective, is the ability to transform content knowledge into effective instruction.

*Productive collaboration.* Erben (2001) defined productive collaboration as “any interaction which contributes to the facilitation of shared knowledge and establishment of intersubjectivity” (p. 325).

*Reflection.* Taken from Shulman and Hutchins’ (2004) model of pedagogic reasoning and action, here, reflection takes on personalist undertones in which the teacher engages in critical analysis of classroom performance to enable pedagogic transformations.

*Scaffolding.* A term coined by Bruner (1985), scaffolding refers to the relationship between novice and expert learner in which the novice learner’s experience is scaffolded, or mediated, by the more experienced learner.

*Second Life (Version 1.2).* Second Life (Circa, 2001; Linden Labs, 2004) is a virtual world in which end users interact in different digitally constructed communities using an avatar.

*Simulated gaming.* Merrill (2006) suggested that simulation gaming can be defined as a principle of instructional design in which learners are engaged as active agents in solving real-world problems.

*Skype.* Skype (Skype Limited, 2009) is an Internet-based audio and video conferencing program with instant messaging and live voice chat capabilities.

*Sociocultural Theory (SCT).* First espoused by Russian psychologist Vygotsky, the theory suggests that higher mental functioning and, thus, cognition can be explained through sign systems mediated by social interactions.

*Transformation.* From Shulman and Hutchins' (2004) model of pedagogic reasoning and action, transformation is the process by which teachers, through the acts of planning, instruction, and reflection, move from personal comprehension to the comprehension of others.

*Vignette.* According to Ely, et al. (1997) and Spalding and Phillips (2007), vignettes are typically used as an analytic tool in exploratory research and are constructed to lend voice to the participants' experiences.

*Virtual world.* An aspect of simulation gaming, virtual environments provide a digital platform in which the end user can explore other forms of self-expression and self-representation through the use of a digital representation of the self (Ba, Tally, & Tsikalas, 2002).

*Within-Case Analysis.* This type of qualitative analysis is an iterative analytic tool used when conducting a case study through which conceptual associations within a case can be made (Miles & Huberman, 1994).

*Zone of Proximal Development (ZPD).* According to Vygotsky (1978), the ZPD represents the distance between what a novice learner can achieve independently and what that same learner can achieve with the assistance of a more experienced learner.

### Outline of Dissertation

The following represents a brief overview of the content for each chapter. Each description was meant to act as an informative snapshot of the primary assertions and conclusions presented under each chapter heading. Accordingly, the following brief chapter synopses are presented.

#### *Chapter 1: Introduction*

Using critical pedagogy and sociocultural constructivism as theoretical frameworks, the relationship among the ESOL II instructors, pre-service undergraduate teaching students seeking ESOL endorsement, and Level 2 ELL was reconceptualized using a simulated environment. Within the virtual world of Second Life (Linden Labs, 2004), the traditional face-to-face classroom-based professional development model was digitally reconstructed in a virtual classroom. Then, by using exploratory case study techniques (Yin, 2008), it was hoped that student-to-student and student-to-teacher interactions would evince intrasubjective developmental progressions among participants captured using vignettes and tallied collaborative utterances.

## *Chapter 2: Literature Review*

In this chapter, a comprehensive literature review related to the development of teacher identity and knowledge was conducted. The primary theories of cognitive and personal development that were used in this study were discussed. These theories included critical pedagogy (Freire, 1990), sociocultural (Vygotsky, 1978), and constructivist (Kvale, 1996; Windschitl, 2000) theories. Also discussed within the context of sociocultural theory was the notion that intramental development was achievable through collaborative and engaged dialogue (Bakhtin, 2006; Erben, 2001; Wertsch, 1991). Because the data were collected in virtual environments, the literature related to the efficacy of using simulated gaming for professional development was considered as well.

## *Chapter 3: Methodology*

This chapter detailed the techniques that were used for data collection and analysis. Data were gathered from two primary sources and were coded and analyzed using the qualitative research software NVivo™ (QSR International, 2008), version 8.0. One source of data collection was the dialogues generated among the pre-service teachers and between the pre-service teachers and the course instructors during the face-to-face debriefings captured using a video camera before, during, and after the interactions with Mrs. Darbyshire, the ELL. The second source of data collection was the transcribed interactions that occurred between the pre-service teachers and Mrs. Darbyshire during the instructional interactions in the virtual environment. The data were then analyzed using the following qualitative analytic techniques: (a) within-case analysis (Miles & Huberman, 1994); (b) productive, constructive, and destructive collaborations (Erben,



2001); and (c) vignettes (Ely, et al., 1997; Spalding & Phillips, 2007). Also included in this chapter were the changes made to the original data gathering protocol and sources in addition to justifications for those changes.

#### *Chapter 4: Findings*

To answer the research questions presented for this study, data were analyzed using three qualitative analytic tools. I examined key words from the students' reflective statements and transcripts of the dialogues from the debriefings and interactions to establish emergent themes. Based on these themes, an explanatory effects matrix (Miles & Huberman, 1994) was constructed to explicate the students' instructional transitions from first to final reflection. Using this matrix, I created event flow networks (Miles & Huberman, 1994) of the interactive characteristics of four of the 12 pre-service teachers who had the most direct interaction with the ELL, Mrs. Darbyshire.

To understand better the specific language used by the students to moderate the instruction and interactions, I used the technique as iterated by Erben (2001) for determining the type of collaborative language used by the pre-service teachers. After determining the types of language used by the participants, I created a causal network (Miles & Huberman, 1994) to explain how the pre-service teachers achieved self-regulation through the collaborative episodes. Finally, I constructed portrait vignettes of four of the pre-service teachers to lend voice to the participants across the instructional sessions.

#### *Chapter 5: Discussion*

In this chapter, I discussed the theory that emerged relevant to how a group of pre-service teachers could achieve self-regulation through collaborative interactions

while instructing an ELL using a virtual environment. I offered a summary of the findings by demonstrating what the data showed relative to answering the research questions. I then discussed the findings in terms of their implications relative to the theories used to inform the study's design. After summarizing the findings, I turned my discussion to explaining how this study implicated pedagogy, teacher education and inservicing, and instructional technology. Finally, I offered a reflection on my role as a participant-researcher in addition to recommendations for future research in the area of using virtual environments to provide an alternative venue for student instruction, teacher development, and professional training.

### Summary

The idea of offering traditional face-to-face professional teacher training in a simulated environment represents an under researched area of teacher education. One reason for the noted absence of literature on virtual gaming and teacher professional development is the access to, increased use of, and diversity in technologies offered to teachers and students. Simply stated, the research has not caught up to the rapid evolution among digital platforms (Horizon Report, 2010). The increasing trend in the past 10 years, particularly of using Internet technologies in schools, has not, however, gone completely unnoticed. As research in computer-assisted learning and instruction evinces, these technologies do offer an attractive alternative for educators seeking to accommodate technology learning trends, especially when considering the traditional and nontraditional student. Additionally, most research on the relationship between the novice and master teacher, particularly where professional training is concerned, is bound by the institutional constraints that the research is seeking to explicate. By lifting these

constraints and critically examining the social interactions among teachers in a virtual environment, it was hoped that a more authentic picture of the cognitive transformations of these pre-service teachers would be revealed.

## CHAPTER 2: LITERATURE REVIEW

### Overview

To help guide the assertion that a type of virtual, scaffolded interaction enabled internalization (and later application) of traditional face-to-face in-service training, an examination of literature related to the following themes was considered: (a) the influence of emerging technologies over teacher training and staff development; (b) the role of teacher identity; (c) the benefits of simulated versus face-to-face learning/training; and (d) the impact of teacher identity and simulated learning over teacher knowledge.

### Teacher Knowledge and Face-to-Face Training

Much of what is known about how teachers receive and integrate knowledge comes from the literature on face-to-face in-service training. The bulk of research dealing with professional development has primarily focused on (and accepted) the teacher as passive recipient of training that is typically contextualized according to school district objectives and state certification requirements. Training and resultant policy, then, are seen as something *done to* the teacher rather than *done with* them; the teacher becomes noticeably absent from training and is then seen as professionally “tamed” through this process (Lingard, 2003). Alternative training and development practices that are considered as a more process-outcome linear approach are favored in order to maintain the status quo of distancing the instructional relationship between teacher and

student (Johnson, 1997; Zembylas, 2003). Training is almost scripted to follow exactly idealized *professional* standards with no real accommodations for individual teacher differences. Also, because most Internet-based in-service trainings are versions of their face-to-face counterparts, school districts and administrators really see no efficacy in allocating resources to re-create the same training in a virtual world. Operating in an industrial, marketplace mentality, current in-service practices (even those offered online) reflect the desire among districts simply to *reproduce the system*, emphasizing current policy rather than promoting teacher cognitive development and professional identity growth (Chalmers & Keown, 2006). Notably scarce from the educational research and related literature is the deconstruction of traditional notions of the teacher as passive training recipient in favor of exploring how the same trainings offered in a simulated environment might actually contribute to a teacher's authentic cognitive and pedagogic development.

Traditional face-to-face trainings are also characterized by the noted cognitive distancing between trainer and teacher. This distancing results in the situational removal of the teacher from the actual instructional context. Although much has been written about the need to harmonize training with authentic training examples, professional teacher training certainly reflects the opposite practice (Albion & Maddux, 2007). The lack of authentic and *real world* simulated practice during these trainings is most likely the result of ends-oriented district and state professional development standards. School districts in the United States have been characterized by their notable use of business-type administrative and instructional models. Rather than consider school districts as microecosystems reflective of the diversity that exists among the larger teacher and

student population, a more controllable, assembly-line managerial standard is applied to teacher training and professional standards. Albion and Maddux further noted that this approach is entirely reflective of the industrial movement of the early 20th century as well as the behaviorist psychology movement of the 1950s. One of the most observable indicators of these standards is seen not only in the type of training a teacher receives but also in later, more formal evaluations. The attempt by school districts and state education agencies to professionalize teaching, rather than encouraging professional dialogue and cognitive exploration that is context related, has resulted in abstract trainings and performance standards that many teachers abandon as soon as the in-service is over (Shulman & Hutchins, 2004). Atwell (2007) characterized this as a dysfunctional relationship between administrative expectations and teacher cognitive development.

The effort to normalize teaching standards and professionally realign certification and training programs using a set of benchmark pedagogic criteria characterized many pre- and in-service university training programs in the 1980s and 1990s. This is especially true in states with very diverse student populations. These decades also evinced changes in how and when teachers received training as well as which programs best suited their immediate and long-term teaching goals. Also, as the economy and culture of the United States changed and became more international, the need for better educated and more globally conscious students and teachers prompted many school districts to offer nontraditional professional training. Teachers and students were becoming more digitally literate as technologies changed to become more user-friendly and interactive, almost mirroring activities in daily life. This is particularly noted with the rise in use, especially in the last decade, of the personal computer and the Internet in

schools (Prensky, 2010). During this time, the technological expectations of pre- and in-service teachers has significantly changed; it is expected that 21st-century teachers will not only be able to deliver content knowledge through effective pedagogy but be technically flexible enough to provide the same content using some technology during the lesson (Prensky, 2010). Thus, for the 21st-century teacher, it is not enough just to have an institutionally pre-determined set of knowledge and pedagogic skills (Chan & Pang, 2006). As the geopolitical landscape changed at the end of the 20th century and technologies advanced, public schools were faced with multiple challenges, requiring the adaptation of teacher training and developmental standards to align better with the rapidly changing curricular and technical needs of the modern classroom and student. However, many of these changes have not been implemented due to other administrative considerations, and the gap in the literature is quite noticeable (Earle 2002; Hodas, 1996; Ringstaff & Kelley, 2002).

### Emerging Technologies and Staff Development

#### *Influence of Emerging Technologies over Professional Development, Training, and Student Learning*

The effects of different and emerging technologies over education, learning, and acquisition are noted in research-related literature. Although the technologies might have varied, the underlying conclusion among researchers seems to harmonize around the same theme; technology-enabled instruction positively impacts learning. In considering the literature that examines the use of technology-enabled instruction, a first consideration should be given to the impact the personal computer and Internet have had on education in U.S. public schools. During the 1980s, personal computing was

introduced into public schools primarily for fiduciary purposes. At that time, it was cost and logistically prohibitive to equip every teacher and every classroom with a computer for instructional or other lesson planning needs. Desktop computers were primarily used for bookkeeping, simple word processing, and record keeping. Other factors contributed to the minimal use of computers in the mainstream classroom: (a) technology infrastructure was unavailable; (b) widespread technical training was not offered in most districts; (c) technology was cost prohibitive; and (d) most textbook series were still oriented to support face-to-face instruction. As such, the computer was perceived as a novelty rather than as an instructional tool (Wheatley, 2003).

Although there was some content-related gaming software available for core subjects such as math and science, the exercises were designed to elicit behavioral, rote-type responses. Activities were more a transplant of the practice or activity workbook to the computer. This was entirely consistent, of course, with educational trends at the time. Albion and Maddux, in 2007, suggested that the 1980s education model was based on training models from the Industrial Revolution and was not suitable for the diverse learning climate characteristic of the 21st-century classroom. Accordingly, school administrators and teachers set about the instructional business of engaging students using more behavioral learning strategies that could be readily assessed using static assessment tools. For the school, these behavioral methods were in direct response to district, state, and federal accountability standards and did little to take into account students' diverse learning styles (Gipps, 1994). For that reason, companies that created early gaming programs used simple designs that mostly reflected the instructional content of existing text-based practice workbook and textbook ancillaries. In essence, the hard



copy of the workbook had been re-created on a computer; after all, this constituted the least economically and instructionally intrusive plan for schools, but did produce some stimulus for computer and software companies. Thus, considerations for any developmental theory other than rote behaviorism were really not in play; the social nature of cognitive development certainly was not considered. Of course, this could be explained by either the lack of technology to support more interactive environments or the lack of theory to support scaffolded socialization as a means of cognitive development. The simplest explanation might stem from in accountability and economics. Whatever the case, it would not be until the introduction of the Internet through which a salient instructional relationship among computer, teacher, and student was recognized.

Chalmers and Keown, in 2006, suggested that the Internet was unparalleled as a catalyst for learning. The early Internet (Web 1.0) has often been described as more of a *see-and-do* environment. Early users of the Internet were not able to undertake the amount of editing and end-user manipulation that is available with the new version of the Internet (Web 2.0). It is understandable, then, that early studies considered the use of the Internet as an instructional tool as more behavior-based programs and learning environments. Still in their developmental infancy, the early asynchronous programs, such as e-mail and discussion boards, were really extensions of the larger see-and-do environment of the early Internet. Although these asynchronous programs did allow for reflection and some level of socialization, a collaborative environment was not guaranteed (Biesenbach-Lucas, 2004). Substance, therefore, might be supplanted by message overlap and extended procedural collaboration (Sengupta, 2001). On the other

hand, early indications did suggest that collaborations, while using asynchronous programs, promoted levels of critical thought (Merron, 1998). It was the introduction of synchronous programs to the Internet, however, that turned out to be quite promising in promoting interactive environments favorable for collaboration and knowledge building (Nunan, 1999).

The latest version of the Web emerged in approximately 2004, and is attributable to the work of O'Reilly. He recognized a static boundary that existed between what a user could and could not substantively do to a program's interface (O'Reilly, 2005). The introduction of Web 2.0 presented another level of interactivity to the Internet not seen in the early years; the ability of the end user to manipulate a program's content was undeniable. Here, a clarification of what is meant by manipulate is warranted. It is reasonable to say that an end user writing an e-mail or responding to a message on a discussion board is manipulating the content of those particular messages. By manipulating the content, however, he or she is not changing the interface. In other words, the user is not actually changing the program by altering the source codes. Where the second generation of the Internet differs is that it does allow the end user to alter source codes in favor of codes that fit her or his particular need. It is also important to point out that these changes do not have to occur at the code level for the end user actually to manipulate a program's content. Innovations in multimedia applications have been the most prolific in enabling the see-and-do data of version 1.0 to be actually user controlled. These manipulations are notable in social networking and avatar-based gaming programs such as Ning (Andreesen & Bianchini, 2004) and Second Life (Linden Labs, 2004).

Although there exists considerable research related to learner interactions using asynchronous and synchronous Internet programs (e.g., e-mail, discussion boards, instant messaging), the literature investigating new, more interactive programs in Web 2.0 is meager but emerging (Rosen, 2010). This investigative sparseness is particularly noted in how educators and students are using the 21st-century Internet and its related, malleable programs. It is impossible for schools to ignore Web 2.0's influence over the daily activities of the modern student. Students have come to expect their classrooms to represent technologically the programs and gadgets they use on a daily basis. To accommodate these changes, the challenge to school districts and teachers, according to Albion and Maddux (2007), then becomes twofold; first, teachers must be trained effectively to understand the learning implications of using the programs, and second, they must receive training to integrate the programs into their classrooms and instruction. Then, there exists the problem of resource allocation. School districts already struggling with budgetary restrictions might not be receptive to redirecting valuable resources to integrate programs in schools and to retrain teachers.

#### *Understanding the Use of Technology for Teacher Training*

The participatory context of the present study was based on a master and novice teacher exploring, using a simulated Internet-based environment, different instructional techniques for addressing the needs of a Level 2 ELL. Because the broader context of this study implicated using technology to benefit language learners, the literature related to computer-assisted language instruction was considered. Also, because most recent literature has addressed Internet-based technologies for language learning, an examination of this research was appropriate. Belz and Thorne, in the introduction to

their 2005 volume on the use of the Internet in mediated language learning, noted the importance that technology has had over the field of language learning pedagogy: “The stated present-day preoccupation of FLE with technology is evidenced by the number of publications focusing on technology-related research and pedagogy in [journals] in our field” (p. viii). Again, it was the United States military that pioneered the use of an Internet technology for communication. The military had been using a type of asynchronous and synchronous relay format to convey information for several years prior to its commercial introduction. Its introduction as an effective communication tool was soon marketed to mainstream computer users. Then, in the early 1990s, businesses and universities viewed using the Internet as a way to relay effectively information among users. The most notable influences came in the form of e-mail and chat-based programs that were popularized by enabling the almost immediate transfer of information among users. As Salaberry (2001) noted,

Indeed, several tools have lent themselves well into the incorporation in the L2 classroom, from the early uses of the phonograph to reproduce the human voice to films, videotapes, computers, teleconferencing, and the use of Internet chat rooms to increase the communicative interactions with other learners. (p. 39)

One of the most immediate distinguishing features of these programs was user interactions. Communication that was previously conducted face-to-face, over the telephone, or in some handwritten or typewritten communiqué was moving into what some considered a more detached environment. Thus, users became obligated to reconsider their communicative roles while using what seemed to be a more isolative

format. This reconsideration implicated not only the discourse involved but also how the speaker/writer was re-indentifying himself or herself in an evolving virtual world. The unique adaptations resulted in highly stylized digital discourse. These discourses might be verbal or nonverbal (Ba, et al., 2002), and represent a digital platform in which the user can explore other forms of self-expression (Hsi, Pinkard, & Woolsey, 2005). These evolving virtual discourses generated another focus for CALL research as educational stakeholders (i.e., administration, teachers, parents, and students) discovered new levels of discourse among teachers and language learners. The application of qualitative techniques, such as discourse analysis by Baron (2004) and Gee (2005), were most notably used to explicate better the evolving discursive interactions among digital interlocutors.

Using CALL in the modern language classroom has not been without its critics. Much of the criticism is based on the methodologies used to investigate the effectiveness of computer-assisted learning over language acquisition. Specifically, the work in instructional technologies is noticeably cast in terms of a more behavioristic, product-oriented construct. To the mainstream cognitivist in SLA, the response-stimulus application of technology to language learning would be considered antithetical to the principles of language acquisition theory. Allum (2002) suggested that much of the criticism of CALL research methods comes from the generalizability of research findings across different technologies and instructional settings. Chapelle (2005) explained that part of the confusion might rest with the definition of two closely related terms that appear in tandem with CALL; these terms are interactivity and interaction. Chapelle posited that it was really interactionist theory that could lend the most solid paradigmatic

foundation: “If interactivity is the interaction that occurs between the learner and the computer, this indeed is an important construct for the study of CALL” (p. 63). Levy (2000) pointed out that much of the criticism of CALL research is based on its use of comparative studies, most notably comparing groups of learners: “The possible problem with this approach, however, is that the ways in which technology is used might be unduly and unnaturally, simply in order to facilitate comparability” (p. 8).

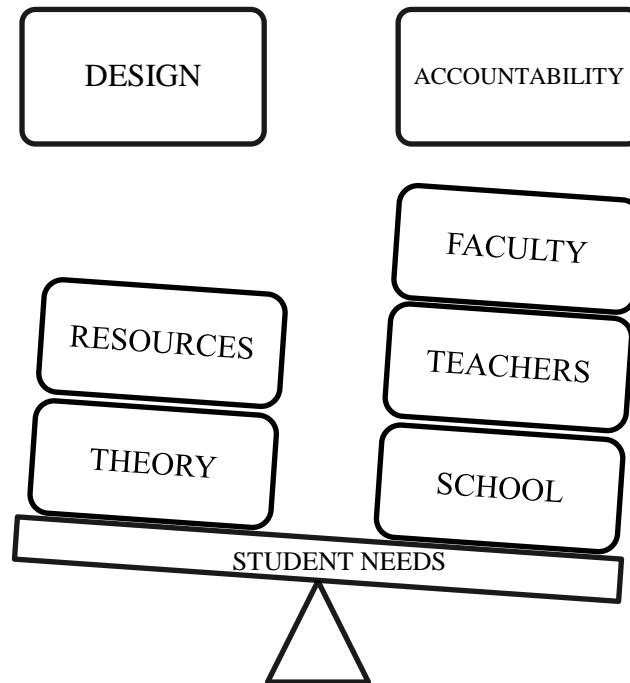
Paradigmatic criticisms aside, as Fotos and Browne (2004) pointed out, since the 1980s, CALL has been consistently recognized (especially the interactionist and integrative varieties) as a set of important pedagogic elements in second language learning. Levy and Stockwell (2006) stated the following regarding the marriage of design and theory in CALL: “It is very clear [that] CALL design can be complex, and it requires the careful integration of a number of elements, both pedagogical and technical, in a principled way” (p. 19). Chapelle (1998), citing Larsen-Freeman and Long (1991), emphasized the great importance that CALL has to language educators, particularly when considering its potential for enhancing input and interaction among learners. Lam (2000) extended the importance of computer-assisted learning in the classroom to include that of reassessing computer use in terms of learner and teacher identity. Similar to the epistemological movements seen in the fields of SLA and IT, lending theoretical and methodological balance to CALL research will ultimately result in a more balanced field that lends paradigmatic constancy to the importance of computer assistance to language learning and acquisition.

Once it was established that the computer could be a powerful tool in teaching language learners, a significant debate began regarding the type of instructional design

that would best inform learning. Here, it is important to emphasize the theoretic bifurcation that exists within the fields of Second Language Acquisition (SLA) and Instructional Technology (IT). In considering a theory to inform a design, then, the best approach might involve attempting to create a balance between the cognitivist and sociocultural paradigms in SLA and IT scholarly discourse. In considering a theory to inform best the use of technology in the classroom, a balanced theoretical approach in which elements of cognitive and sociocultural methodologies are synergistically united will best inform a design. By so joining, the approaches better represent theoretical principles in the fields of IT and SLA.

From the Instructional Technology (IT) side, although behaviorist theory has faded into the theoretical distance, learning theories based on cognitive psychology rose to prominence around the same time (1970s) that the theory took hold in Second Language Acquisition (SLA). According to Alessi and Trollip (2001), the current theoretical trends in IT focus on the information processing model from the cognitive paradigm. It is this model that seeks to explain “how information in the world enters through our senses, becomes stored in memory, is retained or forgotten, and is used” (Alessi & Trollip, p. 19). In a similar vein, more recent paradigmatic developments in IT research reveal a substantial interest in the application of Vygotskian sociocultural theory to design. Applying such a theory would necessarily relocate traditional cognitive-based tasks to the semiotic system required to graduate a series of tasks to a self-regulating system. Thus, professional training around a balanced theoretical construct will meet the following primary needs: (a) the accountability needs of the institution and (b) the evolving technical needs of the 21st-century student (see Figure 7). Also implicated is

how, in these digital environments, a learner identifies his or her role and how those identities are transformed.



*Figure 7.* Balancing competing interests among stakeholders.

#### Teacher Identity Development through Collaborative Knowledge

To be effective, a teacher must develop professionally, personally, and socially (Bell & Gilbert, 1996). It is the knowledge of self as it interacts within and outside of different social contexts that accounts for how a teacher, as an individual (a human being existing within a historical reality), can identify the self within and between contexts. According to Freire (1990), humans are conscious beings or agents capable of transforming the world through action expressed by language. Freire referred to this as the notion of conscientization, which he defined as “the basic condition [for which] is that its agent must be a subject (that is a conscious being) [capable] of transforming, of



producing, of deciding, of creating, and of communicating himself” (pp. 499-500). He further noted that conscientization, “like education, is specifically and exclusively a human process” (p. 499). As such, man can purposefully be conscious of and act upon his reality making him “a being of relation” (Freire, p. 500). Freire also suggested a plurality to human relationships in the world and that these relationships differ according to context. Here, because man’s relationship with his environment is temporal and dynamic, he might challenge his current state through reflection. Unlike an animal, man is not seen as reactive and subject to only one reflexive response to an environmental change. Rather, “men can intervene in reality in order to change it” (Freire, p. 4). Thus, man’s consciousness becomes a “tool to deal with a problem” (Freire, p. 3).

The principles of conscientization can be applied to understanding how a teacher forms his or her identity. As part of a pedagogic environment, the teacher can be viewed as necessarily existing as an individual who simultaneously interacts in the classroom with students and outside of the classroom with other faculty and administrators. These two sets of interactions, although they do account for some development of a teacher’s identity, are not all encompassing; in other words, unlike in the animal kingdom, a human being’s identity is not static and/or reactive only to conditions as they might exist at a particular moment in time. Accordingly, it would be a misstatement to suggest that the development of a teacher’s identity is bound solely by its instructional context. Rather, as suggested by Freire (1990), human beings are reflective agents whose realm of existence is based on the purposeful act of altering their identities by way of conscious transformations.

Although the notion of conscientization could be transformative when considering teacher identity, the majority of research related to how a teacher develops an identity examines adaptation to the teaching environment rather than liberation from it. More specifically, these research models tend to look at the linear progression from novice to expert teacher, focusing on reflective practices that tend to be examined within a teacher's existing instructional context. As Freire (1990) pointed out, it is the ability of the human agent to "reflect upon his life within the very domain of existence and question his relationship to the world" that facilitates his existence in and understanding of his world (p. 5). It is this same dialogue between what the context dictates and the freedom beyond the context that makes the development of the true identity possible. Freire connoted these exchanges as the dialectic interactions between the objective agent (adapted to the world) and subjective agent (integrated with the world). In the formation of identity, the truer identity emerges only when the agent is capable of integrating with rather than adapting to the world.

To the extent that man loses his ability to make choices and is subjected to the choices of others, to the extent that his decisions are no longer his own because they result from external prescriptions, he is no longer integrated. Rather, he has adapted. (Freire, 1990, p. 4)

Accordingly, much of what has been understood about the formation of teacher identity has been entirely objective; in other words, even though a good deal has been written about the *teaching context* and its contribution to the formation of a teacher's identity, the conditions under which identity is examined and the conclusions drawn tend

to be fixed. The reason for this can best be explained by considering the institutional hold that is placed on a teacher's professional development. Thus, when conducting research in the field of education (particularly in public schools), it is not uncommon for the identity to be developed from adaptation rather than integration. This is particularly true when considering the novice teacher whose first exposures to administrative and school functions prescribe exactly what the beginning teacher's identity should be according to the context of their particular institution. As Cooper and Olson (1996) pointed out, particularly where pre-service teachers are concerned, identity becomes a function of prescribed institutional roles. This is consistent with Nias's (1998) suggestion that the novice teacher has very little control over the formation of his or her identity; this identity becomes the servant to institutional rather than to conscious changes. Therefore, it can be asserted that most teachers have been reduced objectively to the institutional musings of their districts, administrators, and schools where their dialectic consciousness is objectified.

Although there have been efforts among sociocultural theorists to explicate identity by understanding its contextual development, the true identity is frequently obscured by that same context. In other words, the very policies and organizational structures that denote the instructional context for the teacher are most often the same policies that impede the separation of the self from the context. Day, Kington, Stobart, and Sammons (2006) pointed out that a teacher's identity is not stable due to several internal and external factors. These factors might include personal experiences and institutional policies. When a teacher becomes adapted to rather than integrated in his or her environment, it becomes difficult for researchers to distinguish between that which is

the teacher's identity versus that which has been imposed by the school as the "norm." From the poststructural perspective, then, it is the environmental instabilities that necessarily contribute to the formation of a conscious identity; a process that is constantly adapting to the changes (Allen, 2003). But, if a socioculturalist were attempting to determine which institutional parameters were the most influential in revealing how a teacher's identity is formed, s/he would not be looking at a true picture; rather, s/he would only be able to consider that identity to be a reflection of the institution. From the sociocultural perspective, cognition develops through mediation with cultural tools. That being the case, how then could a teacher's knowledge or identity be socioculturally explained if the developmental tools the teacher is using have been prescribed to him or her? By contrast, how would the teacher's identity be affected or the knowledge developed if the developmental tools were not prescribed?

The influence that sociocultural theory has had on educational research is not inconsequential. Much of what is understood about the development of teacher identity comes from research in the efficacy of face-to-face, site-based, in-service training as well as continuing education. This is understandable, having suggested earlier that most educational research, no matter the theory used to explicate certain findings, is necessarily restricted by the very institution it seeks to explain. Transfer of professional knowledge into classroom practice is also noted in the concept of how teachers develop their pedagogic identities.

Within the framework of sociocultural theory, identity and knowledge are understood most often in terms of best practices (focusing more on the individual teacher) or communities of practice (focusing on a group of teachers). Typically, this

transfer and knowledge creation has been considered using the tenets of Vygotskian sociocultural theory (Norton, 1997; Pennycook, 1998, 2001; Vygotsky, 1978). The application of sociocultural constructivist theory in this context enables researchers to reconceptualize traditional, face-to-face in-service training to reflect a complex series of social and intersubjective processes rather than a discrete set of learning objectives (Jones, Rua, & Carter, 1998). The goal is to facilitate the development of professional intrasubjectivity by opening the teachers' Zones of Proximal Development (Wertsch, 1985) through some scaffolded (Bruner, 1985) interaction. Teacher identity then would become the function of a socially constructed, interactive, and dynamic process.

Theoretical development in educational research has definitely evolved over the past 20 years. The 1980s was especially defined by the works of scholars such as Lantolf and Frawley (1984), Wertsch (1985), and Bruner (1985), all of whom were advocating the exploration of social interactions as explicative of cognitive development (Gauvain & Siegler, 2001; Mischel, 2007; Tudge & Rogoff, 1989). Particularly in the past decade, findings reported from studies whose primary theoretical framework was sociocultural theory have increased. This noted scholarly rebirth is evinced by the significant increase in articles and other publications in which cognition, and therefore higher mental functioning, was explained through social interaction. This is especially true in the fields of SLA and IT; fields that are of particular importance to this research. As an example, the 2007 edition of *The Modern Language Journal* revisited the much vilified 1997 article by Firth and Wagner with somewhat less scholarly trepidation. In their article, Firth and Wagner (1997) called for a "reconceptualization of SLA research that would enlarge the ontological and empirical parameters of the field" (p. 285). Initially, this

reconceptualization had been maligned by more cognitively oriented theorists such as Long (1997) and Gass (1998).

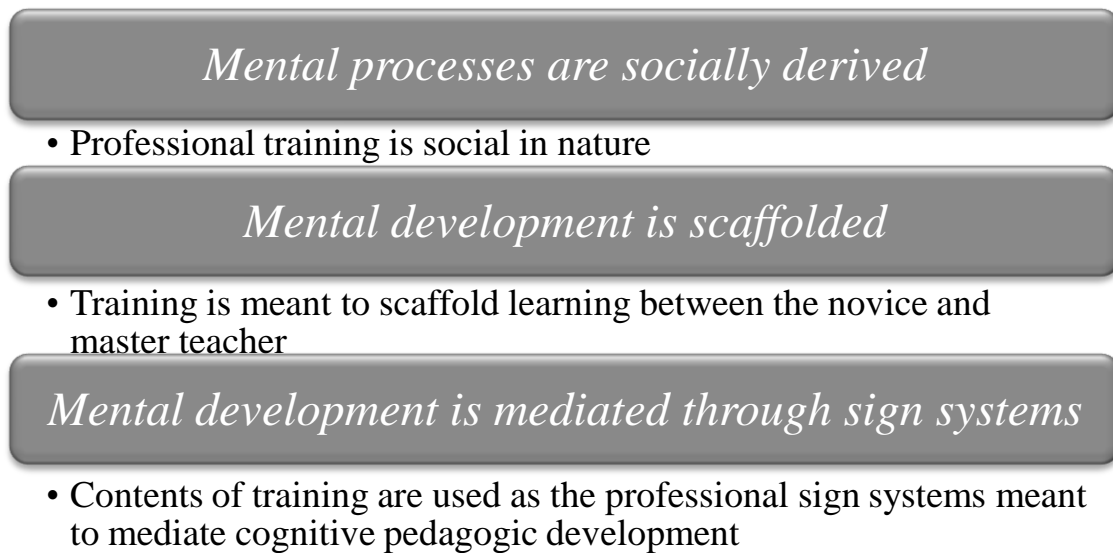
Firth and Wagner's (1997) appeal for a broader empirical venue for research in SLA runs parallel to earlier suggestions here that much of the research on teacher identity and knowledge has limited rather than expanded the understanding of how a teacher develops professionally. By examining the linear relationship between novice and expert teacher and situating most studies in the face-to-face training environment, identity and knowledge become institutionally restricted. Even though there have been empirical milestones in educational research, they are approached more as novelties rather than as sound theory. Firth and Wagner (1997) pointed this out in regards to the introduction of cognitive psychological and developmental theory to the study of language acquisition. Theoretically refreshing, the works of academics such as Chomsky (1968) and Piaget (1952) lent a more *scientific* appearance to explanations of how children cognitively develop. Piagetian developmental theory has been particularly influential in the field of education, especially his delineation of stages of development. Similarly, the development of teacher identity and knowledge has been conceptualized around fixed stages; however, following the argument of Firth and Wagner, not all development can be explained by cognition or fixed stages. Setting theoretical limitations necessarily, as Freire (1990) suggested, curbs the ability of the research to objectify—and therefore situationally liberate—results. Thus, a more holistic, biosocial perspective is called so that the researcher might liberate his or her findings.

The theory advocated by Firth and Wagner (1997) was based on the revived works of Russian psychologist Vygotsky (1978) as well as the companion works of his

students and colleagues. Vygotsky's theory suggested that higher mental functioning occurred as a result of sign systems mediated through social interactions. His most influential writings articulated a theory of learning that has been called sociohistorical (Luria, 1976), cultural-historical (Smirnov & Corson, 1975), and sociohistorical-cultural (Cole, 1985). For the purposes of this study, the more westernized term of *sociocultural theory* (SCT) was used to explicate the major tenets and educative implications of Vygotsky's original model. Much of Vygotsky's theories were vilified and eventually banned in his native Soviet Union. Upon his death in 1934, many of his works were left untranslated and uncirculated for much of the next 3 decades. Although his writings were eventually revived in the West, it was really left to his former students and colleagues (such as Luria and Smirnov) to explicate his theories and introduce them to educational and psychological theorists. It was not until the 1970s that his writings were translated and considered as a theory of the mind applicable to cognitive development through social interactions mediated through language. This scholarly renewal is particularly noted over the last 10 years, during which SCT has grown in epistemological prominence among scholars.

One of the central tenets of Vygotskian sociocultural theory was the assertion that an individual's cognition cannot be separated from its social context. The individual, then, was seen as inseparable from his or her social context. Interactions between the individual and his or her environment were perceived as creating an interdependent symbiotic state in which cognitive transformations occurred as a result of symbolically mediated activity. To explicate further his primary assertion, Vygotsky (1978) delineated his theory into three principles: (a) mental processes are socially derived; (b) mental

development is scaffolded (a term coined by Bruner, 1985) between the novice and master (what Vygotsky refers to as a Zone of Proximal Development or ZPD); and (c) mental development is mediated through sign systems. Teacher identity and knowledge development can be understood in terms of each of these tenets, as explained in Figure 8.



*Figure 8.* Using the tenets of SCT to explicate cognitive pedagogic development.

Using a sociocultural lens, teacher identity is understood to be an evolving construct that is context dependent and negotiated through social discourse (Gee, 2005; Varghese, Morgan, Johnston, & Johnson, 2005). Multiple contextual factors, including personal, instructional, and political factors, contribute to the development of the professional self (Dogancay-Aktuna, 2006). Thus, it is the complexities of these interactions that enable the situatedness of self to emerge through social and professional dialogue (Zembylas, 2003). Part of the development of intersubjectivity involves the formation of the self through social interaction. As Erben (2001) noted, it is through a cycle of collaborative utterances, particularly productive collaborations, that an individual can experience such growth through collaboration. It is through social



interactions that an individual is able to develop cognitively, while, at the same time, manipulating cultural symbols to form an identity (Alfred, 2002). For the teaching professional, this identity becomes a voice that might or might not entirely harmonize within the existing framework of what is considered by some to be mainstream professional behavior (Kessels & Korthagen, 1996). Thus, because sociocultural theory has, for the most part, been considered in many disciplines as unconventional paradigmatically, it could be argued that what might be unconventional in one or more disciplines might be the theoretic awakening in another (here, teacher education). In considering the narrative or story of the individual teacher (Bahktin, 2006; Pavlenko, 2002; Wertsch, 1991), scholars investigating the situationality of the professional teacher voice might employ the techniques of SCT to obtain a more inclusive picture of teacher identity (Alfred, 2002).

#### The Importance of Technology in Teaching English Language Learners

According to Kindler (2002), the English Language Learner (ELL) student population in the United States grew by 12% in the 10-year period between 1990 and 2000. Within this same time period, the number of ELLs attending public schools increased to more than 10 million students. The increase was most notable in states with a significant population of ELLs such as Arizona, California, Florida, North Carolina, New Mexico, New York, and Texas. These particular states have experienced an increase as a result of the large influx of immigrants that occurred at the end of the 20th century. As a result, there was an immediate need for public school teachers and administrators to be trained regarding the latest pedagogic trends as they relate to teaching students whose first language was not English.

The state of Florida is unique in that it is the only state that has a comprehensive university ESOL endorsement program (Govoni, 2007). Although all teachers and administrators in public schools are required to have ESOL training, elementary, special needs, and secondary English teachers, in addition to subject matter endorsement, are required to have additional certification in ESOL. Because the number of ELLs is increasing on a yearly basis, pre-service and in-service teachers must be provided with training that, in some way, reflects the real-world needs of second language learners. Using a virtual environment, then, would enable teachers to exchange ideas collaboratively using authentic activities that might not be as feasible in a more static, face-to-face training environment (Borko, 2004; Perry et al., 2002).

#### Simulated Learning

The scholarly discourse related to the effectiveness of gaming and simulation in learner cognition has graduated to the virtual world. Once viewed within the context of child cognitive development, a technological turn in simulated gaming has raised the issue of its instructional effectiveness among adult learners (Daniel, Schweir, & McCalla, 2003; Dillenbourg, Schneider, & Synteta, 2002). This is particularly noted in language learning because, as Crookall (2007) aptly observed, language, from the first to second language, might be the most instructed subject in the world because it is the foundation of humanity: “It is enshrined in documents (written, spoken, visual) in early writings on tortoise shells from 9,000 years ago, through hieroglyphics carved in stone, to modern digital systems” (p. 5).

Recent advances in virtual environments further enable the teacher to lift, using technology, the traditional classroom interactions into a simulated environment, thereby

lending a cognitive malleability not necessarily present in face-to-face instruction. Learner motivation and interest, important to any design consideration, would necessarily increase, as students are able to negotiate course content within an interactive and engaging environment. In returning to the original theoretical justifications for designing technology-based virtual professional development, the most effective construct would be one that takes both the cognitive and socially constructed paradigms into consideration. Although gaming environments might increase interest and enrollment in language classes (particularly among today's digitally savvy students), the curriculum must be a balanced one that reflects both institutional and learning needs. Simply creating a curriculum that is dense with multimedia will not ensure that sustained learning has occurred. It is here that Prensky (2010) suggested that the teacher must now act as a partner who adapts the technology to accommodate the needs of today's digitally literate students. Further, as Clark and Mayer (2006) pointed out, "[R]ich media per se do not create learning, but rich media can enable effective instructional methods that promote learning" (p. 321).

#### *Simulated Learning in a Face-to-Face World*

As a first principle of instructional design, Merrill (2006) noted, "[learning] is promoted when learners are engaged in solving real-world problems" (p. 63). Markee and Kasper (2004), citing Coughlan and Duff (1994) and Seedhouse (2004), suggested that "learners are active agents, who transform tasks-as-workplans into tasks-as-activities" where these instructional interactions will be eventually used by the learner as an acquisitional resource" (p. 491). If this principle is considered within the research on the efficacy of simulated gaming and virtual environments in education, then it could be

asserted that a game would be considered most effective if the learner is able to apply practically the simulated lesson within the context of a real-world interaction. Simulation and gaming theory is not a new concept in education; much of what is known about the value of using simulation in learning comes from its use by the United States military during World War II. Although much of that instruction used audiovisual methods, it was the real worldness produced by the films that facilitated civilian and military training (Reiser, 2006). The audiovisual and radio instructional movement initiated by the military has had a sustained and notable influence over modern simulated instructional design.

#### *Reinventing Face-to-Face Training in a Virtual Environment*

Before considering the design of a virtual professional development model, it is important that the instructional designer consider the needs of the requesting institution. This is particularly important when constructing training for a public school district in the United States. Although the environment external to the U.S. public school system has changed, current training and resultant pedagogy mirror the behavioristic techniques of the 1950s and 1960s. Even as emergent areas in research demonstrated the retentive inadequacies of stimulus-response approaches to learning, public schools have been slow to incorporate new teaching methods into their broader curricula. Some theoretical changes (such as those emphasizing the importance of sustained cognitive development over short-term behavioral changes) have made appearances, particularly in the innovative courses supported by choice and magnet school programs. Most educators, for example, could verbalize the prominent learning theories articulated by Bloom (1956), Krashen (1978), and Piaget (1952).

In considering, then, a theoretically and technically balanced design for a digitally based professional training system, school districts, administrators, and teachers are faced with selecting technologies that are best suited to meet the needs of their particular institutional situation. Various face-to-face training techniques have been a staple among school districts, especially since the 1970s. The design of these resources typically reflected the trend seen among state certifying agencies towards standardizing teacher development and professional standards (Hammond & Ball, 1999). In many cases, understanding how a teacher applied the practical lessons learned in a particular training became a secondary consideration to what was deemed the more measureable goal of performance standards; in other words, how, using formal observations, was a teacher *applying* the lessons *learned* in training within the context of daily instruction was of paramount consideration. However, emerging technologies, like the Apple iPod, the Nintendo Wii, and online social networking programs, are challenging all stakeholders to reevaluate the implication of offering a traditional face-to-face training module versus its digital version using a virtual environment. This challenge is particularly evident as younger teachers (part of today's more technologically literate generation) anticipate lessons that are stimulating, engaging, and can interface with many of the devices they use on a daily basis, such as a mobile phone, MP3 player, or the Internet (Prensky, 2004). Designing virtual training that reflects not only current research in simulated learning but also how technology can enable professional development and pedagogic growth become increasingly important as more technology is introduced to school districts across the United States.

González-Lloret (2003) observed that some rationale must be provided for using CALL activities rather than conventional resources. This is particularly true of a technology like simulated gaming that requires both an initial and sustained investment in time and resources. Although Crookall and Oxford (1990) observed that simulations using some computer activity enable students to engage in a learning environment that they might not otherwise use or have access to, the traditional simulated programs were really missing the key interactional element sought in the study here. It is that interaction, as previously noted, that has the best chance of ensuring language learning and acquisition but that will demand the greatest amount of instructional and technological resources. Zapata and Sagarra (2007) suggested that “[a]nother drawback of some of the existing studies on CALL entails the utilization of synchronous tools hardly applicable to large language programs, as well as software rarely in line with the resources available at many colleges and universities” (p. 153).

Despite these challenges, it is here that a school district must decide to commit the economic, pedagogic, and technical resources available to ensure that students are given the opportunity to reach their full learning potentials using modern learning techniques and that students have, at their disposal, appropriate resources to compete geosocially, geoeconomically, and geopolitically. Thus, Lindenau (1984) stated that ignoring the impact of microelectronics over the traditional textbook-based classroom would have significant and far-reaching negative effects on education. The challenge, then, lies in the integrative capabilities of the instructional designer to respond cohesively to institutional needs through balanced design. He or she must consider the following elements as

paramount in design considerations: (a) theoretical approach; (b) institutional setting; (c) curricular needs and syllabus design; and (d) available and potential resources.

Any instructional design that does not recognize an institution's needs jeopardizes the effectiveness of the end product. According to Alessi and Trollip (2001), effective communication among all stakeholders will facilitate the delivery of a client-responsive product. Prior to beginning the actual construction of the design, they suggested adhering to a set of planning guidelines that include defining the scope of the project and its content as well as defining the characteristics of the learners and any other affected users. According to Alessi and Trollip (2001), "Fundamental to all good instructional design is understanding the nature of the target population" (p. 439). This understanding becomes particularly important when considering a top-down technological redesign of traditional face-to-face training. It would not be unreasonable to suggest that the design, although attempting to engage learners using updated simulated environments, needs to consider also the user-friendliness of the training for the more traditional classroom teacher. Accordingly, the designer should conduct the appropriate front-end analysis to determine these needs.

As the designer, "your tasks are to interpret ideas, explain limits, get approvals, and signoffs, and most of all, make and keep the client happy" (Litchfield, 2006, p. 118). Further, "[c]areful analysis can reveal the various affordances and constraints that affect how people receive new tools and innovations" (Merrill, 2006, p. 344). Allen (2003) provided a very practical method to assess the essential components of an effective technology-based curricular design. After conducting a front-end needs analysis, the designer can proceed effectively with a project by considering the following: (a) "learner

motivation”; (b) “learner interface”; (c) “content structure and sequencing”; (d) “navigation”; and (e) “interactivity” (p. 62). The most obvious component in the curricular redesign is selecting a simulated program that will engage today’s technology savvy student. In developing good and effective instructional design, a paramount consideration is learner motivation. One reason for the move from face-to-face to technology-based training is to dangle that additional motivational carrot to teachers who are otherwise disengaged from traditional trainings.

The most effective design will also be one that engages the end user with an interactive and consistent interface. This statement holds true for both the teacher and student and is related to the idea of learner motivation. The teacher, who might or might not be new to the technologies used in simulated environments, will be less motivated to adopt technologically enhanced training if the interface is unfamiliar and difficult to navigate. Similarly, they will be less motivated to use the interface (and related navigation) if it is cumbersome. Because the objective is to increase the interactions among teachers to effect professional knowledge growth, dealing with an unwieldy user interface would result in teachers spending more time learning the actual computer program and less time interacting and scaffolding each others’ pedagogic knowledges. Allen (2003) referred to this concept in terms of adhering to instructional design conventions and what occurs if those conventions are abandoned, “Every convention becomes immediately suspect. The software seems harder to use, confidence decreases, and many users barricade themselves within a subset of options that have proven reliable and at least minimally sufficient” (p. 70). Chappelle (1998) went as far as to suggest that

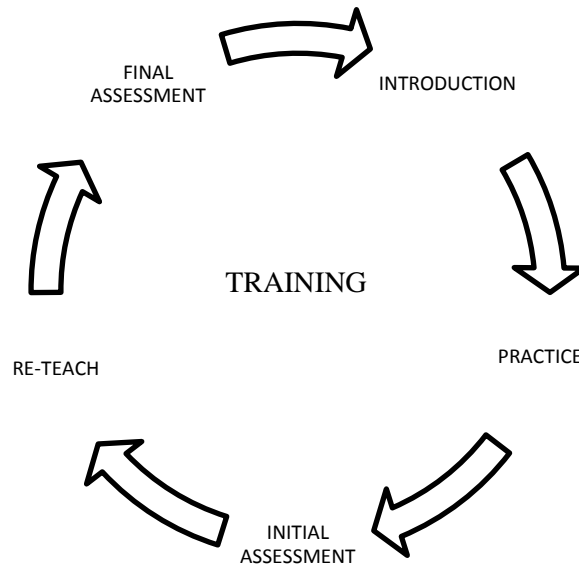


the computer should be considered as much a participant as the learner and the instructional designer should take this into account:

Because CALL software can actually play a role in input and interaction, it is useful to consider it as a participant in L2 tasks. The metaphorical perspective of the computer as a participant provides a means for extending the hypotheses outlined above to CALL. (Chapelle, 1998, p. 25)

The content structure and sequencing that Allen (2003) wrote about come into play when redesigning face-to-face training. Traditional trainings have been conceptualized around a task-based, ends-oriented design. Typically, trainings are organized around professional standards and expectations. Frequently, the training has been very linear, yielding more to the convenience of following standards as they have been articulated by the school district or state rather than the edicts of scaffolded professional learning. In her 1991 article, Celce-Murcia pointed out that syllabus and curriculum design, although grammar heavy, were “[at] best...organized around situations or topics” (p. 474). She also stated that, “Prior to 1967 and for several years thereafter, however, no one challenged the centrality of grammar as either content for language teaching or the organizing principle for curriculum or materials development” (p. 462). However, if a technology-based training program is to be successful in promoting collaborative professional growth, several logistical and attitudinal factors must be overcome. Diffey (1992) recognized, particularly in North America, the circularity of much curricular design; in other words, the recent developments in curriculum have been subject to the *teach-to-the-test* mentality (see Figure 9).

This is particularly true, as Shulman and Hutchins (2004) pointed out, when it comes to how teachers are trained. Their observation went back to the linear model of professional growth from novice to master teacher. Using a standard set of professional behaviors, teachers are trained to model a set of acceptable instructional competencies that follow a strict performance rubric. These competencies are regularly reinforced during training, and administrators expect to observe these skills during their formative evaluations. Such an approach limits pedagogic growth as it promotes the maintenance of what are considered model professional skills. By using a virtual technology such as Second Life (Linden Labs, 2004), a teacher would be capable of critically examining traditional instructional methods in an interactive environment that promotes collaboration through authentic activities.



*Figure 9.* The circularity of most curricula, as articulated by Diffey (1992).

However, simply using a computer for professional development does not ensure that an effective technology-integrated training program has been developed. In 2001, Salaberry noted that the success of any technology-infused curriculum is necessarily dependent on positive institutional infrastructure. Accordingly, negative attitudes (close to rejection) on the part of teachers combined with the limitation on resources, will result in failure. Selecting the most appropriate design to complement a technology-infused course also requires considerations of an appropriate unit of pedagogic analysis. Thus, it is not enough to add a WebQuest or Microsoft Office PowerPoint project to a training session; considering the use of technology without understanding its value to the training's instructional goals will definitely lead to disassociation among learning goals. Accordingly, in 1992, Long and Crooks called for the selection of a unit of analysis prior to designing any course. Whether the contents of the training are structurally based or task-based (Richards, 2003), the "choice of the unit of analysis in [design] is crucial for all aspects of a [program]" (Long & Crooks, p. 27). The final design will most likely depend on what the long-term learning goals are for the teacher.

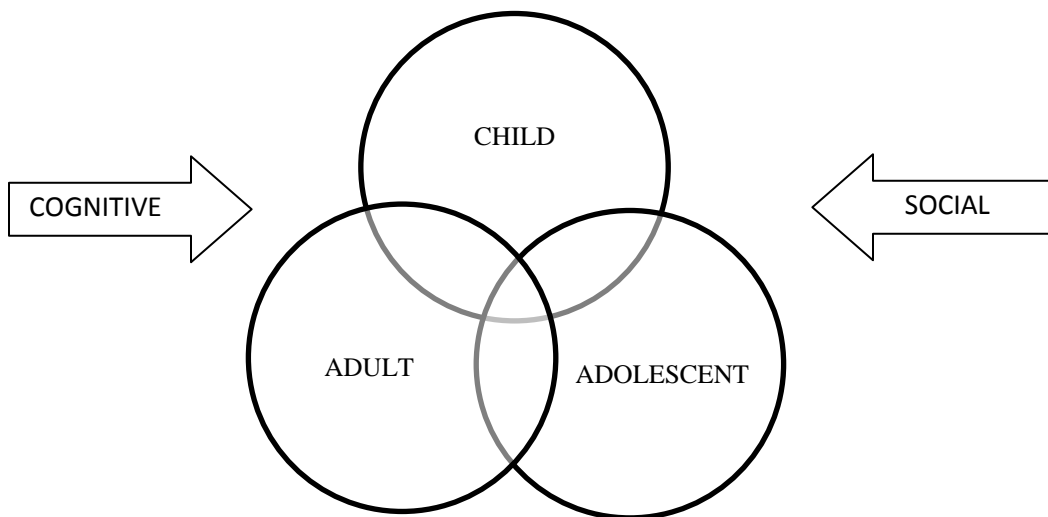
*Available and potential resources.* The first resource to be considered is the type and content of ESOL training as it presently exists. If the training modules use some available technologies, it would be reasonable to incorporate that content into a virtual design. Also, the type of virtual environment will, of necessity, be a major consideration. Using an avatar-based virtual world such as Second Life (Linden Labs, 2004) would lend more realism to the training activities than would a fixed face-to-face training session. Teachers might feel as if they are actually interacting with each other as opposed simply to interacting with a computer program. Ultimately, this sensation of *realism* might

reduce the teacher's possible resistance to training in the first place and potentially facilitate the cognitive growth.

Further, if the assumed goal of the training is to enable professional cognitive development through some sort of simulated activity, then the construct of training designed around a virtual world might be the most reasonable use of school resources. Because most schools have some sort of computer laboratory with Internet access (whether it is in a media center or an actual classroom language laboratory), using an Internet-based program as the structure for the training would minimize, to some degree, the financial repercussions of designing from scratch some sort of new program. The bulk of the design work, then, would revolve around the construction of interactions and activities using the virtual world's preprogrammed interface. It is important to keep in mind, as Lantolf (1997) pointed out, that the real purpose of *playing* with the content of a course is not play itself; rather play "serves a fundamental role in cognitive development of the learner by allowing her to handle parts of model utterances that are slightly beyond her current level of competence" (Lantolf, as cited in Warner, 2004, p. 70). This observation is where many districts might initially hesitate in recognizing the value of a simulated gaming program for professional training; the notion that the teachers are just *playing* rather than *learning* might overshadow the efficacy of using a virtual design. Administrative resistance to this type of avatar-based training could potentially be minimized, especially if a model were introduced prior to actual implementation.

It is at this juncture that Brougère (1999) called for a harmonized approach to the learning benefits of simulated gaming, particularly among adult learners: "Adults were once children and therefore played children's games and experienced the evolution of

play that children experience” (p. 137). He suggested that the most effective designs cannot be bounded on one side by cognitive learning theories or on the other side by social constructivist philosophies. Thus, there must be agreement among the practice and theory; that agreement must recognize the learning continuum that exists from child to adult (see Figure 10).



*Figure 10.* The learning continuum from child to adult.

Garris, Ahlers, and Driskell (2002) pointed out that, although there seems to be little consensus on the instructional format that simulated instruction should assume, its value as a learning tool cannot be minimized: “New interactive technologies provide opportunities to create learning environments that actively involve students in problem solving” where learning of complex subject matter is enhanced (p. 442). They particularly remarked on the popularity of the virtual game SimCity, noting that many of the games are “instructional and enlightening” (p. 441). Finally, Crookall (2007) noted that simulation gaming is now enjoying a broader appeal among educators as the value of

play in learning among adults has benefited from the continuum of early child play learning theory: “[The] inclusion of simulation/games in language learning materials (Tomlinson & Mashura, 2000) has become a hallmark of quality and creativity, and is seen as a ‘guarantee’ that learners would become involved and, perhaps, even learn” (p. 7).

*Using theory to inform the design of virtual professional development.* Because the request for technology-driven professional development is situationally dependent, the instructional environment of the requesting institution might help determine the theory that will eventually inform the design. Although this might at first glance appear to be a theoretical imposition on the part of the school/school district, if the designer fails to recognize what the institution’s ultimate goals are, the instructional and learning goals of the design will fail. Accordingly, the designer must select an approach that will ensure simultaneously a cohesive training module built within the construct of a thoughtful design plan. On this topic, Allen (2003) suggested that designers take a more pragmatic approach in selecting the theory that informs the instructional model. Specifically, Allen noted that the problem with many designs is the tendency to overgeneralize theory and research because the existing contexts are not considered. Thus, an informed and balanced approach that is cognizant of client and learner needs will ultimately enable the creation of a more effective design.

It is at this point that the researcher must theoretically position himself or herself according to meeting client needs. Although, on the one hand, the school district is looking to provide for diverse faculty needs by offering a technology-based professional development course (a more emic informed goal), the pressure to demonstrate pedagogic

knowledge through observable data (a more etic driven goal) will necessarily influence the initial proposal and eventual product. Emic considerations, however, might drive many of the design considerations of professional training in a simulated environment. After all, principles of professional development suggest that the internalization of pedagogic knowledge occurs best where the trainer and teachers are engaged in some sort of negotiated interaction. A similar IT principle can be suggested in which the interaction with the technology will result in skill acquisition on the part of the learner. These interactions take on a particularly significant role when considering the rise in the use of virtual programs for professional development (Ondrejka, 2006). Although these programs might take the form of a gaming or a social networking system, the programs were conceptualized around the idea that users can participate (interact) at times, places, and locations of their choosing. Although there are software training programs that provide some level of user interaction, the interactions are with the program itself; there are no user-to-user interactions. Many Internet-based programs offer a similar limitation, with teachers not interacting directly with each other but, rather, with the program interface. Thus, as Alessi and Trollip (2001) pointed out in the introduction to their book, “[the] fact that learning is constructive does not require that education be constructive. Rather, education should include direct instruction methods, experiential methods, exploration methods, and others” (p. 13).

### Summary

Current research on the efficacy of using virtual programs for teacher in-servicing is scarce (Rosen, 2010). There are several reasons for the lack of research. First, virtual environments are emerging technologies that are constantly changing their interfaces to

match new digital formats, making it difficult to triangulate results across variable and changing constructs. Second, because the more interactive programs require higher levels of technical ability, some institutions and instructors might shy away from using a program for which they do not possess the adequate skill set. Next, many of these virtual programs use significant local computer and server memory that might not be available or accessible by the school or the instructor. Finally, there is the challenge of reconstructing a traditional, face-to-face in-service within a virtual environment; this necessarily implicates significant time and resources that a school might not want to allocate when the same training is considered successful in a face-to-face setting.

By using critical pedagogy and sociocultural constructivist theory in tandem, educators and administrators would be able to reconsider conventional training methods. It is through the critical lens that the researcher would be able to examine more subjectively how a teacher can develop pedagogically while interacting in a simulated environment. This is most important when considering the development of the pre-service teacher. The idea of offering simulated training to pre-service teachers is that of providing them with the institutionally unrestricted opportunity to interact, experiment, and become professionally self-regulated (Schwienhorst, 2002). Within the construct of an avatar-based program, the pre-service teacher would be distanced from his or her institutional constraints; previous research has confirmed the limitations that institutional constraints place on the development of the authentic teacher identity.

Examining this digital acculturation necessarily lends itself to the tenets of sociocultural constructivist theory (SCT). The SCT methodologist, after all, is interested in the cognitive development that results from interaction between participants using



some meditational tool. For the constructivist, simulation gaming enables the learner to “construct new relationships with knowledge in the process” (Kafai, 2006, p. 38). Using a virtual environment for professional training is merely following technological influences over modern pedagogy to their logical conclusion. This is especially the case as programs such as Second Life (Linden Labs, 2004) are increasingly used by businesses and academia for communication, training, and learning. Although some face-to-face training is still the preferred methodology for many school districts, the influence of emerging technologies must be considered as alternatives to direct, face-to-face training. Virtual worlds and simulated environments, unlike chat rooms or e-mail, actually provide an interface that has the potential to mimic digitally a real-world environment. In Second Life, the pre-service teacher would have the opportunity to interact without the prescribed behaviors frequently required with face-to-face training.

It is within this virtual world that a training module might be reconstructed in such a way as to generate similar scaffolded learning opportunities that might occur in a face-to-face environment; Keegan (2002) described this as an ideal environment for the 21st-century learner. An undeniable reality of life, then, in the 21st century is the influence that technology has over academic and social activities (Blankenship, 2007; Prensky, 2010). This is especially true when considering the role that games have had in learning, especially at the end of the 20th century and beginning of the 21st century (Kafai, 2006). Emerging technologies, particularly as they relate to simulation gaming, are providing a medium through which end users, in an anytime, anyplace format, can manage their personal and public affairs. The increasing trend, particularly in the past 10 years, of using Internet technologies to gather information, participate in commerce, and

maintain relationships has not gone unnoticed by educational institutions. These simulated learning technologies offer an attractive alternative for administrators and educators seeking to offer more authentic teacher training using modern technologies.

## CHAPTER 3: METHODOLOGY

### Overview

The purpose of this chapter is to discuss the methodology that was used to inform the research design for this study. First, I discussed the purpose of the study as well as the research questions that guided the data collection. Second, I theoretically situated the techniques used for design, participant selection, and data analysis. Next, I discussed how the participants were selected (including changes to the original participants), described their characteristics in addition to the steps I took to ensure that their identities were protected. Then, I described my role and the role of the ESOL II course instructors as participants in the research. Finally, I explained the original data collection and analysis protocols in addition to the changes that were made to those protocols. I also clarified potential legitimation issues related to data gathering, analysis, and findings.

### Purpose of the Study

The purpose of this study was to demonstrate how pre-service teachers form pedagogic identities and concomitant professional knowledge while participating in simulated professional development activities and forum discussions using a social networking program. Using the virtual world provided by Second Life (Linden Labs, 2004), students from an undergraduate ESOL endorsement class, all of whom were pre-service students in their final year, were presented with an instructional scenario they

might encounter with an ELL as practicing teachers. This scenario was based on a case study that the students discussed in Week 2 of their ESOL II course prior to interacting with the ELL in Second Life. The case study was adapted from Chapter 5 of their classroom text (Mukherjee, 2006) which addressed avoiding hegemony in ESOL-modified lesson plans.

Specifically, these students entered a simulated classroom in Second Life (Linden Labs, 2004) and interacted with a Level 2 ELL who portrayed an adapted role of the student described in the case study. The student described in the case study was a native of Mexico and was an 11-year-old male with first language of Spanish. The topic in the case study was based on the student's reaction to the negative portrayal of Mexicans during a fifth-grade social studies lesson on the Alamo. To harmonize the demographics of the student in the case study with the ELL portraying him in Second Life, certain modifications (to such items as the country of origin, the content of the social studies lesson, and the proficiency level) were made to help mitigate trustworthiness issues that could potentially appear later in the data analysis. Those initial modifications are explained in Table 2.

Explanations of English Proficiency Levels (EPL) were provided to the students as they planned their lessons to assist them in making the appropriate modifications for the ELL in the case study. Those EPLs appear in Appendix A. Based on their readings, class lectures, and face-to-face discussions, students were tasked with collaboratively adapting the content of the social studies lesson to meet the language and cultural needs of the avatar ELL. They based these modifications on the demographic and proficiency information presented to them from the case study. Also, students were expected to make

their modifications specifically using ESOL Competencies 1 and 7 (knowledge of language principles) and Standards 13 and 17 (knowledge of language as a social phenomenon and use of technology).

Table 2. *Modifications to Original Case Study from Chapter 5 of Govoni (2007) Text*

Subject	Age	Gender	Country of Origin	Proficiency
ELL	73	Female	Argentina	Level 2
Student	11	Male	Mexico	Level 3
Alteration	ELL was older and learned English as an adult.	ELL remained a female during the interactions.	The ELL's cultural and linguistic responses reflected her country of origin.	The ELL would demonstrate characteristics of Level 2 proficiency.

### Research Questions

Suggesting the reconceptualization of traditional face-to-face teacher pre-service training into a virtual training environment raised the following questions for empirical consideration:

1. What instructional delivery issues emerge when Second Life (Linden Labs, 2004) is used as the setting for interactions among an avatar ELL and pre-service teachers in an ESOL II endorsement class?
2. What are the interactive characteristics that are exhibited among the teacher-participants while in the virtual training environment?

3. In what ways do the dialogic engagements of pre-service teachers regulate professional growth and identity transformation?

This study used qualitative research methodologies to explicate the potential professional growth of pre-service teachers while participating in virtual case scenarios involving ELLs. Using exploratory case study methodologies, the experiences of a class of undergraduate elementary education majors seeking ESOL endorsement were examined for interactive characteristics and scaffolding that evinced professional knowledge and identity development. Because the research questions were sociocultural in nature (Vygotsky, 1978), a constructivist approach was used to explain better how this group of pre-service teachers collaboratively unpacked their experiences with the avatar ELL (Research Questions 1 and 2). Research Question 3 was answered using elements of critical pedagogy to help explain how, during the collaborative episodes (Erben, 2001), these pre-service teachers experienced objective to subjective transformation during the virtual interactions (Freire, 1990).

### Conceptual Framework

Because the research questions were of an exploratory nature, it was determined that an exploratory case study with critical pedagogic and sociocultural constructivist undertones would be conducted (Yin, 2008). As Creswell (2007) pointed out, qualitative research enables the researcher to understand a participant's experiences by organizing collaborative interactions into thematic data clusters that emerge at the end of data collection. Using these techniques enabled the unpacking of collaborative episodes that took place over the course of the virtual interactions and debriefings. The case study protocols set by Merriam (2009) and Yin (2008) were used to guide the design, conduct,

and analysis of this particular study. In his 2008 book, Yin proposed a four-stage process in case study methodology: (a) designing the case study; (b) conducting the study; (c) analyzing the data gathered from the study; and (d) developing conclusions and suggesting areas of future research.

Using exploratory case study techniques iterated by Yin (2008), the data gathered from the virtual interactions were organized into thematic clusters that were determined *a posteriori* to the design and concomitant analysis using within-case analysis (Miles & Huberman, 1994). Then, using the techniques for constructing vignettes as prescribed by Ely, et al., (1997) and Spalding and Phillips (2007), the interactions were evaluated for their relevance to collaboratively scaffolded professional development. The reflections and debriefings were also examined for evidence that the pre-service teachers were able to unpack cognitively the scaffolded knowledge obtained during the interactions with the avatar ELL.

It was Freire (1990) who suggested that true identity cannot be bound by contextual constraints. Vygotsky (1978) suggested that a person's reality was derived from her or his social circumstances; Piaget (1957) went on to state that a person constructs his or her reality based on social interactions. All of these assertions underscore the rationale for conceptualizing the framework for this study around a socially constructed, critically theorized research design. Thus, a sociocultural constructivist approach served as the theoretical and methodological starting point for the study's design; here, the participant's knowledge was continually changing through an interactive synthesis observed over time (Kanuka & Anderson, 1999).

These paradigmatic evolutions also evinced other theoretical considerations contributing to the study's overall design. Here, it is important to note that I was not attempting to harmonize sociocultural theory with critical theory. Rather, I chose to use two theoretic lenses to help answer the research questions from an instructional and pedagogic viewpoint. These considerations included two specific theories related to individual and collaborative learning: (a) theories of self-regulated learning (Butler & Winne, 1995; Zimmerman, 1994; Zimmerman & Schunk, 2001) and (b) models of collaborative professional development (Englert & Tarrant, 1995; Erben, 2001; Kremer-Hayon & Tillema, 1999; Perry, et al., 2002).

In alignment with the tenets of SCT an individual becomes self-regulated when intrasubjectivity has been achieved (Vygotsky, 1978). Intrasubjectivity is attainable if the Zone of Proximal Development (ZPD) has been opened by some mediating sign - in the case of SCT, that sign is language. For the individual, then, cognitive development beyond existing knowledge occurs when productive collaboration takes place with a more experienced person. In the study here, two mediating signs were used to enable intrasubjectivity and self-regulation to occur. Those sign systems were the collaborative dialogue used by the participants during the interactions and debriefings and the Internet-based technologies used.

Also, the co-construction of knowledge can be achieved using broader models of communities of practice facilitated by instances of collaborative professional development. It is during these collaborative episodes that a beginning or less experienced teacher has the opportunity to ally with a more experienced teacher to facilitate professional growth. Thus, a pedagogic nexus emerges among the participants



such that the less experienced learner cognitively transforms across the cooperative iterations. These intersubjective episodes then facilitate self-regulation associated with authentic cognitive change.

### Institutional Settings and Original Participants

#### *Institutional Settings*

*Pre-service teachers' university.* The 12 pre-service teaching participants were selected from a university in a state in the southeastern United States. It was a private university with a student population of approximately 3,000 students enrolled full time at the undergraduate level. The student-to-faculty ratio was 17 to 1. Women outnumbered men on campus by approximately 2%. Eighty-six percent of students received financial aid upon enrolling as a freshman. The campus was ethnically diverse, with students representing all 50 states in the United States and 80 countries around the world (College & University Profiles, 2008).

*School district for the pre-service teacher participants.* It is important to describe the school district where these pre-service teachers completed their practicum experiences. The district was one of the largest public school districts in the United States. It received funding from both state and federal governments in addition to multiple private and public grants; the district reported spending approximately \$6,000 per student per annum, with 15% of students classified as economically disadvantaged. Enrollment in this district was close to 200,000. In the 2006-2007 school year, the teacher-to-student ratio was reported as 18 to 1. With respect to the district's ethnic composition, 50% of the student population was White, with the highest minority ethnic group being represented by Hispanics (27%) and African Americans (23%). The

majority (66%) of teachers in this district reported holding a bachelor's degree, whereas the remaining 33% held advanced degrees. Average years of teaching experience were 12. Standardized reading and test scores reported by the district were on par with averages for the state and have increased over the past 6 years of reporting (School Data Direct, 2008).

The district identified 11% of its population as ELLs, with the majority of those students classified as economically disadvantaged. Much of the recent reporting by districts across the country was in direct response to the reporting standards set by the No Child Left Behind legislation enacted by the United States Congress in 2001. Accordingly, each school, school district, and state is required annually to submit data regarding the demographics of faculty and students, as well as the results of state and national test scores (School Data Direct, 2008).

#### *Original Participant Selection*

Because this was an exploratory case study examining the experiences of pre-service teachers as they interacted with an avatar ELL, nonrandom sampling methods (Onwuegbuzie & Collins, 2007) were used, directed by a set of *a priori* criteria determined before the data were gathered. This group of pre-service teachers and the ELL were selected based on certain attributes implicating ethnographic elements in participant selection (Spradley, 1979). Also used in the participant selection process were Spradley's (1979) five key factors in choosing an acceptable informant to situate the participants within the larger theoretical construct of the case study protocol. Spradley's five key factors were particularly important when considering the theoretical balance of the proposed study. If, as suggested, any elements of critical pedagogy were used to

isolate features unique to the particular university and school district, then these elemental factors must be used to situate further the participants within their institutional contexts. These five factors were as follows: (a) thorough enculturation; (b) current involvement in the culture; (c) unfamiliarity with the cultural scene; (d) adequate time living in the culture; and (e) nonanalytic (Spradley, p. 46). According to Spradley, “Good informants know their culture so well that they no longer think about it” (p. 47). Pre-service teachers and ELLs who did not meet the selection criteria were not chosen for participation in this study.

*Non-random sampling criteria for pre-service teachers.* The 12 pre-service teachers selected for this study were undergraduate elementary education majors who were seeking ESOL endorsement. In the state where this study was conducted, elementary education and language arts majors are required, as part of the state professional certification requirements, to obtain endorsement in teaching students whose first language is other than English. This requirement was put into place by the state in response to the growing number of ELLs residing in the state and attending public schools.

Participants for this study were selected using a criterion-based, nonrandom sampling scheme (Onwuegbuzie & Collins, 2007). The use of nonrandom sampling methods was acceptable for this type of research because the participants were selected based on a set of criteria, determined *a priori* to the gathering of data, that comprised the following characteristics: (a) pre-service teachers enrolled in a university undergraduate teacher education program; (b) pre-service teachers seeking degrees in elementary education; (c) pre-service teachers enrolled in a state-required Level 2 ESOL

endorsement course; (d) teachers who were in their practicum year in a U.S. public school; (e) pre-service teachers who were regularly evaluated using district-level formative evaluation tools; (f) pre-service teachers whose cooperating school had a population of native and nonnative ELLs; and (g) pre-service teachers with access to technology either in their classroom or at a designated media center at their school locations.

*Selecting pre-service teachers using Spradley's (1979) five key selection criteria.*

In considering the factor of enculturation, pre-service teachers presently in their teaching practicum in a public school who regularly interacted with ELLs would be considered as currently involved in the culture. As this was their final practicum as graduating seniors from the elementary education program, this group of pre-service teachers demonstrated adequate time living in the teaching culture. From the standpoint of using Second Life (Linden Labs, 2004) as the venue for the interactions, these students, via responses to a technology survey in Week 2 of the course, did not participate in virtual environments. However, all of the students had taken technology in education courses prior to the ESOL II course in which they used both Internet- and non-Internet based programs with which they were unfamiliar. Therefore, it was anticipated that they would be nonanalytic (i.e. epoché) regarding the use of Second Life for the interactions with the ELL. Also, although it might be difficult for a pre-service teacher to separate his or her preconceived feelings regarding the efficacy of face-to-face professional development, here, the students were encouraged to be as nonanalytic as possible while participating in the virtual environment.

*Original ELL participant and non-random selection criteria.* In the study's original design, an in-service teacher was selected to portray the role of the ELL in Second Life (Linden Labs, 2004). The teacher was selected using nonrandom sampling techniques (i.e. criterion-based sampling). The teacher was in-service, ESOL endorsed, and an ELL with Level 6 proficiency. Her selection for participation was determined by a set of *a priori* criteria created prior to conducting the study. These criteria comprised the following: (a) an in-service teacher in a public school with a high population of ELLs; (b) an in-service teacher who was an ELL; (c) an in-service teacher who regularly interacted with ELLs; (d) an in-service teacher who had both elementary- and secondary-level teaching experience; and (e) an in-service teacher who was ESOL endorsed. This particular set of criteria was chosen in an effort to parallel reciprocally the criteria used for selecting the pre-service teachers.

*Original ELL participant and Spradley's (1979) five key factors.* The in-service teacher who was to act originally as the avatar ELL was considered as thoroughly acculturated, as she was an in-service teacher in a public school who regularly interacted with ELLs, was an ELL herself, and was ESOL endorsed. Thus, she was very acculturated to the three main themes guiding this study: (a) regular interactions with and instruction of ELLs; (b) understanding the modifications needed to instruct effectively an ELL; and (c) having considerable knowledge of and practice with ESOL-modified lesson plans and instruction. Similar to the pre-service teachers, the in-service teacher, whereas she self-reported being a regular user of Internet-based programs during instruction, did not use virtual worlds. Also, as part of her Master's in Teacher Education program, she too had taken multiple classes related to the effective use of technology in education. In

those classes, she reported working with unfamiliar technologies. Again, it was anticipated that, based on her teaching and technology experiences, she would be nonanalytic during the interactions in Second Life (Linden Labs, 2004).

*Teaching experience of the pre-service teachers prior to the ESOL II course.* The undergraduate student teachers meeting the criteria for selection and training using the course module in Second Life (Linden Labs, 2004) were completing their practica in elementary schools. The students attending the ESOL II course had completed the first part of their practicum experience in the fall semester of 2008. This practicum involved an after-school pull-out tutoring program for Level 1 and Level 2 ELLs in kindergarten. All of these students completed this practicum at the same elementary school, alternating the students that they tutored over the course of the semester. Students tutored these ELL students in reading and writing and were encouraged to apply the ESOL strategies that they were acquiring in their ESOL I course. These students had also taken courses in lesson planning and had actively engaged in microteaching lessons with ESOL modifications both in their ESOL I course and in their cooperating elementary schools.

*Teaching experience of the in-service teacher originally portraying the ELL.* The in-service teacher who was to portray the role of the ELL in Second Life (Linden Labs, 2004) had been a classroom teacher of Spanish as a second language. She had a master's degree in teaching foreign languages and had been teaching for more than 5 years. Her teaching experiences with the language and cultural needs of ELLs were quite extensive. She began teaching in a Title I elementary school in a public school district in a county adjacent to the school district where this study was conducted. The school had a high population of ELLs with Spanish as their first language, most of whom were recent

immigrants to the state where this study took place. At the time of this study in the spring of 2009, she taught Spanish and Latin as second languages in a public high school in the district used as the setting for this study. This high school also had a high population of ELLs, most of whom were native speakers of Spanish, primarily immigrating from the Caribbean or Mexico. She was certified to teach Spanish in Grades K-12, Latin in Grades K-12, and was ESOL endorsed.

*The new role of the in-service teacher.* Although the in-service teacher would no longer portray the role of a Level 2 or Level 3 ELL during the interactive episodes in Second Life (Linden Labs, 2004), she would continue to co-instruct the ESOL II course and interact with the students. Specifically, during Weeks 2 and 3, she assisted the students in making the appropriate ESOL modifications to their lesson plans. Because she did have familiarity with the social networking program Ning (Andreesen & Bianchini, 2004), she helped the students log on to the site and upload their lesson plans in the forum discussion area in Week 3. During the interactions in Second Life, she acted as a liaison between the students and the ELL (this was particularly the case during Sessions 2 and 4).

#### Change in Original Participants

##### *Selecting a Different ELL for the Interactions*

When this study was originally conceived, the ESOL II course instructor, Dr. Marquis, and I met to determine how the instructional episodes in Second Life (Linden Labs, 2004) would occur and who would play the role of the ELL during the interactions. Because the study implicated professional training and development of pre-service teachers, it was decided, as a scaffolding measure, to recruit an in-service teacher whose

qualifications and experiences paralleled the study's primary themes (i.e. ESOL endorsement, modifying lesson plans to include ESOL modifications, and teaching ELLs). Additionally, as a result of her significant experience as an ELL and working with ELLs, it was anticipated that during the interactions, she could predict the pre-service teachers' methods and make necessary adjustments in her language to challenge their original instructional plans. The in-service teacher who met the selection criteria was co-instructing the ESOL II course and was teaching in the same high school with me at the time this study was conducted.

*Justifying the change of ELL.* The role of the ELL was changed after Week 3 of the course. The change would be from the in-service teacher to an ELL whose language skills more closely matched those of the student in the case study from the students' text. After a debriefing among me, the course instructor, and the in-service teacher, it was again concluded, as a scaffolding measure, to recruit an actual Level 2 or Level 3 ELL. This decision was justified based on our collective experiences in teacher training and professional development for two reasons. First, because new technologies would be introduced to the pre-service teachers for the interactions, it was important to keep in mind, from a broader perspective, how best to mimic and to continue the developmental scaffolding that they had already received in their course work as elementary education majors. The objective, then, was to ensure that there was an element of familiarity and stability with the course assignments to balance the unfamiliar setting that the students would encounter in Second Life (Linden Labs, 2004). In the training of pre-service teachers, familiarity and stability are elements used by professors and mentoring teachers to enable scaffolded professional growth (Shulman & Hutchins, 2004). Second, the



broader objective was to ensure that the course activities involving the interactions were somewhat familiar to the pre-service teachers. However, the interactions in Second Life would be pointless if a degree of unfamiliarity was not introduced to enable the students to experience growth through the opening of the ZPD.

*Changing the ELL based on the theories used to inform the study's design.* As iterated earlier, I used two theoretical lenses to frame the design and research questions of this study. Specifically, I looked to the individual and collaborative developmental theories of Vygotsky (1978) and Freire (1990). Vygotsky suggested that a person's reality develops from their social interactions. Freire suggested that individual identity cannot be bound by contextual constraints. Accordingly, in order for the pre-service teachers to become self-regulated learners (Butler & Winne, 1995; Zimmerman, 1994; Zimmerman & Schunk, 2001), they must experience unbounded growth through their collaborative dialogues (Erben 2001), which would best be achieved by changing the ELL. It was also important that the change was in the demographics from the ELL originally discussed in the case study from the students' textbook.

*Non-random selection criteria for the new ELL.* Using the same non-random sampling procedure as was used to select the original participants for the study (Onwuegbuzie & Collins, 2007), I created a set of criteria for selecting the new ELL. These criteria were: (a) a female ELL; (b) an ELL who was born outside of the United States; (c) a Level 2 or Level 3 ELL; (d) an ELL who had access to a computer; (e) an ELL with at least basic computer skills and knowledge of the Internet; (f) an ELL who was not affiliated with the university where this study was conducted; and (g) an ELL with no teaching experience. ELLs who did not meet these criteria were not selected for

consideration. The ELL who was selected to participate was the in-service teacher's mother. She was a female from Argentina with basic computer skills and knowledge of the Internet. She was a high Level 1, low Level 2 ELL and was not affiliated with the university where this study was conducted. She also had no prior teaching experiences.

*New ELL participant and Spradley's (1979) five key selection criteria.* I used Spradley's (1979) five key selection criteria in recruiting the new ELL. Similar to the selection of the study's original participants, she was unfamiliar with virtual worlds. Also, her professional background was as a small business owner, and she did not have any knowledge of teacher training or the requirements of teacher education programs. Both of these factors would lead to her ability to be nonanalytic during the conduct of the interactions in Second Life (Linden Labs, 2004). As an ELL, she was currently involved in learning English and was thoroughly familiar with the language needs of an ELL. Thus, she was adequately acculturated as a Level 2 English language learner.

#### Ensuring Participant Anonymity

One of the important features of reporting the results of qualitative research is to ensure that the data were reported in such a way as to maintain the anonymity of the participants. As a preliminary step in the analysis process, the pre-service teacher participants were assigned pseudonyms used to identify them consistently throughout the analysis. When initially coding the data for analysis, students were assigned a letter in the alphabet from letter A to letter L. Pseudonyms were then selected for the students whose last names began with the letter originally assigned to them but that in no way was similar to their actual names. Also, the terms *ESOL students*, *pre-service teachers*, and *students* were used interchangeably but refer to the student participants in this study. The

course instructor was identified as *Dr. Marquis* and the in-service teacher as *Mrs. Rosenblum*. The avatar ELL was referred to as *Mrs. Darbyshire*. When referencing my role as the participant-researcher in the study, I used the first-person to refer to myself. Table 3 shows the pseudonyms used for the participants in the study.

Table 3. *Participants by Original Name Used in Initial Coding and Pseudonyms Used during Analysis*

ORIGINAL NAME	PSEUDONYM
Female Student A	Abby
Female Student B	Becky
Female Student C	Cara
Female Student D	Delia
Female Student E	Evie
Female Student F	Fiona
Female Student G	Gabby
Female Student H	Heidi
Female Student I	Isabel
Female Student J	Julie
Female Student K	Karen
Male Student L	Larry
Professor	Dr. Marquis
In-Service Teacher	Mrs. Rosenblum
Avatar ELL	Mrs. Darbyshire
Researcher	First-Person

## Profiles of the Participants

### *Profiles of the Pre-Service Teachers*

The pre-service teachers in this study were all elementary education majors in their final semester as undergraduates. These students were attending an ESOL II course in the final semester of their senior year as required by state law for their professional teacher certification. Each student had completed the first of two practicum cycles and during the ESOL II course, they were completing the second cycle. Both cycles took place at elementary schools in the school district where the university was located. The elementary schools were demographically and socioeconomically diverse; the student populations in Grades K-5 comprised native English speakers as well as children whose first language was not English. Of the 12 students enrolled in the course, information was gathered on 11 students. One of the students was out of the country and did not return until after Week 6. Of the 11 students, 10 were female and 1 was male. The average age of the teachers was 22.5 years, with the oldest student being 29 and the youngest student being 19 years of age.

Each of the pre-service teachers completed a practicum in a different grade level. Of the 11 students, 4 completed their practicum in Grade Level 4. Two completed their practicum in Grade Level 3, with the remaining 4 students completing practicum in Grades K, 1, 2, and 5. All of the pre-service teachers had at least one ELL in their practicum classes. The majority of ELLs reported Spanish as their first language. Other first languages comprised: (a) Creole; (b) French; (c) Japanese; (d) Mandarin Chinese; (e) Sudanese; (f) Russian; and (g) Turkish. The average number of ELLs per class was 5, with the lowest number reported at 1 and the highest number reported at 12. Table 4

presents the demographic information of the 11 pre-service teachers, which included age, undergraduate major, grade level taught during the second practicum, the number of ELLs in their practicum classes, and the first languages of the ELLs in their practicum classes.

Table 4. *Pre-Service Teacher Demographic Information*

Pre-Service Teacher Name	Age	Undergraduate Major	Practicum Grade Level	No. of ELLs	First Languages of ELLs
ABBY	19	Elementary Education	Grade 3	12	Spanish/Creole
BECKY	24	Elementary Education	Grade 4	6	Spanish/Japanese
CARA	22	Elementary Education	Grade 1	10	Spanish/Turkish
DELIA	21	Elementary Education	Grade 4	3	Spanish
EVIE	25	Elementary Education	Grade 4	8	Spanish
FIONA	20	Elementary Education	Grade 3	3	Spanish/French/ Sudanese
GABBY	21	Elementary Education	Grade 4	3	Spanish
ISABEL	23	Elementary Education	Grade K	3	Spanish
JULIE	29	Elementary Education	Grade K	2	Spanish
KAREN	21	Elementary Education	Grade 2	1	Spanish
LARRY	23	Elementary Education	Grade 5	7	Spanish/Chinese/ Russian

*Response to Week 2 technology survey questions.* As part of the students' profiles, it was important to understand their experiences as pre-service teachers at the university and in their cooperating schools. In Week 2 of the class, the students were presented with a technology survey in which they were asked questions related to understanding their personal, school, and practicum technology experiences. The technology survey questions appear below. Tables 5, 6, 7, and 8 represent the student responses to the survey questions. Of the 12 students enrolled in the class, only 10 returned responses to the technology survey questions. These students comprised the nine females and the one male student attending the class. Again, student names were replaced with pseudonyms to protect their identities.

#### *Week 2 Technology Survey Questions*

1. Do you have a Facebook/MySpace page or do you participate in other social networking sites? If you answer "yes", how frequently do you use these sites? What is your level of participation?
2. What technologies do you use most frequently?
3. Have you taken classes on using technology in education? If so, what technologies were mostly mentioned/used in the class?
4. During your teaching practicum, what technologies have been available to you in your cooperating school? Have you used these technologies? Why or why not?
5. Does the administration or faculty at your school support the use of technology in the classroom? Do they make training available to the faculty? If so, what type of training have you attended or heard about/observed?

Table 5. *Survey Question 2; Student by Use of Computer-Related Technology and Frequency of Use*

Student	E-Mail	Frequency	Word Processing	Frequency	Internet	Frequency
ABBY	X	Daily	X	Weekly	X	Daily
BECKY	X	Daily	X	Weekly	X	Daily
CARA	X	Daily	X	Weekly	X	Daily
DELIA	X	Daily	X	Weekly	X	Daily
EVIE	X	Daily	X	Weekly	X	Daily
GABBY	X	Daily	X	Weekly	X	Daily
ISABEL	X	Daily	X	Weekly	X	Daily
JULIE	X	Daily	X	Weekly	X	Daily
KAREN	X	Daily	X	Weekly	X	Daily
LARRY	X	Daily	X	Weekly	X	Daily

Student responses to Survey Question 2 related to the technologies most referenced by students in their responses. Although all students mentioned using a cell phone multiple times a day, e-mail, word processing, and the Internet were the most common technologies referenced by students. From the standpoint of frequency of use, the 10 responding students stated that they used e-mail and the Internet daily and used word processing weekly. Even though these responses seemed obvious (especially within the context of the anticipated technical abilities of the 21st-century student), this information was useful when isolating which computer applications the students used most frequently. However, to obtain a better understanding of the exact technical skills of this group of students, it was important to probe for additional information regarding technology use beyond what were considered to be a set of basic computing skills.

Because one of the programs used for data collection was a social networking program, one of the survey questions asked students if they used programs such as Facebook (Facebook, 2009). All of the students responded that they used Facebook but with different frequency of use.

Table 6. *Student by Use of Social Networking Program, Purpose of Use, and Frequency of Use*

Student	Program	Purpose	Frequency
ABBY	Facebook	Personal Use	2x Daily
BECKY	Facebook	Personal Use	1x Weekly
CARA	Facebook	Personal Use	1x Daily
DELIA	Facebook	Personal Use	1x Daily
EVIE	Facebook	Personal Use	1x Daily
GABBY	Facebook	Personal Use	3x or more Daily
ISABEL	Facebook	Personal Use	Bi-Weekly
JULIE	Facebook	Personal Use	Daily
KAREN	Facebook	Personal Use	Every 2 hours
LARRY	Facebook	Personal Use	Every 1 hour

Table 6 also shows the frequency with which the students used the social networking program Facebook (Facebook, 2009). All indicated that they used it for personal use to keep in touch with friends and family members. Cara, Delia, and Evie reported logging on to Facebook (Facebook, 2009) once daily. Abby, Gabby, Karen, and Larry reported the most frequent use ranging from two times daily to logging on every hour (Larry). The most infrequent users were Becky and Isabel who reported only logging onto Facebook once weekly or once bi-weekly, respectively. The reason that



Becky and Isabel reported less frequent use of the site was time; they felt that Facebook was a distraction to their class work.

Understanding the students' use of a social networking program was important for two reasons. First, many social networking programs share similar features such as photo, music, and video sharing. Typical features also include a live chat or blog feature. Therefore, if a student was familiar with uploading files and personalizing pages then using the same features in Ning (Andreesen & Bianchini, 2004) likely would be easier. Second, because these students were familiar with social networking, introducing Ning as one of the tools used for class discussion and file sharing for lesson plans would align with the technical skills that the students self-reported. Note below, in Figure 11, the similarities in features between Ning and Facebook.

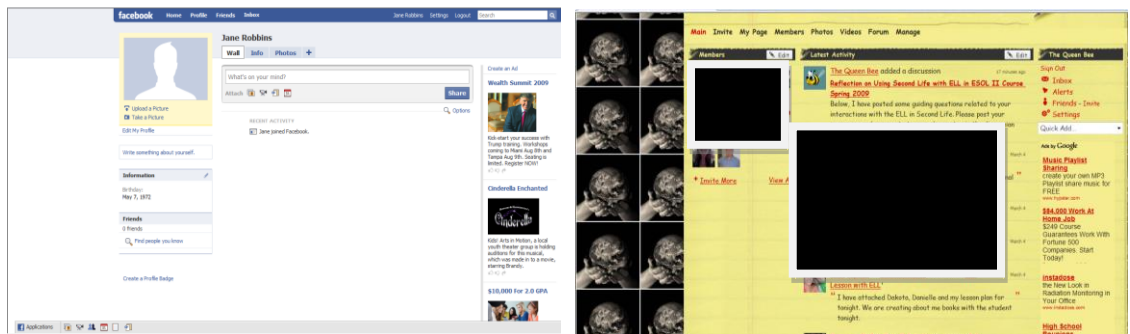


Figure 11. Similarities between features in Ning and Facebook.

In order to understand further their level of technical skill, students were asked, as part of the survey, about their access to technology in their cooperating schools. Table 7 presents the results of student responses to the types of technologies available to them in their cooperating classrooms. The students responded that they had access to at least one desktop computer. Of the students, only Abby and Delia had access to a LCD projector. Becky, Cara, Isabel, and Larry had access to interactive SmartBoards. Only Gabby and

Isabel reported using an overhead projector, whereas Abby, Delia, Evie, and Gabby reported having an ELMO available in the classroom. The students reported using these items on a least a daily basis. Understanding the types of technology the students used provided insight into their familiarity with the hardware and software that was used during data collection.

Table 7. *Student Access to Technology in Their Practicum Classrooms*

Student	Computer	LCD Projector	SmartBoard /Active Board	ELMO	Overhead Projector	Frequency of Use
ABBY	Yes	Yes	No	Yes	No	Daily
BECKY	Yes	No	Yes	No	No	Daily
CARA	Yes	No	Yes	No	No	Daily
DELIA	Yes	Yes	No	Yes	No	Daily
EVIE	Yes	No	No	Yes	No	Daily
GABBY	Yes	No	No	Yes	Yes	Daily
ISABEL	Yes	No	Yes	No	Yes	Daily
JULIE	Yes	No	No	No	No	Daily
KAREN	Yes	No	No	No	No	Daily
LARRY	Yes	No	Yes	No	No	Daily

In addition to understanding the types of technologies that these students used in their cooperating classrooms, it was also important to understand the types of technology coursework, training, and support that students had received either from the university or their cooperating schools. Table 8 reports student responses to survey questions regarding their technology coursework and training. As part of their course requirements for the university (specifically related to the education program), students were expected

to take a technology in education course. All of the students had taken this course which is taught every year by different instructors. The technologies emphasized in these classes varied according to instructor preference.

Table 8. *Student University Coursework, Site-Based Technology Training, and Site-Based Support*

Student	Technology Course	Mac or PC	Technology Emphasized	Site-Based Training	Faculty Support	Admin Support
ABBY	Yes	Mac	-----	Unsure	Unsure	Unsure
BECKY	Yes	Mac	Webquest PowerPoint iTunes Garage Band	Yes	-----	-----
CARA	Yes	Mac	PowerPoint Garage Band SmartBoard Ning	Unsure	Yes	Unsure
DELIA	Yes	Mac	Mac Applications	Unsure	Unsure	Unsure
EVIE	Yes	Mac	Smartboard Internet	Unsure	Yes	Yes
GABBY	Yes	Mac	Elmo	Unsure	Yes	Yes
ISABEL	Yes	Mac	PowerPoint Smartboard	Unsure	Unsure	Unsure
JULIE	Yes	Mac	PowerPoint Kidspiration Garage Band Excel	Yes	Yes	Yes
KAREN	Yes	Mac	Mac Programs	Unsure	Yes	Yes
LARRY	Yes	Mac	All Technology	Unsure	Yes	Yes

One technology item that the students did have in common was the type of computer used in their technology courses and cooperating classrooms. The students reported, in the technology surveys, that they used Mac computers in their cooperating schools in addition to their education courses at the university. Where students differed was on the types of programs emphasized in their coursework and site-based trainings. One of the common programs mentioned was PowerPoint as reported by Becky, Cara, Isabel, and Julie. Becky, Cara, Delia, Julie, and Karen mentioned programs specific to the Mac computers; these programs included Garage Band (a music composition program) and iTunes (an audio and video download website). Celia, Evie, and Fiona mentioned the use of the Smartboard whereas only Gabby mentioned receiving instruction on the ELMO. Three students made very general comments regarding their technology classes; Delia, Karen, and Larry only referenced technology in general with no specific mention of the programs that they used in conjunction with their coursework and practicum experiences. Regarding site-based technology training, most of the students were unsure what (if any) training was available. Only Becky and Julie stated that their cooperating schools offered site-based technology training - trainings in which they had participated. Although most were uncertain about the available training, the majority did state that there were both administrative and faculty support for the use of technology in the school.

*Profile of Mrs. Rosenblum Originally Portraying the Role of the ELL*

Mrs. Rosenblum (a female in her mid-40s) was a native of Argentina. Spanish was her first language with French as her second language; she was academically and conversationally fluent in both languages. She learned English after moving to the

United States and was a Level 6 ELL. Although she self-reported academic fluency in English, there were cultural nuances that she missed in social conversation, especially regional idiomatic expressions. Mrs. Rosenblum could also read and translate Latin. Originally an architect, she came to teaching as a second profession. Certified in Spanish, Latin, and ESOL and holding a Master's Degree in Foreign Language Education from a public university in the United States, she began teaching at an elementary school in a city adjacent to where this study was conducted. After teaching at the elementary level for 3 years, Mrs. Rosenblum accepted a position in a secondary school in the same county where the study was conducted. At the time of her participation in this study, Mrs. Rosenblum taught the introductory (Level 1) courses of Latin and Spanish.

Mrs. Rosenblum reported that she did have experience using technologies such as language learning software and an interactive SmartBoard and social networking (Ning, Andreesen & Bianchini, 2004) in her classroom. However, she did not have experience using virtual worlds. She did state that she was a frequent user of technology in her language classes, which included the use of an LCD projector to access language-related websites. She regularly used the school's main computer laboratory where students could access websites that provided grammar and vocabulary practice. Based on her graduate training, she availed herself of every professional development opportunity to learn and to explore new technologies conducive to language learning and cultural understanding.

#### *Profile of the New ELL Mrs. Darbyshire*

Based on our experiences in teacher training and professional development, Dr. Marquis, Mrs. Rosenblum, and I determined that the best experiential benefit for the pre-

service teachers would be for them to interact with a true Level 2 ELL. Therefore, a different ELL was recruited for the interactions. Mrs. Rosenblum's mother was recruited for the interactions; she was a high Level 1, low Level 2 ELL. Mrs. Darbyshire, a native of Argentina with first language of Spanish, immigrated to the United States more than 10 years ago after retiring as the owner of a small business. In contrast to her daughter, Mrs. Darbyshire, in her early 70s, was not college educated and held the equivalent of a high school diploma in the United States. An avid and highly literate reader in Spanish, she neither spoke nor read any other language fluently. Mrs. Darbyshire conducted and received all of her communications in Spanish. Because she resided with Mrs. Rosenblum where Spanish was primarily spoken in the home, her knowledge of English was limited to beginning reading and conversational skills.

Regarding her use of technology, Mrs. Darbyshire's computer use and skills were limited. She routinely used e-mail to communicate with family and friends but her knowledge was limited to basic message composition, sending, and receiving e-mails. Although she did use the Internet, she had limited knowledge of its functions and had no experience with virtual worlds or simulated gaming environments. Therefore, in order for her to participate in the interactive sessions in Second Life (Linden Labs, 2004), Mrs. Darbyshire would need technical assistance in order to manipulate her avatar. This task was delegated to her eldest grandson, "Theodore," who was an avid on-line gamer and frequent participant in virtual worlds. Theodore's only task was to assist her in logging on to Second Life and moving the avatar into position for the interactions. He would not be engaging with the pre-service teachers during the interactions. He did create the look

of her avatar; his choice will be discussed later when considering the pre-service teachers' initial interactions with Mrs. Darbyshire.

*Profile of the ESOL II Course Instructor Dr. Marquis*

Dr. Marquis, the course instructor, was a male in his mid-40s whose first language was English. He was fluent in German and had conversational ability in Japanese. He was from a country in the Pacific basin. Dr. Marquis had extensive experience in linguistics, second language acquisition, and teacher training. In his early career, he was a language teacher in a secondary public school in a country outside of the United States. After receiving his doctorate, he moved to the United States where he took a professorial position at a public university in the state where this study was conducted. There, he supervised undergraduate pre-service teachers as well as in-service teachers seeking higher degrees or advanced professional training. At the public university, he taught ESOL I and II as well as technology in education courses at both the undergraduate and graduate levels. With a student body of more than 30,000, the university was nationally recognized as a leading research institution. The student population was characterized by nearly 87% undergraduates (28% of whom are full-time students) and 13% graduate students. Most students, 53%, attending the university were female (College & University Profiles, 2009).

During this study, Dr. Marquis was in a supervisory position at the private university where the data were gathered for this study. At the university, he taught ESOL I and II courses to pre-service teachers while directing them in their practica at local elementary schools. He also taught education courses that stressed the importance of using modern technologies in lesson planning and instruction. Dr. Marquis's primary

area of interest was in the use of technology in foreign language education, teaching English as a second language, and teacher training. He worked mostly with pre-service teachers although he had extensive experience directing both undergraduate and graduate teaching programs. In contrast to the public university, the private university where the study was conducted had a student population of just under 3,000 students. Most of the students, 96%, were full-time undergraduate students with the remaining students being either part-time undergraduate or graduate students (College & University Profiles, 2009).

#### *My Profile and Role as a Participant and the Researcher*

It is important to note my role as a participant in this study. At the time this study was conducted, I was a teacher in the same district where the ESOL II students were completing their practicum experience. Although I was not an elementary education teacher, I was quite familiar with the district's demographics. Additionally, I was ESOL endorsed and was a foreign language teacher who routinely had ELLs in my foreign language classes. Based on my experiences in teacher training and professional development, I assumed a dual role as participant and researcher. This would be particularly important during the debriefings because it reduced the likelihood that I could potentially become the sole voice for the participants (Morse, Barrett, Mayan, Olson, & Spiers, 2002). Thus, from an ethnographic perspective, it is not unreasonable to assert that I was thoroughly acculturated to the environment in the school district as well as to the instructional needs of ELL students (Spradley, 1979).

Additionally, in the fall semester of 2008, I taught 15 pre-service teachers attending the same university taking an ESOL II course with similar content. Prior to



data collection for this study, I initiated use of the social networking site Ning (Andreesen & Bianchini, 2004) for their class assignments not related to the content of the debriefings that were used for data in this study (see Figure 12). I wanted to ensure that the site was feasible to use for assignments (particularly when the students were dialoguing in the forum discussion area) in the setting of an ESOL class. Thus, prior to collecting the data for this study, in Week 3 of the class, I facilitated the pre-service teachers' training in the virtual classroom in Second Life (Linden Labs, 2004) and the forum discussion area in Ning through in-class demonstrations prior to the debriefings and interactions with Mrs. Darbyshire (see Figure 13).



Figure 12. Sample forum discussion question and related student responses from Ning (Andresen & Bianchini, 2004).



Figure 13. Potential virtual venue for interactions with ELL avatar from Second Life (Linden Labs, 2004).

## Course Content and ESOL Modified Lesson Plans Created by Pre-Service Teachers

Week 1 of the course served as the course introduction. Dr. Marquis reviewed the syllabus giving particular emphasis to the interactions with the ELL that would occur in *Second Life* (Linden Labs, 2004) and the debriefings that would take place in *Ning* (Andreesen & Bianchini, 2004). Also, students were informed that these virtual interactions would serve as practice for their face-to-face ELL interactions in Weeks 7 and 8 of the course. In Week 2, Dr. Marquis and the students discussed hegemony in school curriculum and how to avoid such hegemony in lesson planning. Also in Week 2, students, working in groups of three, created a social studies lesson with ESOL modifications for a Level 3 ELL in the fifth grade similar to the case study in their ESOL textbook. Week 3 of the course was used to introduce students to *Ning* and *Second Life* as well as to discuss the lessons they created for the ELL. Weeks 4 and 5 were used for the interactions with the ELL as well as for debriefing regarding those interactions. During Week 6, students responded to a set of debriefing exit questions related to the interactions with the ELL. Figure 14 represents the planned course sequence from Week 1 to Week 6.

### WEEK 1- COURSE INTRODUCTION

- Emphasize use of Second Life
- Create expectations for interactions

### WEEK 2- HEGEMONY IN CURRICULUM

- Chapter 5 case study
- Divide into groups
- Plan social studies lessons with ESOL modifications

### WEEK 3 - TECHNOLOGY PRACTICE

- Discuss lesson plans
- Practice Ning
- Practice Second Life

### WEEK 4 - INTERACTIONS IN SECOND LIFE

- Interactions in Second Life
- Debriefings in Ning

### WEEK 5 - INTERACTIONS IN SECOND LIFE

- Interactions in Second Life
- Debriefings in Ning

### WEEK 6 - FINAL DEBRIEFING

- Exit debriefings on interactions
- Exit debriefings on technology

*Figure 14.* Course content from Week 1 to Week 6 of the ESOL II class.

*Lesson Plans Created by Pre-Service Teachers for Interactions in Second Life (Linden Labs, 2004)*

In Week 2 of the class, Dr. Marquis emphasized to the students that the lessons they created were designed to introduce the student to the lesson's key vocabulary; accordingly, their lessons would not be presented in their entirety. Rather, they would focus on vocabulary specifically related to the content of their lessons. Students were

permitted to choose their group members, grade levels, and content of the social studies lesson. Table 9 represents the students participating in each group, the theme of their social studies lesson, and key vocabulary to be presented as part of the lesson to Mrs. Darbyshire, the ELL.

Table 9. *Social Studies Lessons by Group, Content, and Key Vocabulary*

Group	Social Studies Lesson	Content	Key Vocabulary
Abby, Delia, Evie	Elementary Grade 2 United States History	The Early Settlers of Florida	Explorer, Pioneer, Native, Settler, Tribe
Becky, Cara, Fiona	Elementary Grade 3 United States History	The Branches of the United States Government	Congress, Congressman, Executive, Legislative, Justice, Judicial, President, Senator, Supreme Court
Isabel, Julie, Karen	Elementary Grade K United States History	The Climate and Geography of the United States	City, Climate, County, Country, Months, Geography, Seasons, State, Weather
Gabby, Hannah, Larry	Elementary Grade 5 United States History	The Westward Expansion of the United States	Cowboy, Expansion, Gold Rush, Immigrant, Ranch, Settler, Wagon, Wagon Train

### Data Collection

#### *Original Methods for Data Collection*

To answer the research questions presented for this study, data were gathered from student interactions in Second Life (Linden Labs, 2004) with Mrs. Darbyshire and during the debriefings in Ning (Andreesen & Bianchini, 2004). The data were collected in Weeks 2 through 6 of the ESOL II class in the spring semester of 2009. In Week 2, the

students read and discussed a case study related to a Level 3 ELL in elementary Grade 5 (in addition to his cultural background and potential modifications that could be made to the social studies lesson presented in the case). Also in Week 2, the students worked in small groups to create four social studies lessons to meet the specific language and cultural needs of the ELL student in the case study.

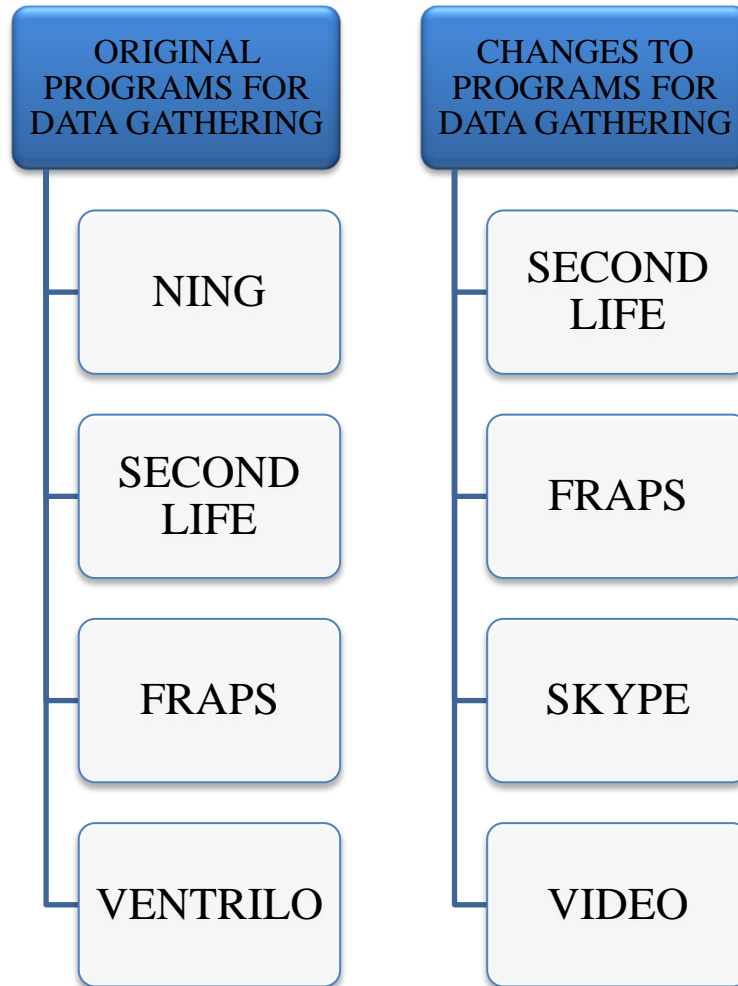
In Weeks 4 and 5, the students were to enter the virtual classroom in Second Life (Linden Labs, 2004) to instruct an ELL based on the content and key vocabulary of the social studies lessons that they created in their groups during Week 2. Before entering Second Life, the students were to debrief in Ning relevant to their modified lessons. After interacting in Second Life, the students were to re-enter the forum discussion area for a debriefing of the lesson they presented. The content of the Ning sessions would be saved into Microsoft Office Word documents for later analysis. Using the screen capture software Fraps (Beepa, 2008), the interactions in Second Life were captured and saved; the audio from these interactions was originally to be recorded using Ventrilo (Flagship Industries, 2008) for later transcription.

#### *Changes to Original Data Collection*

The changes in the programs used to capture the dialogues among the pre-service teachers were made *a posteriori* to the first interaction in Second Life (Linden Labs, 2004) and were as a result of technical issues that occurred with Second Life. Also, these changes were made as a scaffolding measure to ensure familiarity and stability for the pre-service teachers with course assignments (Shulman & Hutchins, 2004). For data collection, the original protocol called for the use of Fraps (Beepa, 2008), Ning (Andresen & Bianchini, 2004), Second Life, and Ventrilo (Flagship Industries, 2008).

To capture the interactions in Second Life, Fraps was to be used to create screenshots and videos of the tutoring sessions whereas Ventrilo would be used to record the dialogue between the students and Mrs. Darbyshire. Because Fraps had audio capture features, I determined that Ventrilo was not needed to record the audio portion of the interactions. Also, the debriefings were moved from the forum discussion area in Ning to the face-to-face classroom. Therefore, Ning was introduced and used only in Week 3 of the class for students to upload their lesson plans to the forum discussion area for editing, feedback, and subsequent in-class discussion. The debriefings among the interactions occurred face-to-face and were videotaped for later transcription. From the original protocol, then, two programs remained to be used for data collection - Fraps and Second Life.

The changes to the original protocol included the additions of Skype (Skype Limited, 2009) and videotaping of the debriefing among the students. Skype is an Internet-based chat program with video and audio conferencing capabilities. The use of the video camera and Skype were not discussed as part of the original data gathering protocol. This group of students had been videotaped before as part of assignments for their ESOL I portfolios. Further, the students reported, via responses to their technology surveys, being regular users of Skype. For this group of students, then, the introduction of the video camera to the classroom was innocuous. Figure 15 represents the changes in the programs used to gather data of the interactions between the students and the ELL.



*Figure 15.* Changes to the programs used to gather data of the interactions between the students and Mrs. Darbyshire in Second Life (Linden Labs, 2004).

#### Procedure

##### *Original Data Gathering Procedures*

In the original protocol, the 11 students were divided into four groups of three students during Week 2 of the course. Students were not to select their groups; rather, their names would be placed in a container and drawn randomly to form the groups. Each group of three would then be assigned a letter from A to D. After selecting the groups, all of the students would work collaboratively to create a total of four social studies lessons to present to the ELL in Second Life (Linden Labs, 2004). The lessons



were to be randomly assigned a number from 1 to 4. The students would then post the lessons in the forum discussion area in Ning (Andreesen & Bianchini, 2004) at the end of Week 3. Prior to the first session during the first discussion using the forum feature of Ning, the students would debrief regarding the particulars of the case study as presented in Chapter 5 of their textbook (Mukherjee, 2006). They would also discuss the lesson plans they made and the ESOL modifications they applied to meet the language and cultural needs of the student in the particular case. They were not to be informed in advance that alterations to the original case study and ELL student were made prior to the interactions in Second Life.

The ESOL II course that I used to gather my data in the spring semester of 2009 was originally scheduled to meet on Friday mornings from 9:00 a.m. to 12:00 p.m. During Weeks 4 and 5, students would tutor the ELL during 30-minute sessions in Second Life (Linden Labs, 2004). Prior to entering Second Life, all students were to participate in a debriefing using the forum discussion area in Ning (Andreesen & Bianchini, 2004). The purpose of this debriefing was to dialogue regarding the lesson plans and the ESOL modifications made to the lessons. They were also to discuss what they anticipated would happen during the lesson with the ELL. The discussion session was to last 30 minutes.

After the first debriefing, one group of three (chosen at random) would be selected to present one of the social studies lessons created by the groups in Week 2. Like the groups, this lesson would be chosen at random. All students would then enter Second Life (Linden Labs, 2004), but only the selected group would present the lesson to the ELL. The remaining students would observe the lesson and interaction. The

interactive sessions were to last for 30 minutes. In the original protocol, Mrs. Rosenblum, acting as the ELL, was to exhibit the characteristics of an ELL with Level 3 proficiency. However, at her professional discretion, she would challenge the students by presenting characteristics of a Level 1 or Level 2 student. After the session, all students were to return to the forum discussion area in Ning (Andresen & Bianchini, 2004), where they would debrief (for 30 minutes) regarding the presentation of the lesson and the interaction with the ELL. This interactive cycle would occur three additional times. Figure 16 and Figure 17 represent timelines of how the discussions and interactions were originally set to occur.

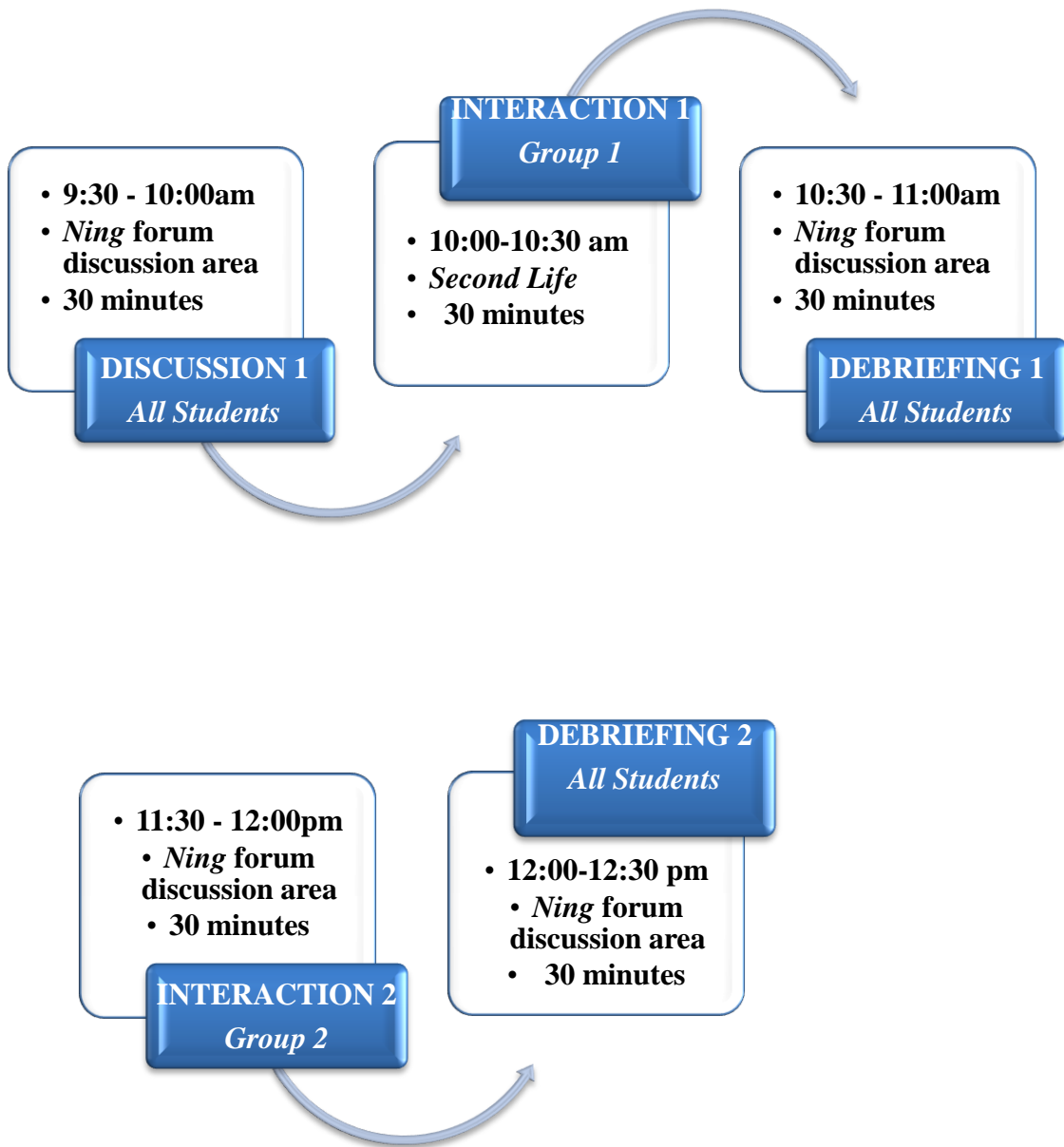


Figure 16. Timeline of Week 4 forum discussions and interactions with ELL avatar.

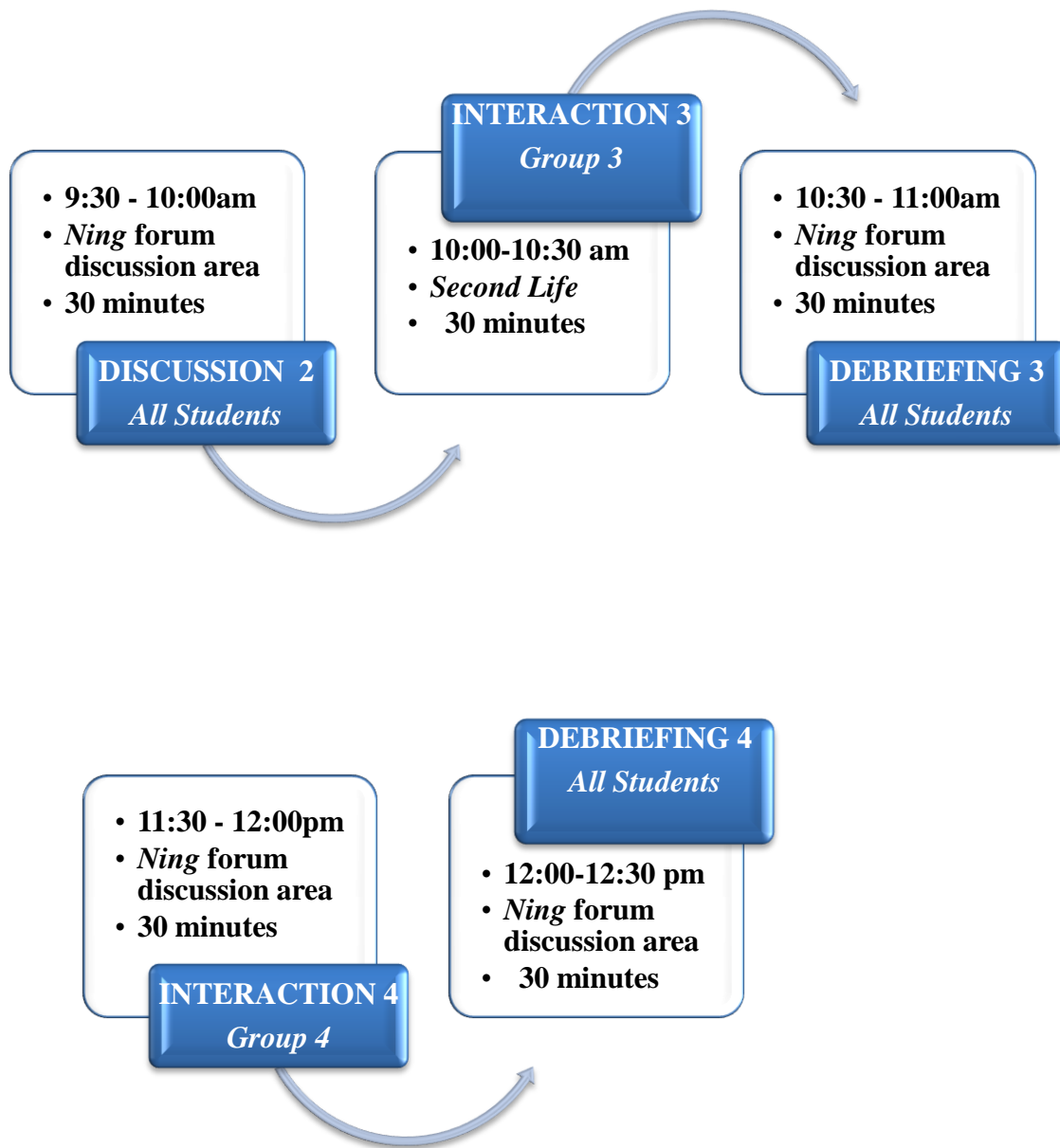


Figure 17. Timeline of Week 5 forum discussions and interactions with ELL avatar.

*Keeping a reflective journal as a participant and the researcher.* Because I assumed a dual role as a participant-researcher, it was important to document my reflections on the debriefings and interactions. At the conclusion of the classes and activities during Weeks 3 through 6, Dr. Marquis, Mrs. Rosenblum, and I debriefed

regarding the interactions. I then documented my observations in reflective journal entries used later in constructing the vignettes of the interactions as well as my final reflection in Chapter 5 of this document. As Leech and Onwuegbuzie (2008) pointed out, reflection on the part of the researcher can assist him or her in better understanding what processes he or she went through during the data collection and analysis.

#### *Changes to Data Gathering Procedures*

Adjustments to the original data gathering procedures were made for the following reasons. First, the original class time was changed from Friday mornings to Wednesday evenings, which necessitated an adjustment in the amount of time allocated for the interactions and debriefings. Second, technical issues with Second Life (Linden Labs, 2004) resulted in the introduction of another Internet-based chat program, Skype (Skype Limited, 2009). Because Skype was introduced in addition to Second Life, the interactive episodes maintained a similarity to the original protocol with changes to include Skype for two of the four interactions and the removal of Ning (Andreesen & Bianchini, 2004) for debriefing.

Here, it is important to emphasize that Skype (Skype Technologies, 2009) was introduced not just as a result of the technical issues encountered with Second Life (Linden Labs, 2004). The syllabus created for the ESOL II course identified the specific portfolio and graduation requirements for the pre-service teachers related to the learning objectives and outcomes for the interactions with the ELL. To meet these requirements, students (as demonstrated in their lesson plans) were to identify key vocabulary related to the content of their lesson in addition to the modifications necessary to scaffold the language of the ELL. If these competencies had been achieved, evidence would emerge

while using the technologies as well as during the collaborative debriefings related to their interactions.

As Rosen (2010) asserted, any technology that is used to develop a teacher's instructional proficiencies should act as a mediational device between existing and potential abilities. Further, technology is meant to be used as a partnering measure between teacher and student. Accordingly, the introduction of Skype (Skype Technologies, 2009), was used not just to mitigate the technical issues with Second Life (Linden Labs, 2004) but also as a scaffolding measure for the pre-service teachers (Shulman & Hutchins, 2004). Thus, it was important to include a technology with which the pre-service teachers were familiar so that they had the opportunity to cognitively unpack their existing ESOL competencies (Erben 1999). One of the challenges, then, of teacher training programs in the 21st century is the need to address not only pedagogic competencies but also to promote digital literacy (Horizon Report, 2010). As many collaborations are becoming increasingly cloud-based (Prensky, 2010), it was important for the pre-service teachers in this study to have the opportunity to collaborate and instruct using different Internet-based virtual environments they may encounter as practicing teachers.

The interactions still occurred during Weeks 4 and 5 of the class but rather than have the two sessions in Second Life (Linden Labs, 2004) for 30 minutes with debriefings in between, there would be one session in Second Life and a second session using Skype (Skype Limited, 2009) with the face-to-face debriefings occurring between these sessions. These debriefing sessions were videotaped. The amount of time for the interactions and the debriefings was shortened as well to approximately 20 minutes for

the interactions and 15 minutes for the debriefings. Further, there were no changes to the original course sequence with the lesson planning, interactions, and debriefings occurring in Weeks 2 through 6. Figure 18 illustrates the changes made in the programs used for the interactions in addition to the amount of time that would be allocated for the interactions and debriefings.

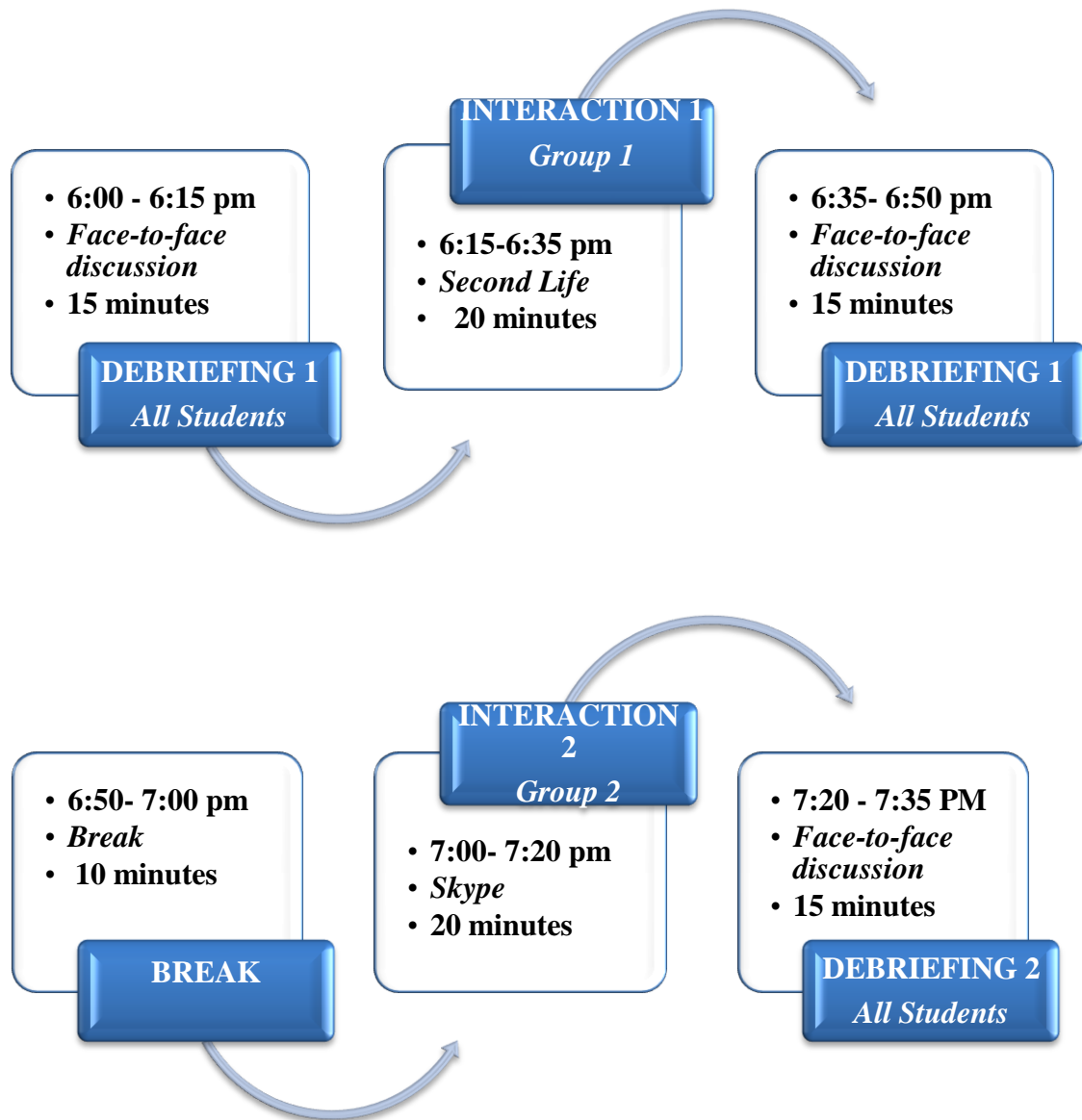


Figure 18. Interactive episodes in Weeks 4 and 5 reflecting changes from the original interactive and debriefing protocol to include the use of Skype (Skype Limited, 2009).

Aside from the introduction of Skype (Skype Limited, 2009) and videotaping, the protocol used for selecting the student groups and lesson plans changed as well. In the original protocol, students would not choose their groups and all students would create a Grade 5 social studies lesson with ESOL modifications for a Level 3 ELL. Further, the

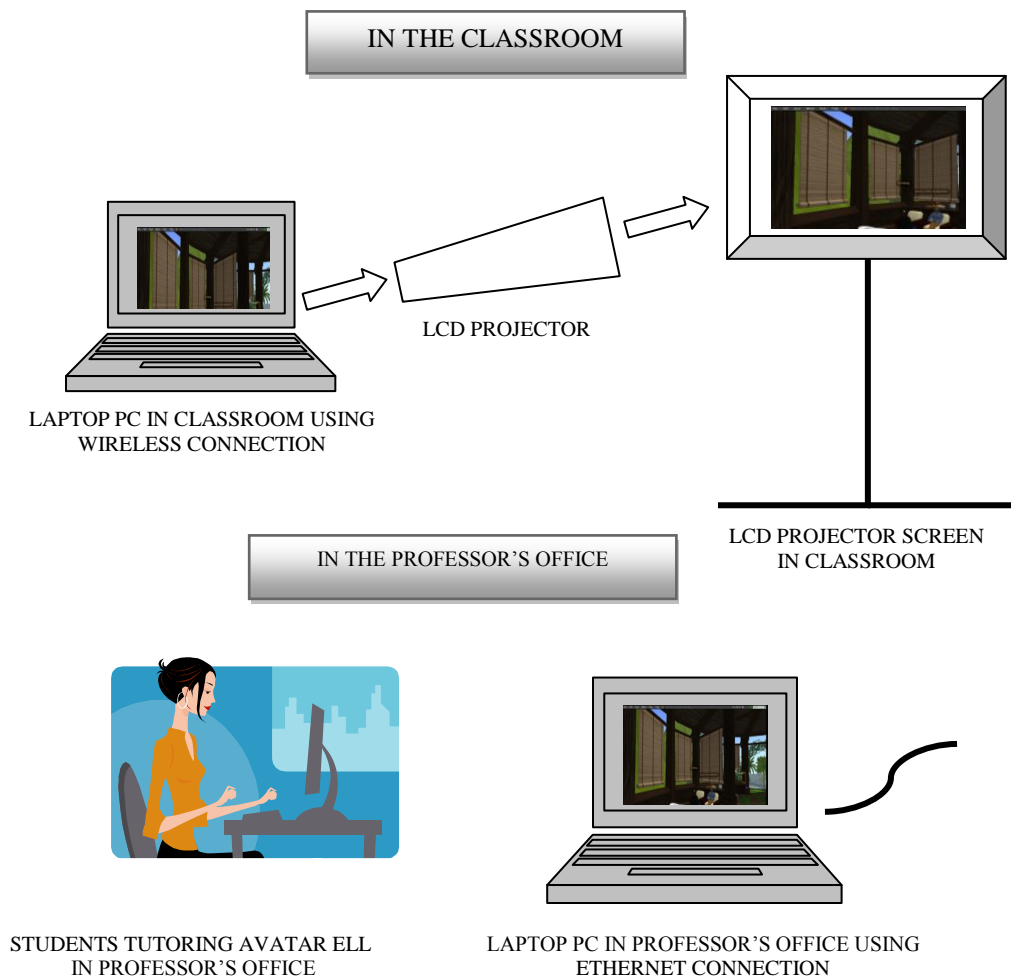


lesson plans were to be posted and edited in the forum discussion area in Ning (Andreesen & Bianchini, 2004) so that all of the students would be familiar with the content of each lesson. The changes made to the original protocol were as follows: (a) students selected their group members; (b) students presented the lessons they created in small groups in Week 2 of the course; (c) the lessons were not chosen at random; (d) the lessons were created for Grades K-5; (e) groups volunteered for the interactions rather than being chosen at random; and (g) follow-up debriefings would occur face-to-face rather than in the forum discussion area in Ning. The duration of the interactions and intervening debriefing times were to last approximately 20 minutes each. Table 10 presents the student groups, venue, and duration of instruction, and lesson content.

Table 10. *Student Groups by Venue of Instruction, Duration of Instruction, and Lesson Content*

Group	Venue of Instruction	Duration of Instruction	Lesson Content
ABBY, DELIA, EVIE	Second Life	21 Minutes	Elementary Grade 2 The Early Settlers of Florida
BECKY, CARA, FIONA	Skype	24 Minutes	Elementary Grade 3 The Branches of the United States Government
ISABEL, JULIE, KAREN	Second Life	28 Minutes	Elementary Grade K The Climate and Geography of the United States
GABBY, HANNAH, LARRY	Skype	28 Minutes	Elementary Grade 5 The Westward Expansion of the United States

From a technical standpoint, it was decided that the most effective strategy would be to have the presenting student groups go to Dr. Marquis's office whereas the remaining students observed the interactions in the classroom using the LCD projector. Because there was a technical issue related to multiple logons to Second Life (Linden Labs, 2004), the student groups would log on using the avatar I created for the interactions. After the interactions, the student group would return to the classroom for debriefing. Figure 19 represents the computer set up for the interactions between the students and Mrs. Darbyshire.



*Figure 19.* Computer set-up for interactions between student groups and Mrs. Darbyshire.

Figure 20 represents the avatar created for Mrs. Darbyshire. As noted earlier, Mrs. Darbyshire had very limited technical skills. In order for her to participate in the interactions in Second Life (Linden Labs, 2004), she would need assistance with creating and moving her avatar. Because she was off campus, it was important that the person assisting her had sufficient technical skills such that any issues could be mitigated. It was also important that she know the person who would be assisting her to help reduce her anxiety in using a program with which she was unfamiliar. Dr. Marquis, Mrs. Rosenblum, and I decided to recruit her grandson, Theodore, to create the avatar to assist her during the interactions.



*Figure 20.* Avatar Mrs. Darbyshire created for the Level 2 ELL by Theodore.

Theodore would not have any direct interaction with the pre-service teachers. Again, his role was to assist his grandmother with the avatar and any other features of

Second Life (Linden Labs, 2004) that the pre-service teachers might use (such as the local chat bar and microphone). Theodore was also given creative liberty to create the look of Mrs. Darbyshire's avatar. Rather than create an avatar that approximated what his grandmother actually looked like, he created an avatar with opposite characteristics. Mrs. Darbyshire was 73 years of age, female, and Hispanic. The avatar was a young African-American male.

In terms of legitimation, the point could be made that, for the pre-service teachers to have the most salient experience in Second Life (Linden Labs, 2004), the avatars should more closely resemble the participants. From a theoretical perspective, it could be suggested that the point of using an avatar that does not resemble the actual person is that there would be greater opportunity for new relationships to be constructed from the simulated environment (Kafai, 2006). This, of course, harmonizes with the tenet of sociocultural theory that suggests that cognitive growth occurs during the interactions between a less and more experienced interlocutor. This is noted in the choice of avatar; that is, the less experienced pre-service teachers were challenged to reconcile the young, male avatar with the female Hispanic voice. Thus, the pre-service teachers had to cognitively unpack their existing knowledges relevant to adapting their pedagogic strategies to fit the instructional circumstance.

As Shulman and Hutchins (2004) pointed out, in order for a pre-service teacher's training to be effective, there must be some familiar element to help facilitate development. In the case of the interactions here, one avatar was used by the groups for the interactions. I created the avatar and its look approximates my appearance in real life. Because 10 of the 11 students were female, I wanted to create an avatar that they would

feel best represented them. Figure 21 is the avatar that I created for the students to use during the interactions in Second Life (Linden Labs, 2004).



*Figure 21.* My avatar, RJ Henig, used by students to interact with Mrs. Darbyshire.

A second consideration in creating the avatar was Mrs. Darbyshire. Although it was important to add an uncertain element for the pre-service teachers, using an avatar that did not match the voices of the pre-service teachers could have caused further trepidation and resistance during the interactions. The need for stability during training is important in terms of scaffolding the development needs of the pre-service teachers (Shulman & Hutchins, 2004).

Understanding How the Pre-Service Teachers Collaborated to Use the Features in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009)

Here, it is important to address how the pre-service teachers interacted with each other and with the technologies used to instruct the ELL, Mrs. Darbyshire. As noted earlier, one avatar was used in Second Life (Linden Labs, 2004). The students, in groups of 3, went to Dr. Marquis's office where they would interact with Mrs. Darbyshire using one computer and log-on to Second Life while their classmates observed remotely in the classroom. Because only one avatar was being used, the first task of the students was to establish a turn-taking protocol for the interactions.

Because the opportunities for sustained practice were truncated by the technical issues in Week 3, Dr. Marquis and I recommended to the students to confine their movements to the virtual classroom. They would also remain seated during the interactions. Our advice was also based on Mrs. Darbyshire's needs; as she was not manipulating her avatar, was not technically literate, and had never used Second Life (Linden Labs, 2004), it was important (in meeting her needs as the virtual student) to maintain as much stability during the interactions as possible. Further, the students did not have access to the hands-on materials they created as part of their ESOL modified lesson plans. Therefore, they would need to make use of the instructional tools provided by the virtual classroom. These tools comprised: (a) the local chat bar; (b) the digital blackboard; and (c) the gesture features. The students would also use the *push-to-talk* feature to activate the microphone so they could hear Mrs. Darbyshire.

Abby's and Isabel's groups interacted with Mrs. Darbyshire in Second Life (Linden Labs, 2004). Abby, Delia, and Evie were the first group to meet and instruct

Mrs. Darbyshire. The group decided that Abby would use the *push-to-talk* feature so she was seated directly in front of the computer. Delia and Evie would take turns using the local chat bar, digital blackboard, and gesture features as needed to support Abby's instruction (these collaborations would be considered constructive and are discussed in the findings; Erben, 2001). However, once the interaction began, there was initial frustration and breakdown in the session because Mrs. Darbyshire became confused by gestures and the blackboard. Therefore, the group decided to limit the features they used to the *push-to-talk* feature and the local chat bar.

Isabel's group established a similar protocol for Session 3 in Second Life (Linden Labs, 2004). Isabel would use the *push-to-talk* feature while being supported by Julie and Karen who would assist her instruction using the chat bar, digital blackboard, and gestures. By Session 3, a rapport had been established between Mrs. Darbyshire and the students such that she was more comfortable in the virtual classroom. Because of this rapport, Isabel's group was able to use the features in the Second Life classroom to complement rather than detract from their instruction.

Becky's group and Larry's group interacted with Mrs. Darbyshire using Skype (Skype Limited, 2009). In terms of features, the groups and Mrs. Darbyshire would use the embedded cameras on their respective computers for the video feature. They would also use the available audio and instant messaging features. Similar to Abby's and Isabel's groups, Becky, Cara, and Fiona established protocols for the interaction in Skype. The group decided that Becky would primarily use the audio feature; all three of the students were able to use the video feature as a result of their seated positions in proximity to the computer. In terms of the instant messaging feature, Cara and Fiona

used this feature to complement Becky's instruction by typing content to supplement the audio.

Larry's group used Skype (Skype Limited, 2009) for Session 4. Unlike the sessions of his classmates, Larry and his group members were unable to establish a protocol for the instruction. While they had the same resources available (audio, video, and instant messaging), only Larry used the features. Larry, without collaborating with his group members Gabby and Hannah, decided that he would use all of the features exclusive of their assistance. Gabby and Hannah, then, did not use any of Skype's features and were excluded by Larry during the interactions (evidence of destructive collaborations which will be discussed as part of the findings; Erben, 2001).

#### Data Sources

##### *Original Data Sources*

The two original data sources for this study were to come from the interactions in Second Life (Linden Labs, 2004), captured using the screen capturing software Fraps (Beepa, 2008) and audio of the debriefings recorded using the software Ventrilo (Flagship Industries, 2008) to be transcribed later into a Microsoft Office Word document. The debriefings that occurred during the forum discussions in Ning (Andreesen & Bianchini, 2004) were to be transferred using the copy-and-paste feature to a Microsoft Office Word document for later analysis.

After the debriefings in Ning (Andreesen & Bianchini, 2004), the students would log on to Second Life (Linden Labs, 2004) where they were to instruct Mrs. Darbyshire. After the interactions, the students were to return to the forum where they would debrief relevant to the interactions. After the debriefing, the next group of students would enter



Second Life where they were to repeat the same instructional cycle with the next lesson plan. After the second group interacted with Mrs. Darbyshire, all of the students were to return to the forum discussion area for a debriefing. This process was to be repeated in Week 5 with the two remaining groups and lessons.

#### *Changes to Original Data Sources*

The adjustments made to the original data sources occurred as a result of modifications made to the data gathering protocol, specifically as it related to changes in the technologies used for the interactions. Originally, data were to be gathered from the debriefings in Ning (Andreesen & Bianchini, 2004) and the interactions in Second Life (Linden Labs, 2004). As a scaffolding measure, it was decided that the students' development would be better facilitated if the debriefings occurred in a familiar venue - in this case, face-to-face in the classroom rather than in Ning. Also, due to technical issues encountered with Second Life in Weeks 3 and 4, Skype (Skype Limited, 2009) was used for Sessions 2 and 4. Rather than use Ventrilo (Flagship Industries, 2008) to record the audio from the debriefings and interactions, the Weeks 4 and 5 sessions were videotaped which would later be transcribed for analysis.

#### Maintaining the Study's Original Purpose and Conceptual Framework

##### *Justifying Changes to Data Sources and Procedures*

Here, it is important to note that although there were changes to some of the technologies, the original concept of how the interactions would occur and who would participate remained essentially the same. The additions of Skype (Skype Limited, 2009) and videotaping coupled with the removal of Ning (Andreesen & Bianchini, 2004) and Ventrilo (Flagship Industries, 2008) in no way changed the purpose of the study, the

study's conceptual framework, or the research questions. These adjustments were also justifiable within the context of maintaining a familiar instructional setting to promote the professional growth of the pre-service teachers (Shulman & Hutchins, 2004) in addition to creating activities that would promote collaborative dialogue among the study's participants (Erben, 2001). Thus, to realize the purpose of the study and answer the research questions, the following protocols were retained: (a) the non-random selection of pre-service teachers in an ESOL class; (b) the non-random selection of an ELL; (c) dividing the class into four groups of three students to create lesson plans for the ELL; (d) creating four ESOL modified elementary social studies lessons; (e) having four interactions using an Internet-based chat program; and (f) engaging the pre-service teachers in debriefings before, during, and after the interactions.

Also, the data sources were fundamentally the same. Those sources comprised: (a) dialogues from the debriefings among the pre-service teachers before, during, and after the interactions; (b) dialogues among the pre-service teachers during the instruction of the ELL in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009); (c) dialogues among the pre-service teachers and the ELL; and (d) dialogues among the pre-service teachers and the course instructors during the interactions and debriefings. As in the original design of the study, the dialogues were transcribed to Microsoft Office Word documents for later analysis using the qualitative analytic techniques as iterated below.

## Data Analysis

### *Original Plan for Data Analysis*

Data gathered for this study from the virtual interactions and forum discussions were transferred into documents for word-level analysis. Microsoft Office Word was

used as the primary document source; these Word documents were then transferred into the qualitative analysis program NVivo, version 8.0 (QSR International, 2008). Using the word count feature of NVivo, the documents were evaluated for recurring instances of certain key words. These key words were selected based on the following criteria: (a) the frequency of their occurrence in the text; (b) the nongrammaticality of their usage; and (c) their potential thematic relevance for constructing the vignettes and tallying the types of collaborative episodes. Once certain key words emerged as prominent across the interactions and debriefings, thematic nodes were created in order to document a word's occurrence across the different interactions and debriefings. Figure 22 shows an example of a word count conducted using the word query feature of NVivo.

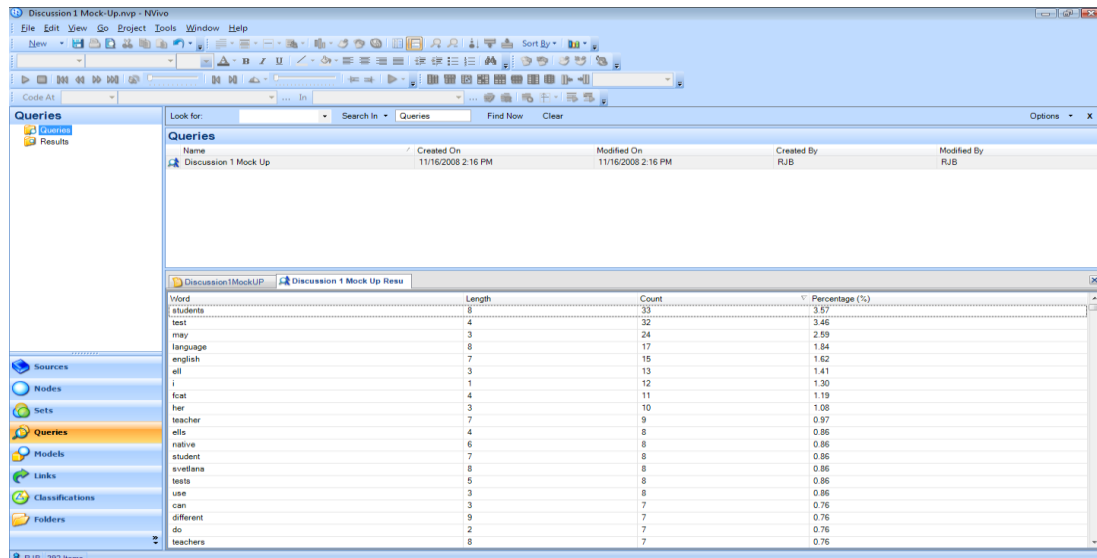


Figure 22. Examples of key word count query function of NVivo (QSR International, 2008) version 8.0.

In the initial design of the study, the original plan was to subject the dialogues to four types of qualitative analyses. These analyses would follow the initial keywords in

context and comprised the following: (a) the method of constant comparison (Glaser, 1965); (b) domain analysis (Spradley, 1979); and (c) cross-case analysis (Miles & Huberman, 1994). Using the steps outlined by Glaser (1965), the key words were then arranged into thematic clusters for additional analyses. Based on Glaser's technique, four steps were used to determine themes that emerged from the participants' dialogues. The first methodological step was to reduce the data to broader thematic categories. The second step was to memorialize specific incidents of the themes as they emerged in the dialogues to understand better the diversity of incidents as they related to the broader coded themes. Glaser referred to this note taking as incident-to-incident comparison (p. 440). Next, the categories were defined theoretically and reduced from a higher conceptual level to smaller, more tangible concepts (Glaser, p. 441). Finally, in memorializing the comparisons of the smaller order concepts to high level concepts, themes emerged based on the coded data that would be used in reporting the results.

*Change to Analysis Procedures – Within-Case Analysis, Tallying Collaborative Instances, and Constructing Vignettes*

After collecting the data, I determined that using different qualitative analytic tools would better reveal the collaborative language used by the study's participants during the debriefings and interactions. Because this was an exploratory case study framed within the context of sociocultural theory and critical pedagogy, it was important that the data sources as well as the qualitative tools selected to analyze those data were responsive to the study's underlying exploratory purpose. I used a within-case analysis, the results from which I constructed an explanatory effects matrix and a causal network in order to report "how structural changes induce[d] procedural and attitude changes"

(Miles & Huberman, 1994, p. 139). To construct the matrix and network, I used the technique as designed by Erben (2001) for tallying instances of collaborative utterances in the dialogue among the participants. Then, I created thematic nodes to construct vignettes of the experiences of the pre-service teacher participants. I then reduced these vignettes to recreate the experiences of 4 of the 11 pre-service teachers based on the broader themes. As suggested by Howe and Eisenhart (1990), using a vignette to analyze qualitative data was actually an ethnographic technique borrowed from such researchers as Erickson and Christman (1996) and Van Maanen (1998). Further, Spalding and Phillips (2007) pointed out the usefulness of vignettes in reporting the results from action research - research that is typically associated with the educational field, which was the venue of this study. Thus, in constructing the vignettes, it was the goal to “make the data more accessible to the reader” (p. 957).

Here, I do not suggest that subjecting the data to constant comparison analysis (Glaser, 1965), domain analysis (Spradley, 1979), and cross-case analysis (Miles & Huberman, 1994) would be inappropriate for analyzing the participants’ interactions. However, in keeping with the dynamic exploratory characteristics of the study, using the types of vignettes as described by Spalding and Phillips (2007) accomplished the following objectives: (a) provided data that could be used to plan changes for future interactions for pre-service teachers in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009); (b) generated data to be used by me as the researcher as a tool to encourage reflection on the data gathering process and interactions; and (c) offered readers a venue to discuss my conclusions relative to the effectiveness of using virtual environments for professional development.

Spalding and Phillips (2007) concluded that using vignettes to present primary data should not present the question of whether the accounting of events was “true” but, rather, if the reader can relate at an experiential level to the recounting of the experiences by the researcher. Thus, they offered the following conclusion related to the use of vignettes in reporting the findings of primary data:

Significantly, however, they [vignettes] are constructed in such a way that they draw attention to this fact. They reveal the writer, researcher, and interpreter behind the writing and emphasize the fact that in putting together the account, selection and interpretation have taken place and particular values have been brought to bear. In this way vignettes actively encourage the reader to doubt. Paradoxically, this constant reminder of their potential untrustworthiness can make vignettes trustworthy. (p. 961)

Data used to construct the vignettes came from my reflective journal entries and transcripts of the interactions and debriefings. To analyze the data, I created vignettes to “document what I had seen while the education was happening” (Spalding & Phillips, 2007, p. 956). Specifically, I used a snapshot vignette and portrait vignettes to represent the participants’ characters and experiences. The snapshot vignette was constructed from my reflections during the interactions and debriefings. To create the portrait vignettes, I selected four of the pre-service teachers based on their contact time with Mrs. Darbyshire and their participation in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009). These portraits were created using both the dialogues and student profile

information. For the vignettes, I selected Abby and Isabel from Second Life Sessions 1 and 3 and Becky and Larry from Skype Sessions 2 and 4.

In 2001, Erben defined three types of collaboration: (a) productive collaboration; (b) constructive collaboration; and (c) destructive collaboration. Productive collaboration was defined as “any interaction or utterance which contributes to the facilitation of shared knowledge and establishment of intersubjectivity (p. 325).” Evidence of productive collaboration was assessed in participants’ dialogue according to the types of support that the participants were providing to each other across the interactions. Examples of this support included: (a) the type of language used by the participants such as prompting, coaching, and assisting; (b) how the participants created a shared perspective through the use of common expressions; (c) how the participants used language to enable the interactions to occur through scaffolding, modeling, drafting, editing, and recapping; and (d) how the participants managed their behaviors by negotiating rules, managing the interaction, and moderating the pace of the interactions.

Constructive collaborations were defined by Erben (2001) as those collaborations in which social cohesion is created within the group. Evidence of this cohesion is demonstrated in the dialogue by the following types of expressions: (a) the positive affirmations among the participants; (b) the inclusion of ideas/comments by participants; (c) the courtesy exhibited among the participants; and (d) the use of humor by participants. Erben went on to identify destructive utterances. He defined destructive utterances as those instances in which the collaboration among the participants fails due to negative utterances. Destructive utterances are identified by the following attributes: (a) discourtesy by participants; (b) apathy among the participants; and (c) resistance

among the participants. To tally the instances of productive, constructive, and destructive collaborations within the dialogues, Erben (2001) devised the following table.

Table 11. *Table Designed by Erben (2001) to Tally the Instances of Productive, Constructive, and Destructive Collaborations from the Dialogic Engagements Among Participants*

	Type	Utterance	Participant Count
Productive Collaboration	Providing Support through Language	Prompting	
		Assisting	
		Coaching	
	Constructing a shared referential space	Deixis	
		Use of common referring expressions	
		Use of context information	
	Facilitating strategic interactions	Scaffolding	
		Modeling	
		Drafting	
		Editing	
		Recapping	
	Managing strategic behaviors	Negotiating rules	
		Managing operations	
Moderating pace			
Constructive Collaboration		Affirmation	
		Inclusion	
		Courtesy	
		Humor	
Destructive Collaboration		Discourtesy	
		Apathy	
		Resistance	



*Answering the Research Questions by Reducing and Analyzing the Collaborations from the Cohort of 12 and 4 Individual Cases*

The first research question considered what instructional delivery issues emerged when the pre-service teachers were instructing in the avatar-based virtual classroom in Second Life (Linden Labs, 2004). To understand better the instructional collaborations among the participants, I analyzed data gathered from the cohort as a whole. Here, I also considered all of their first and final reflective statements in addition to their commentary during the four debriefings. Examining the information gathered from all 12 pre-service teachers enabled me to identify later keywords that were then reduced and coded into four thematic nodes which I discuss in the findings.

For the second research question, I examined the interactive characteristics among the members of the 4 groups as they interacted with Mrs. Darbyshire over the course of the sessions. Each group had 3 members which included the following: (a) Abby, Delia, and Evie for Week 4 Session 1 in Second Life (Linden Labs, 2004); (b) Becky, Cara, and Fiona for Week 4 Session 2 in Skype (Skype Limited, 2009); (c) Isabel, Julie, and Karen for Week 5 Session 3 in Second Life; and (d) Larry, Gabby, and Hannah for Week 5 Session 4 in Skype. During analysis, I created event flow networks to identify how the members of each group were collaborating to construct jointly the interactions within the group and between the group and Mrs. Darbyshire.

The third research question examined the collaborative utterances among the pre-service teachers during the interactions. From the transcriptions, I considered the productive, constructive, and destructive collaborations among the cohort as a whole (Erben, 2001). I then compared the whole group collaborations to the collaborative

utterances of four pre-service teachers - Abby, Becky, Isabel, and Larry. During the interactions, the pre-service teachers established turn-taking protocols to facilitate better the instruction of Mrs. Darbyshire in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009). From the groups, Abby, Becky, Isabel, and Larry had the most direct interaction with Mrs. Darbyshire. I then used the whole group collaboration to construct a causal network to explicate better the interactions and collaborations from Week 4, Session 1 to Week 5, Session 4. It was important during the analysis to consider the experiences of these 4 pre-service teachers as individual cases. From the dialogues transcribed during the interactions in addition to their first and final reflective statements, I created portrait vignettes (Ely, et al., 1997; Spalding & Phillips, 2007) to lend voice to their individual experiences.

#### Ensuring Trustworthiness of the Data

LeCompte and Goetz (1982) suggested that the significance of any research depended on the ability of the researcher to demonstrate consistently the trustworthiness of his or her findings. Morse, et al. (2002) suggested that, “Without rigor, research is worthless, becomes fiction, and loses its utility” (p. 5). This, as Morse et al. pointed out, was the exact reason that Guba and Lincoln (2000) undertook the task of establishing rigorous criteria for promoting the reliability and validity of qualitative research findings. The issue of trustworthiness becomes increasingly important, particularly when considering qualitative research, due to the interpretive nature and iterative practices characteristic to gathering and analyzing data. Qualitative research is frequently criticized as being less rigorous than is quantitative research (Sandelowski, 2000). After all, as some would argue, quantitative research is very formulaic, generating results that

can readily be duplicated by any researcher using the same set of mathematical parameters; qualitative research and analysis, on the surface, might appear to be a less exacting set of practices, organized less around specifically established mathematical parameters and more on the observational whims of the researcher.

Four criteria, credibility, transferability, dependability, and confirmability, were considered to be issues of *trustworthiness* and were meant to be used by qualitative researchers to ensure the integrity of their data (Morse, et al., 2002, p. 5). It was asserted that, by demonstrating a process had been followed, the research could, much like a quantitative study, be duplicated to extrapolate truth from the research process (Miles & Huberman, 1994). Accordingly, the debriefings and interactions used for this study were subjected to Lincoln and Guba's (2000) criteria in an effort to legitimize both procedural and analytic validity. The strength of qualitative research, as Merriam (2009) pointed out, is the multiple and constant evaluation of the data's legitimacy in relation to the underlying theory and research questions.

Technical issues could have potentially threatened legitimation of the data gathered for this study. Because these interactions occurred in an avatar-based program, the pre-service teachers had to practice with the program. Also, depending on the levels of technical ability, the anticipated interactions might be jeopardized as students became more focused on attempting to manipulate the avatar than on interacting with the ELL. Although the research questions were clear, credibility issues also threatened legitimation. Because of the potential technical and logistical instabilities that could be experienced during the conduct of the interactions, two types of reliability issues emerged as potential threats: *diachronic reliability* and *synchronic reliability*, both referencing the

stability of observations either over time (the former) or during the same time (the latter) (Miles & Huberman, 1994). In the short term (synchronic reliability), after the first debriefing and interaction with the ELL, the amount of interaction time varied depending on participation or technical issues. This additional instability resulted in stressors that would not have occurred had these interactions taken place using a different online program or conducting the interactions face to face. Thus, the short-term credibility of the data was considered in the analysis stage as potentially affecting which data would be coded and selected for examination.

After considering dependability issues, questions of internal and external credibility were considered. Miles and Huberman (1994) described internal credibility as the truth value of the study's findings. In other words, did the findings "make sense," were they "credible," and did they accurately reflect an "authentic portrait" of the informant (p. 278)? Here, the snapshots and video taken during the interactive sessions in Second Life (Linden Labs, 2004) enabled me to make an initial comparison between responses provided during the discussions and debriefings. External credibility was described as the process of generalizing results either to a larger population across cases or to a broader theory (Miles & Huberman, p. 279). (In other words, a *connect-the-dots* type of analysis was undertaken in an effort to demonstrate that I was systematic enough when analyzing data to suggest implications for future research.)

Thus, because qualitative research takes on a more iterative type of process, Morse, et al. (2002) suggested the following steps to ensure rigor in the legitimation process: (a) methodological coherence; (b) appropriate sample; (c) collecting and analyzing data concurrently; (d) thinking theoretically; and (e) theory development. In

this study, methodological coherence was achieved by matching the research question to the data gathering method. Based on the underlying sociocultural nature of Research Questions 1 and 2, it was determined that constructing vignettes would be the most effective method of eliciting data from participants. The sample was appropriate, given that each participant was similarly situated in relation to his or her enrollment in the ESOL II class as an undergraduate education major as well as participation in his or her practicum year.

According to Spalding and Phillips (2007), the vignettes were an account of what Spalding, as the researcher, had observed during her research. In other words, she used the vignettes to present the interactions from a perspective other than that of the participants. Here, Spalding and Phillips were careful to consider the trustworthiness of her observations by subjecting the vignettes to the critique of the participants in order to ensure that it was indeed an actual reflection of what had transpired: “The vignette[s] provided something different from the normal discursive account to feed back a researcher’s observations” (p. 957). After conducting a member check with the participants relative to what she observed during their interactions, Spalding and Phillips used the vignettes as a gateway to construct more detailed portraits of some of the study’s participants.

From the standpoint of accessibility to the reader, she noted that rather than present the reader with pages of transcripts from the interactions, she created a portrait of the participants based on the data and included direct quotes from their interactions. Spalding elected to write the vignettes using the first person, which presented an obvious issue for the trustworthiness of the portrait - that it was her voice as the author rather than

the true voice of the participant that was represented in the account. She suggested that, by stating that she was indeed the author, this in some way would address credibility issues within the narrative: “The fact that the vignette says ‘I am a construction’ and ‘I am written by an author who has interpreted the experience depicted’ could make it appear more trustworthy simply because it more openly declares its subjectivity” (p. 959).

A final issue related to internal and external credibility is transferability of the study’s findings. Lincoln and Guba (2000) addressed how the results of a study can be generalized to the larger population. These generalizations implicated both the internal and external credibility of the study. For results to be generalized, the researcher must contextualize each assertion as it relates to the study’s specific venue. However, they also noted that it is that venue that makes it invalid to suggest generalizations. Thus, they suggested that rather than generalize, the researcher can offer the transferability of findings from the original context to the current situation under investigation. It is important to clarify that, like generalizing, the researcher cannot stipulate what is transferable. Rather, the researcher can suggest how the study’s findings relate to a new situation (Hoepfl, 1997).

The process of generating the research questions and case study protocol in addition to member checking after the study resulted in concurrent data collection and analysis. This iteration enabled the reconfirmation of the underlying theory in order to contemplate emerging themes while cyclically reevaluating the data. Finally, a theory regarding how these pre-service teachers developed professional knowledge and identities was established, resulting in theoretical movement from the micro to the macro

level (Morse, et al., 2002, p. 13). By advancing these steps in legitimation, it was asserted that, although technical and logistical issues could threaten trustworthiness and transferability, further examination of the vignettes juxtaposed against the text from the debriefings helped to stabilize the study's internal and external credibility.

### Summary

The purpose of this chapter was to discuss the methodology that was used to inform the research design of this study. First, I discussed the purpose of the study and iterated the research questions that are used as the guiding principles. The study's purpose was to demonstrate that, in using teaching scenarios set in an avatar-based environment, pre-service teachers would develop elements of professional knowledge and identity not achievable in a face-to-face classroom. Second, I theoretically situated the techniques used for design, participant selection, and data analysis. The design was an exploratory case study with the research questions being investigative and the underlying theory of the design dependent on elements of critical pedagogy as well as tenets of sociocultural constructivist theory. Third, I situated the study, the role of participants, and explained my role as a participant-observer in the research. Then, I explained data collection and analysis protocols in addition to changes to those protocols. Finally, I addressed trustworthiness issues relevant to legitimizing the results of the study.

## CHAPTER 4:

### FINDINGS

#### Overview

The purpose of this chapter was to present the findings of this study as they related to data gathered around the research questions. Three questions were presented for this study to understand how a group of pre-service teachers seeking an ESOL endorsement could become self-regulated through co-constructed collaborative interactions in a virtual instructional setting. To answer the questions, data, comprising reflective statements, debriefings, and transcribed interactions among the participants, were examined for key vocabulary. This vocabulary was then reduced and coded into themes used to construct an explanatory effects matrix (Miles & Huberman, 1994). From these keywords and themes, I created event flow networks (Miles & Huberman) to explain the interactive characteristics among the pre-service teachers during the instructional sessions. I then constructed a causal network (Miles & Huberman) in which instances of productive, constructive, and destructive collaborative dialogue (Erben, 2001) were related to the identified themes and interactive characteristics of the pre-service teachers. Finally, a snapshot vignette of the entire experience and portrait vignettes of four of the pre-service teachers were constructed (Ely, et al., 1997; Spalding & Phillips, 2007).



## Identifying Key Vocabulary and Emergent Themes from Reflective Statements and Debriefings

To obtain a better understanding of student impressions of the usefulness of Second Life (Linden Labs, 2004), I first identified key vocabulary based on their frequency in the students' Week 3 reflective statements. The statements were subjected to a word count query analysis using NVivo (QSR International, 2008), version 8.0. Because the first two research questions dealt with instruction and interaction, vocabulary was selected from the reflective statements based on the following set of criteria: (a) non-grammaticality of use; (b) positive word; (c) negative word; (d) location within statements related to instruction; and (e) location within statements related to interaction.

To identify the themes, I engaged in an iterative process in which I continually referenced the key words back to their location within the students' statements for coding. My first step was to reduce the data to broader thematic categories. Glaser (1965) referred to this note taking as incident-to-incident comparison. Then, I memorialized specific incidents of the themes as they emerged in the data to understand better the diversity of incidents as they related to the broader coded themes. Next, I created theoretically defined categories and reduced them from a higher conceptual level to smaller, more tangible concepts (Glaser, p. 441). Finally, based on the coded data, themes emerged relevant to the pre-service teachers' impressions of using Second Life (Linden Labs, 2004) as an instructional setting for the interactions with the ELL.

After examining the key vocabulary from these statements, I coded it according to its relevance to instruction and interaction. After so doing, I then examined the surrounding text of those statements to reduce further the data to the following four

emergent themes: (a) positive instruction of the ELL; (b) positive interaction with the ELL; (c) negative instruction of the ELL; and (d) negative interaction with the ELL.

Table 12 presents the key vocabulary chosen based on references to the usefulness of Second Life (Linden Labs, 2004) for instruction, potential interactions, and perceptions of how an ELL might react to instruction in a virtual environment. The results are presented in the form of student name by positive and negative keywords selected from the Week 3 reflective statements.

Table 12.  
*Student First Impressions of Second Life (Linden Labs, 2004) by Instruction and Interaction*

Student	Second Life for Instruction - Positives	Second Life for Instruction -Negatives	Second Life for Interactions – Positives	Second Life for Interactions – Negatives
ABBY	Good for out of school use	Too difficult to navigate	No response	Cannot replace face-to-face
BECKY	Good for out of school	Cannot see ELL	Takes away intimidation	Sacrifices social interactions
CARA	Has potential	No visuals or ability for hands on activities	Feel comfortable and less intimidated	Hard to see the student's face
DELIA	Good as extra practice	More personal might be better- Technology too uncertain	No response	Get confused and lost
EVIE	Good to experience new technology	Not conducive to an actual classroom – Too difficult with no resources	No response	Do nothing for non-verbal language
FIONA	No response	Like to see it but do not think students should use it	Better for professor to interact and students watch	Students should not be interacting
GABBY	Uses new technology – Give someone a different perspective	Makes me nervous because I am not familiar with it	Make ELL feel comfortable	Cannot use supplemental resources – ELL would get frustrated
HANNAH	Modern way to instruct students	Too difficult – Not able to see student's expressions	No response	Difficult for both student and teacher to have same materials
ISABEL	Good for satellite students	Not good for students see regularly	Good for unconfident ELLs	All for technology but not at risk of social interactions
JULIE	Good potential with accurate training	Don't understand how would be better than working one-on-one	No response	More like social networking
KAREN	Work with ELLs and learn how to explain yourself	Problems with technology – Don't know the program that well	No response	Hard to explain myself – would keep repeating myself

## Positive Key-Words and Responses Related to Instruction in Second Life

(Linden Labs, 2004)

In analyzing the students' reflections on using Second Life (Linden Labs, 2004) with the ELL, I reduced their statements to examining the types of positive and negative words related specifically to the concepts of instruction and interaction. From the reflective statements related to positive instruction of and interaction with Mrs. Darbyshire in Second Life, seven words were selected based on the following criteria: (a) non-grammaticality of use; (b) positive word; and (c) location within statements related to instruction and interaction. Of the seven words selected, the most frequently used word in association with instruction in Second Life was "good." When describing the instruction, the students also used the words "new," "potential," and "uses." In going back to the reflective statements made by the students in Week 3, most of the students used the word "good" to relate their perception of using Second Life for instructing ELLs.

Specifically, Abby and Becky both stated that, for instruction, Second Life (Linden Labs, 2004) would be "good for out of school use." Following a similar thought, Isabel noted that it would be good for instructing "satellite students." From the standpoint of training in Second Life, Evie and Julie said that it would be "good" to learn a new technology, with Julie viewing the "potential" of Second Life with accurate training. Cara also used the term "potential" in describing using Second Life to instruct ELLs.

Abby and Becky suggested that Second Life (Linden Labs, 2004) would be a useful instructional tool outside of the traditional face-to-face class setting. Abby saw a

benefit for using Second Life if a student had been absent whereas Becky suggested that if a student needed additional clarification of a lesson, Second Life could be a positive tool for that supplemental instruction. Delia also saw the benefit for extra practice whereas Isabel thought that it would be an effective tool for students participating in distance learning. From the perspectives of Evie, Gabby and Hannah, using Second Life for instruction exposed them and their students to a modern way to learn in addition to the positive value of learning a new technology. The remaining students were more general in their positive reactions in simply stating that they perceived that using the technology would have some positive potential for the ELL.

#### Positive Key-Words and Responses Related to Interaction in Second Life (Linden Labs, 2004)

In their reflective responses, the students were asked to comment on instructing and interacting with the ELL in Second Life (Linden Labs, 2004). Dr. Marquis and I specifically differentiated between the concept of instruction and interaction. Although the concepts are interrelated, our objective was to have the students first consider instruction and interaction separately and then in later reflection consider them as interrelated (the concept of interaction appears later as a component of Research Question 2 but is related to the interaction among the pre-service teachers during the instruction in Second Life).

From the original reflective statements, seven keywords were selected as recurring most frequently among the student statements. The most frequently used of these words were “comfortable,” “feel,” and “intimidated”. Becky stated that interacting with the ELL in Second Life would “take away the intimidation” that s/he might “feel”

in a face-to-face setting. Cara noted that the ELL might “feel comfortable and less intimidated” interacting in the virtual classroom. Gabby also stated that an ELL might “feel more comfortable” using the virtual program rather than interacting with the teacher face-to-face. The word “unconfident” was selected as a positive word related to the interaction based on how it was used by Isabel. She noted that using Second Life might be “good for an unconfident” ELL. Fiona approached the interactions from her own comfort level. She suggested that it might be better if the students just watched while Dr. Marquis and I interacted with the ELL. This suggestion foreshadowed both the negative words used in relation to the interaction and the significant lack of positive responses by students to interacting in Second Life. Specifically, of the 11 reflections received from the students, in relation to the positive interactive benefits of using Second Life, only 5 presented a response (the actual number could be reduced to four if Fiona’s reflection is considered to be negative).

Most of the students did not offer a positive response to the potential of using Second Life (Linden Labs, 2004) for interactions with the ELL. Of the positive responses, students perceived the interactions as being positive for reducing the affective filter of the ELL. Becky suggested that the intimidation factor was taken away whereas Cara stated that the ELL would feel more comfortable and less intimidated in the virtual environment. Gabby and Isabel both expressed that the ELL would be more comfortable, adding that this environment would be particularly beneficial to unconfident ELLs. Fiona noted that a more positive interaction might occur if just the professor interacted with the ELL.

## Negative Key-Words and Responses Related to Instruction in Second Life (Linden Labs, 2004)

Of the key words that were examined relevant to the students' reflections on using Second Life (Linden Labs, 2004) for instruction and interaction, five words were selected for further examination based on the following criteria: (a) non-grammaticality of use; (b) negative word; and (c) location within statements related to instruction and interaction. The five words selected were: (a) "difficult"; (b) "nervous"; (c) "problems"; (d) "see"; and (e) "uncertain." Of these words, the most frequently used by the students in their reflections was "see." The students associated this word with not being able to see the ELL during the interactions particularly in Second Life. Becky stated that instructing in Second Life was negative because she could not see the ELL, whereas Hannah specifically stated that she would "not be able to see the student's expressions." The second most frequently used negative word as related to instruction in Second Life was "difficult." Abby stated that Second Life was "too difficult to navigate," whereas Evie suggested that the instruction would be too difficult with no hands-on resources. Hannah also stated that it would be too difficult especially because she would not be able to see the student's actual facial expressions.

Students' negative perceptions of using Second Life (Linden Labs, 2004) for ELL instruction ranged from difficulty using the actual program to not being able to see the ELL. Specifically, Abby, Delia, and Karen noted that Second Life was too difficult to navigate and the technology was too uncertain to be effective for instruction. Hannah stated that the program was too difficult and she, along with Becky and Julie articulated concerns about not being able to see the ELL and his/her expressions. Gabby expressed

her anxiety about using the program because she was too unfamiliar with the virtual environment, whereas Fiona conveyed her concerns by stating that she would prefer just to watch Dr. Marquis interact with the ELL. Finally, Celia, Evie, and Isabel framed their concerns around resources. They suggested that Second Life was not actually conducive to a real classroom and that instructing in a virtual world would be too difficult without their hands-on resources.

#### Negative Key-Words and Responses Related to Interaction in Second Life (Linden Labs, 2004)

Unlike the statements related to positive interactions in Second Life (Linden Labs, 2004), all of the students provided a negative reflection on using Second Life for the interactions. Of interest to the negative vocabulary selected for further analysis was the consistency with which such vocabulary was used among the students. From the negative reflective statements, seven words were chosen as occurring most frequently among the student responses. The most frequently used negative word was “hard.” Karen noted that it would be “hard to explain” herself during the interactions, whereas Cara suggested that the interactions would be “hard” because she could not see the student’s facial expressions. The six other most frequently used negative words comprised: (a) “confused”; (b) “difficult”; (c) “frustrated”; (d) “lost”; (e) “risk”; and (f) “sacrifices”. Becky stated that using Second Life for the interactions “sacrifices social interactions” with the ELL. Following this same logic, Isabel maintained that she was all for using new technology but not at the “risk of social interactions.” Hannah contended that Second Life would be difficult for both the student and the teacher with Delia asserting that the ELL would “get confused and lost.” Abby and Julie suggested



that Second Life was more like social networking and could not really replace the face-to-face interactions between the teacher and the ELL. Fiona's negative reflection was the most extreme among the students as she maintained that the "students should not be interacting" in Second Life.

Abby and Karen also responded negatively to using Second Life (Linden Labs, 2004) for interactions with the ELL. Specifically, Abby stated that using the avatars and Second Life could not replace the face-to-face interactions, whereas Karen suggested that she would find it difficult to explain herself to the ELL. Evie and Fiona noted that using Second Life would really do nothing for non-verbal language and as students they really should not be working with the ELL in this environment without sufficient experience using the avatars. Within that same line of thinking, Abby, Becky, and Cara all commented that using Second Life really could not replace face-to-face interactions and that social interactions were sacrificed in the virtual environment. Isabel and Julie compared the interactions in Second Life to those of a social networking site. Although Isabel did think that the use of technology was a positive concept, she did not think that using the technology should overshadow social interactions. Gabby and Hannah found it negative that they would not be able to use the supplemental resources they created to accompany their lessons, suggesting that this could potentially be frustrating to both the teacher and the ELL. The final negative comment came from Delia; her thought was that Second Life would cause the ELL to become lost and confused during the interactions.

## Examining the Weeks 4, 5, and 6 Debriefings for Key-Words and Emergent Themes

In answering the debriefing questions, student responses revolved around a central theme - anxiety. Becky and Cara specifically noted that implementing the modifications was “frustrating” for both the pre-service teachers and Mrs. Darbyshire. Evie noted her particular feelings of being “nervous” with the technology, whereas Hannah commented that students in the first group and Mrs. Darbyshire were stressed. From the standpoint of making the language modifications that would accompany a lesson involving an ELL, students identified the specific modifications that were made by the first group to assist Mrs. Darbyshire in understanding the content of the lesson. Becky’s comments served as a starting point for understanding how, in the first interactions in *Second Life* (Linden Labs, 2004), the students mitigated the initial instructional issues by “returning to basics.” In other words, by engaging Mrs. Darbyshire with questions related to concepts with which she was familiar (i.e., where she was from, her family, her interests), they were able to get her to respond to their questions. Recalling the transcript from the video of this session, Mrs. Darbyshire was very frustrated with the students as they attempted to engage her with the vocabulary specific to the content of their lesson. Specifically, Mrs. Darbyshire expressed that she was confused and did not understand what the students were trying to say (or type in the chat bar) to her. However, after leaving the content of the lesson and redirecting the interaction by asking her where her home was, she began to respond to their follow-up questions. The students also rephrased their questions and slowed down their own speech - interactive modifications that are essential when working with a Level 2 ELL. As noted in the student responses, once the students rephrased the questions and

modified the content of their lessons, Mrs. Darbyshire, although she still did not understand some of the questions that the student asked her (Julie's observation), according to Becky, Cara, Hannah, and Larry, she responded to the students' questions after rephrasing.

Session 3 also took place in Second Life (Linden Labs, 2004). The same set of debriefing questions was presented to the students during the session. This session occurred after the introduction of Skype (Skype Limited, 2009) for the second interaction in Week 4. During Session 3 in Week 5, Isabel, Julie, and Karen continued the personal theme of the conversation that took place in Session 2 using Skype. Because Mrs. Darbyshire along with Becky, Cara, and Fiona were more comfortable using Skype, the students were able to make significant personal connections with her. They discussed some of her hobbies that included cooking and tennis, and they were also able to ask more specific questions related to her family. Additionally, the students in the first interactive session in Second Life did not know the identity of the ELL.

Per discussions in Weeks 2 and 3 of the class, the only information that the students had related to the ELL was that the person was a Level 2 ELL with first language of Spanish; there was no additional discussion of the ELL's demographics. Also, the appearance of the avatar (a young, tall black male) did not match the voice of the ELL (Hispanic female). It was only after the second group of students asked more probing questions during their interactions with Mrs. Darbyshire in the first Skype (Skype Limited, 2009) session that the identity of the ELL was revealed (Mrs. Rosenblum's mother with whom the students were familiar). This served to lower further her affective filter, which enabled the students to ask questions that they might

not have attempted in Second Life with the identity of the ELL remaining, at that point, unrevealed. The students implemented the same rephrasing strategies they employed during the first session in Second Life (Linden Labs, 2004), which resulted in their being able to continue asking Mrs. Darbyshire about her hobbies and interests. Below are Questions 8, 9, and 10 from the debriefings.

*Questions 8, 9, and 10*

8. Is the tutor modifying his/her strategies to accommodate the needs of the ELL? If so, what specific strategies is s/he using?
9. Are the modifications working? Is the ELL responding to the modifications?
10. How did the second tutor modify his/her strategies based on what happened in the first tutoring Session? Did his/her modifications work?

Student responses regarding the types and effectiveness of the ESOL modifications are explained in Tables 13 and 14. Abby, Delia, and Evie were the first group to interact with Mrs. Darbyshire in Second Life (Linden Labs, 2004). Frustration during the interaction was one of the common observations made by the students in the first debriefing. They particularly noted that both Abby's group and Mrs. Darbyshire were initially frustrated because of the technology. Cara noted that Second Life was "hard" and "unfamiliar" to the students and Mrs. Darbyshire. Abby noted that her group tried to "type but [the] ELL became frustrated." This led Delia to note that she [Mrs. Darbyshire] was "turned off to learning."

Table 13.

*Student Responses to Week 4 Debriefing Questions 8, 9, and 10 Second Life (Linden Labs, 2004) Session 1*

Student	Question 8 ESOL Modifications to Lesson	Question 9 Effectiveness of ESOL Modifications	Question 10 Modifications to Original Instructional Strategy
ABBY	Tried switching from speaking to typing but ELL became frustrated.	Tried typing but ELL became frustrated.	No response.
BECKY	Went back to basics. Get back to what she knows. Get to know her interests.	Yes. Back to basics.	Teachers got frustrated. ELL got frustrated.
CARA	Rephrasing, speaking slowly, speaking about familiar things.	Yes, responding more.	Second Life was hard, couldn't see us, unfamiliar to both tutor and ELL and was frustrating.
DELIA	We tried to relate to her and make a connection.	Not really she was turned off to learning.	Not really; we were in front of a lot of people and I was very nervous.
HANNAH	The tutors attempted to chat via text because the sound was not good.	Yes.	The group taught the first lesson in front of our entire class which might have been stressful.
JULIE	Rephrasing, repeating, slower speech.	Sometimes she still doesn't understand many things.	It might have been better if there was less people in the room so they can solely focus on communicating. The location was good because the people talking could sit near/next to one another.
LARRY	Yes. Rephrase questions that the ELL does not understand.	Yes. She responds better with more well phrased questions.	Not applicable.

Once the technology issues were resolved, Abby's group was able to engage Mrs. Darbyshire by what Becky described as going "back to basics." They achieved this by implementing their ESOL strategies. As Becky and Cara noted, the group talked about topics with which Mrs. Darbyshire was familiar in order to "make a connection" with her (Delia's comment). When she did not understand the questions, they repeated and rephrased. Even though, as Julie noted, "she still [didn't] understand many things,"

Cara and Larry commented that Mrs. Darbyshire was “responding more” especially when the questions were well phrased.

Unlike Abby, Delia, and Evie in the first group, the second group, Isabel, Julie, and Karen, were more engaged in correcting Mrs. Darbyshire’s language mistakes by rephrasing. They also asked simpler questions and did not engage Mrs. Darbyshire with the vocabulary specific to the content of their lesson related to the climate of the United States. Delia noted that the group was attempting to build on what the other students had already accomplished in the first two Sessions in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009) in Week 4. Hannah noted that the first two sessions actually changed the way that the questions were asked, whereas Julie noted that the students and Mrs. Darbyshire were more comfortable correcting her language mistakes.

Table 14 presents the students’ responses after the Session 3 in Second Life.

Table 14. *Student Responses to Week 5 Debriefing Questions 8, 9, and 10 Second Life (Linden Labs, 2004) Session 3*

Student	Question 8 ESOL Modifications to Lesson	Question 9 Effectiveness of ESOL Modifications	Question 10 Modifications to Original Instructional Strategy
ABBY	They rephrased questions.	I guess. Second Life is very difficult and sometimes frustrating for both sides.	They tried not to talk when [the ELL] was talking in Second life.
BECKY	Reworded questions, related it to Argentina.	Yes; she was able to discuss things about Argentina.	Related it to Argentina.
CARA	Repeating; rephrasing.	Yes.	Repeat; talked about interests.
DELIA	No. They are trying to make a connection but it did not work very well.	No.	She tried to use what the other tutors learned to build a connection.
EVIE	They rephrase. [The ELL] actually went to look at a package of butter to find out name.	Not really. They need to focus on teaching moments like “I like cook” – explain “I like to cook” or “I like cooking.”	2 <sup>nd</sup> level ELL on Second Life needs to initiate conversations.
HANNAH	Yes. Changed the way we asked questions.	Asking simple questions. Yes.	Tried to make her comfortable and at ease with the situation.
JULIE	Helping to fix mistakes, rephrasing, correcting.	Yes, repeating things the right way. Misunderstanding sometimes.	Correcting mistakes. More comfortable. Think Skype works much better.

Three statements stand out among the responses regarding using Second Life (Linden Labs, 2004) for the third set of interactions. First, Abby remained consistent across her observations about using Second Life for instruction of an ELL. She observed again that Second Life can be frustrating for both the instructor and the ELL. Second, Delia noted the continued frustration with Second Life by observing that Isabel, Julie, and Karen were attempting to make a connection with Mrs. Darbyshire, but her reflection was that establishing these connections was not going very well. Third, Julie, who participated in Session 4 in Second Life, noted that although the interactions appeared to be “more comfortable,” in her view, Skype (Skype Limited, 2009) worked better.

Because Skype (Skype Limited, 2009) was used as the intervening technology, it was important for the students to debrief relative to the interactions after Sessions 2 and 4. Tables 15 and 16 present student comments to the same debriefing questions but for the sessions in Skype. From the students’ responses, there were consistent themes that were similar to student responses from the debriefings after Session 3 in Second Life (Linden Labs, 2004).

In response to the ESOL modifications (Question 8), the students consistently used the following words to describe the interactions that took place in Skype (Skype Limited, 2009) in Weeks 4 and 5: (a) “rephrase”; (b) “repeat”; and (c) “reword”. These modifications were noted in both of the interactions in Skype during Weeks 4 and 5. Also in Week 4, because of the modifications, the students were able to connect her existing knowledge to new questions and topics. By so doing, Mrs. Darbyshire and the students became “more comfortable.” Further, because Skype had a video-conferencing feature, the students and Mrs. Darbyshire were able to see each other during the

interactions. This led Evie to observe that, “She [Mrs. Darbyshire] is much more comfortable with Skype. [So] she is comfortable and able to say more about her [hobbies].” Abby, Evie, and Julie all noted that their classmates were slowing down their speech, rephrasing, and correcting Mrs. Darbyshire’s speech - modifications that did not occur until very late during Session 1 in Second Life (Linden Labs, 2004). As Delia and Hannah observed, because they were already connecting their questions to topics with which she was familiar, the language modifications worked (Question 9).

Table 15.  
*Student Responses to Week 4 Debriefing Questions 8, 9, and 10 Skype Session 2*

Student	Question 8 ESOL Modifications to Lesson	Question 9 Effectiveness of ESOL Modifications	Question 10 Modifications to Original Instructional Strategy
ABBY	The tutors rephrased themselves several times and asked Anna to repeat herself and rephrase things properly or repeat what the tutors said.	Yes. Anna did a great job repeating and rephrasing.	They used Skype: Not Second Life.
DELIA	She is connecting to what she knows about already.	Yes. She is passionate about tennis and used her English skills to explain about tennis.	Yes. She learned what she liked and used that to connect with her.
EVIE	Rephrasing, hand gestures, slowly speaking to the ELL, asking her to repeat pronunciations.	Yes. They did work very well.	ELL is much more comfortable with Skype. Discusses what her hobby is. More comfortable with hobby of tennis; can say more about it.
HANNAH	They are using what the student already knows to connect to new information.	Yes.	The tried to make an early connection to make the students feel comfortable. Skype is more personal. Student is more comfortable.
JULIE	Slower speech, correcting, repeating, rephrasing.	Yes. She was understanding better at times.	They used Skype instead. Gestures could be used. Expanding on what she likes. Attached to some things (baseball, cooking...). Laughing at themselves – more comfortable.

These themes then carried on to the Week 5 session in Skype (Skype Limited, 2009). For the most part, the students’ comments mirrored their responses to the



debriefing questions from Session 2 in Skype - especially with respect to rephrasing and repeating. However, there was a notable exception with regards to Larry and his group's interaction with Mrs. Darbyshire. Specifically, Abby noted that Larry was having a difficult time slowing his speech. "Larry slowed down a bit but was having difficulties talking slow," observed Abby. She also noted, "He talked too fast and interrupted her."

Also, in Session 2, there was more consistency in how the students were using the modifications than in Session 4. For example, Evie noted that Becky, Cara, and Fiona (the instructors for Session 2) spoke slowly, rephrased, and had Mrs. Darbyshire correctly repeat words she had mispronounced. Julie made a similar observation noting that they used slower speech, repeated, and corrected her language errors. By contrast, during Session 4 in Skype (Skype Limited, 2009), Larry's group strayed from the modifications made by Becky's group. Becky noted the following: "They need to ask her to repeat when necessary." Cara, who participated with Becky in the Session 2, also pointed out that "[they] didn't correct her all of the time." Julie commented that the group had abandoned some of the modifications and needed to use "slower speech." Table 16 presents student responses to the second debriefing.

Table 16.

*Student Responses to Week 5 Debriefing Questions 8, 9, and 10 Skype Session 4*

Student	Question 8 ESOL Modifications to Lesson	Question 9 Effectiveness of ESOL Modifications	Question 10 Modifications to Original Instructional Strategy
ABBY	Larry slowed down a bit but was having difficulties talking slow.	A little bit, but he talked too fast and interrupted her.	They went back to Skype.
BECKY	Rephrase, repeat, reword	They need to ask her to repeat when necessary	We all need to focus on her use of full sentences.
CARA	Repeating, rephrasing.	Yes.	Get the ELL to repeat correct way to say things; didn't correct her all of the time.
DELIA	They right away made a connection with them.	Yes. She is speaking well and answering with more than one word.	Yes. They also knew what she liked and could make that connection.
EVIE	Rephrasing many things...having her repeat after them.	Yes, but they need to ask her to repeat more.	No response.
HANNAH	Yes. Multiple ways of asking questions.	Yes.	They learned to ask basic questions to involve the students and capture the student's attention. Connected schema to their lesson on weather.
JULIE	Skip and move on.	"Repeat after me."	Slower speech.

Understanding Student Responses from Week 3 Reflection to Week 6 Final Debriefing  
Based on Key-Words and Emergent Themes

To determine further the primary keywords and related themes from the instructional interactions in Weeks 4 and 5, I selected the Week 5 final reflective statements in addition to student responses to Questions 7 through 10 taken from the Week 6 final debriefings. Although it was anticipated that all students would provide a final reflective statement at the conclusion of the Week 5 interactions, it was not entirely unexpected that some students did not offer a statement, and I offer two explanations for the lack of response.

First, only two groups directly interacted with Mrs. Darbyshire using Second Life (Linden Labs, 2004). The remaining students were remotely observing in the classroom using the LCD projector. By not directly using the program, the remaining students were either unmotivated or lacked a reason to offer a final reflective statement. Second, Skype (Skype Limited, 2009) was introduced for the second interaction in Week 4. Therefore, for students using Skype and not participating in Second Life, their lack of response could be related to their anticipation at using a familiar program and lack of directed focus at their fellow classmates' interactions in Second Life.

#### *Week 5 Final Reflective Question*

After interacting with the ELL in Second Life (Linden Labs, 2004), what is your opinion regarding using it as a venue for instructing an ELL?

Abby and Evie participated in Second Life with Mrs. Darbyshire. They were in the same group and the content of their lesson was early pioneer life in the southeastern United States. Abby's reflective statement evinced initial frustration with the technology, but once her group determined that they should change their instructional strategy from the content of the lesson to getting to know more about Mrs. Darbyshire, her opinion regarding Second Life became more positive. "It was nice once we figured it out and much better once we took the focus off of our lesson and on to basics of meeting a person," noted Abby.

Interestingly, Hannah, who did not use Second Life (Linden Labs, 2004) but provided a reflective statement, commented on the visible frustration of the first group attempting to instruct Mrs. Darbyshire in Second Life. She stated: "The group needs to learn to hide initial frustrations." Her initial criticism of the group was in their lack of

instructional agreement; in other words, they disagreed on what content in the lesson should be presented to Mrs. Darbyshire. However, once the group left the content of their lesson and focused on getting to know Mrs. Darbyshire, Hannah noted that the group was learning to work around the technology issues to make the interaction less stressful.

Julie took a different approach in her response. Specifically, she noted had there not been as many people observing the interactions, the group might have been able to focus solely on communicating with Mrs. Darbyshire. Along this same line of thought, Hannah, in her response to Question 10 in the first set of debriefing questions, observed that “[the] group taught the first lesson in front of our entire class which might have been stressful.”

The reflective statement by Cara emphasized the importance of establishing a relationship with a student before presenting the content of a lesson. She stated that, “[They] finally got her to talk and feel comfortable by talking about things she could talk about – kids, grandchildren, pets.” Abby, Cara, and Evie all reflected that once the first group moved away from the content of the lesson and focused on getting to know Mrs. Darbyshire, frustrations among her and the students were reduced. Noted also in answers to the debriefing questions provided by the students during Week 4, it was only after the first group lowered the affective filter that a positive relationship with Mrs. Darbyshire was established. However, lowering her affective filter was not as easy as just asking a series of personal questions to which she could relate. Because the students’ frustrations with the technology had created an initial barrier to communication, they had to return to their cadre of ESOL instructional strategies to reengage Mrs. Darbyshire.

In further understanding the vocabulary that the students used in reference to instructing Mrs. Darbyshire in Second Life (Linden Labs, 2004), it was essential to examine the Week 6 final debriefings. Of particular interest were student responses to Questions 7, 8, 9, and 10. These questions dealt with the advantages and disadvantages of instructing in Second Life in addition to whether the pre-service teachers would consider using Second Life in their classrooms or would be amenable to receiving professional development in a similar virtual setting. Table 17 presents student responses to these four questions.

*Questions 7 through 10, Week 6 Final Debriefings*

7. What were the advantages of using Second Life (Linden Labs, 2004) for the tutoring sessions with the avatar ELL?
8. What were the disadvantages of using Second Life (Linden Labs, 2004) for the tutoring sessions with the avatar ELL?
9. Would you use Second Life (Linden Labs, 2004) to tutor an ELL outside of your classroom? Why or why not?
10. If you were offered professional training in a Second Life (Linden Labs, 2004) classroom, would you participate? Why or why not?

The overall tone of the student comments regarding the use of Second Life (Linden Labs, 2004) as an instructional tool was negative. Even when asked to comment on the advantages of using Second Life for instructing an ELL, most students did not find any advantages to using the program. Abby, Cara, and Larry specifically stated that there were no advantages to using Second Life. They followed up their comments by suggesting that, as a disadvantage, it was too impersonal. Becky, Cara,

and Evie expressed that using Skype (Skype Limited, 2009) was actually better whereas, at the same time, stating there were no useful advantages to using Second Life. Delia, Gabby, Julie, and Karen did suggest that if there were no other options available, it could be a useful tool for distance instruction as well as for instructing an ELL who might be more self-conscious.

Table 17.  
*Student Responses to Week 6 Debriefing Questions 7, 8, 9, and 10*

Student	Question 7 Advantages of Instructing in Second Life	Question 8 Disadvantages of Instructing in Second Life	Question 9 Use Second Life in Regular Face-to-Face Classroom with ELLs	Question 10 Receive Professional Development in Second Life
ABBY	No advantages.	Technology not always working. Impersonal and confusing.	Would use Facebook instead.	Would depend on the type of training.
BECKY	Skype was more beneficial.	High frustration level and lack personal contact.	No. Face-to-face is more beneficial for ELL.	More beneficial technology that can be used in schools.
CARA	No advantages. Skype was easier.	Hard to communicate. Could not see facial expressions.	No. It is impersonal and hard to communicate.	Would participate but not effective for instructing ELLs.
DELIA	Good if no other options.	Technology was hard. Too impersonal.	Yes if there were no other options.	Maybe. If instructor cannot see, might not pay attention.
EVIE	Didn't think it was useful. Skype was better.	It's not personal.	Too difficult. Internet is unreliable.	Would broaden experiences but do not think would actually use.
GABBY	Helpful for self-conscious ELL.	Very impersonal	Cannot use open websites in school.	Absolutely if administration wanted it
ISABEL	Could type and talk but no body language.	Awkward in general.	No. It is unnatural and difficult to use.	Probably not. Do not see it as being useful.
JULIE	Can work with people that are not local.	Not enough time. Not being face-to-face.	No. Not comfortable using it.	Maybe. Other ways to communicate.
KAREN	Able to use gestures. Talk to non-locals.	Hard to talk not knowing the software.	No. Hard to use and confusing.	Yes. Always good to know new technology.
LARRY	No advantages. Very impersonal.	Too impersonal and frustrating.	Never.	Absolutely not.

From the standpoint of disadvantages, most students maintained that Second Life (Linden Labs, 2004) was too impersonal and frustrating. Becky, Cara, and Julie

particularly noted that they were at a disadvantage during instruction because they were not face-to-face with Mrs. Darbyshire which Abby, Delia, Isabel, and Julie noted was a result of the technology itself being too complex and confusing. The lack of positive responses to using Second Life for instructing an ELL resulted in the majority of students asserting that they would not consider using it in their classrooms as an instructional tool. Delia would use Second Life if there were no other options available; Abby stated that she would use Facebook (Facebook, 2009) instead of Second Life in her regular classroom. Gabby approached her response from an administrative standpoint by pointing out that in her school, teachers and students are not permitted to use open websites (this is consistent with a district policy that blocks access to social networking sites such as Facebook and Second Life).

Interestingly, in response to Week 6 Debriefing Question 10 - which asked the students if they would be willing to receive professional training in Second Life (Linden Labs, 2004) - most of the students were receptive to participating in professional training. Gabby again approached her response from an administrative standpoint suggesting that if her administration wanted her to have training in Second Life, she would “absolutely” participate. Karen’s response was positive as well but her rationale was that it was “always good to know new technology.” Evie expressed a similar positive response by suggesting that it “would broaden experiences,” but she did not think that it would actually be used.

The remaining students, whereas they were receptive to receiving professional training in Second Life (Linden Labs, 2004), still hesitated in fully committing to the idea. Becky noted that there was probably a more beneficial technology to use for

training, whereas Delia and Julie stated they might participate. Along this same line of thought, Abby noted that her participation “would depend on the type of training” that was offered. Cara stated that she would participate but did not think that it was an effective environment for instructing ELLs. The most adamant rejection of participating in Second Life for professional development activities came from Larry. He stated that he would “absolutely not” participate in training offered in Second Life; a statement that he perceived as being entirely consistent with his responses to Questions 7, 8, and 9 in which he rejected using Second Life as an instructional tool because it was “too impersonal” and “frustrating.”

Here, it was important to emphasize that not all of the students instructed and interacted with Mrs. Darbyshire in Second Life (Linden Labs, 2004). In Session 1 in Second Life, Abby, Delia, and Evie interacted with Mrs. Darbyshire and for Session 3, her instructors were Isabel, Julie, and Karen. During both sets of interactions, these two groups were observed by the other students in the class. As noted earlier, initial student impressions of using Second Life for instruction were moderately positive. As indicated in their Week 4 responses, the students’ collective opinion was that Second Life had potential and would be particularly good as extra practice or for distance learning. However, once instruction began, there was a notable transition from the initial positive responses to the negative opinions expressed in the Week 6 Debriefing Questions.

To demonstrate the transition, I created an explanatory effects matrix (Miles & Huberman, 1994) using the key vocabulary from students’ first impressions in Week 4, Debriefing Question 10 from Session 1 in Second Life (Linden Labs, 2004), Debriefing Question 9 from Session 3 in Second Life, and Week 6 Debriefing Questions 7, 8, and 9



(Table 18). Student responses to Debriefing Question 10 were selected because this question asked if the ESOL modifications that the students attempted in Second Life and Skype (Skype Limited, 2009) actually worked. From Session 3 in Second Life, student responses to Question 9 were selected because this question asked the students if the ESOL modifications were now effective. Finally, the responses to Week 6 Debriefing Questions 7, 8, and 9 were chosen as students discussed the advantages and disadvantages of using Second Life as an instructional tool and whether they would use Second Life in their own classrooms.

Table 18. *Explanatory Effects Matrix: Pre-Service Teachers' First to Final Reflections*

	First Reflection	Intervening Reflection, Sessions, and Debriefings						Final Reflection
		Week 3 Reflection	Session 1 ESOL Modifications	Session 3 Effectiveness of ESOL Modifications	Advantages of Second Life	Disadvantages of Second Life	Use Second Life in Regular Classroom	
Student								
ABBY	+ / —	Good for out of school	No response	Difficult and Frustrating	No advantage	Impersonal	Use Facebook	—
BECKY	+	Good for out of school	Frustrated	Yes	Skype more beneficial	Frustration	No	—
CARA	+ / —	Has potential	Frustrating	Yes	No advantage	Hard to communicate	No	—
DELIA	+	Good as extra practice	Nervous	No	Good if no other option	Impersonal	Yes	+
EVIE	+	Good to experience new technology	No response	Not really	Not useful	Not personal	Too difficult	—
GABBY	+	Gives a different perspective	No response	No response	Help for self-conscious ELL	Impersonal	Cannot use	—
HANN AH	+	Modern way to instruct students	Stressful	Yes	No response	No response	No response	○
ISABEL	+	Good for satellite students	No response	No response	No body language	Awkward	No	○
JULIE	+ / —	Good potential with accurate training	Less people	Yes	Work with non-local people	Not being face-to-face	No	○
KAREN	+	Work with ELLs and learn how to explain yourself	No response	No response	Non-local people	Hard to talk	No	—
LARRY	○	No response	Not applicable	No response	No advantage	Impersonal	Never	—

+ Positive

— Negative

○ No response

Interactive Characteristics among Abby, Delia, and Evie in  
Second Life (Linden Labs, 2004) Session 1

For Abby, Delia, and Evie, their topic was early pioneer life in the southeastern United States, which included keywords such as “explorer,” “pioneer,” “native,” “settler,” and “tribe,” and was written for students in elementary Grade 2. The lesson included ESOL modifications appropriate for the lesson content and grade level. However, due to the instructional issues that the students encountered when using Second Life (Linden Labs, 2004), they had to abandon their original lesson plan in favor of asking Mrs. Darbyshire personal questions. This instructional change was actually followed by the other groups as they too abandoned their original lesson plans in favor of continuing the dialogue related to Mrs. Darbyshire’s family life and personal interests.

To understand better the interactions among the students as they instructed Mrs. Darbyshire in Second Life (Linden Labs, 2004), the dialogue of the interactions among Abby, Delia, and Evie and among Abby, Delia, Evie, and Dr. Marquis was transcribed from the video taken during the interaction. The first interaction in Second Life lasted for 21 minutes. In considering the depth of interactions among Abby, Delia, and Evie, the first step was to determine if the students were actually interacting with each other and if so, what intra- and intersubjective characteristics emerged from these interactions.

Dr. Marquis encouraged the students to establish a protocol before entering Second Life (Linden Labs, 2004). One of the reasons for this was that there was only one computer and one avatar being used; also, the students were sitting closely together, which made it difficult for more than one student to speak at a time. The group chose

Abby to ask questions while Delia and Evie assisted in typing questions and content-related vocabulary in the chat bar.

Aside from the beginning of the interactions when the students set their turn-taking protocol, they were not really interacting with each other during the instruction in Second Life (Linden Labs, 2004). In other words, there was no evidence from the initial examination of the dialogue that the students were scaffolding each other's instruction. There was also no evidence of a novice-master relationship among the students. Most of the transcript revealed that the interaction was occurring among Abby, Dr. Marquis, and Mrs. Darbyshire. Delia and Evie did participate peripherally; however, Delia was more actively participating than was Evie by asking questions related to the features offered by Second Life. Evie's comments were related to her frustrations attempting to implement the lesson.

#### *Examples of Delia and Evie's Comments*

DELIA: <<Can the other avatars just come up and talk to us? So it's an open site...it could be anybody.>>

EVIE: <<Do we have to focus on our lesson because this is ridiculous. It's too hard.>>

Further, the interactions that were occurring were not student-to-student. In other words, Abby, Delia, and Evie were not collaborating. Rather, the collaborations were occurring among the students and Dr. Marquis. For Delia and Evie their comments and questions were consistent with pre-existing knowledge of an ELL's language needs. This knowledge would have come from their ESOL coursework in addition to their practicum experiences using ESOL strategies with ELLs in their cooperating schools. Also, the interactions were directly with Dr. Marquis; interactions that were consistent with what would be anticipated of a typical student-teacher relationship.

*Delia and Evie's Pre-Existing Pedagogic Knowledges related to ESOL Modifications*

DELIA: <<She is getting frustrated...She is asking for someone to translate.>>

EVIE: <<If you don't understand us, we will ask again and you can just type your answer.>>

By contrast, Abby's interactions occurred at two levels. First, she was directly interacting with Mrs. Darbyshire. She was guiding the conversation and posing personal questions to her in order to facilitate the interactions. Second, Abby was interacting with Dr. Marquis and directly following his guidance, almost implementing his directions word-for-word. Abby was really acting as an instructional conduit between Dr. Marquis and Mrs. Darbyshire by implementing his instructional strategies and appropriate modifications for a Level 2 ELL. For Abby, there really was no independent interaction with Mrs. Darbyshire. In other words, as evidenced from the dialogue between Dr. Marquis and Abby, her responses were almost a mirror image of his guided suggestions to implement the appropriate ESOL modifications and redirect the conversation.

*Abby's Interactions with Mrs. Darbyshire directed by Dr. Marquis*

DR. MARQUIS: <<Let her practice her speaking skills...>>

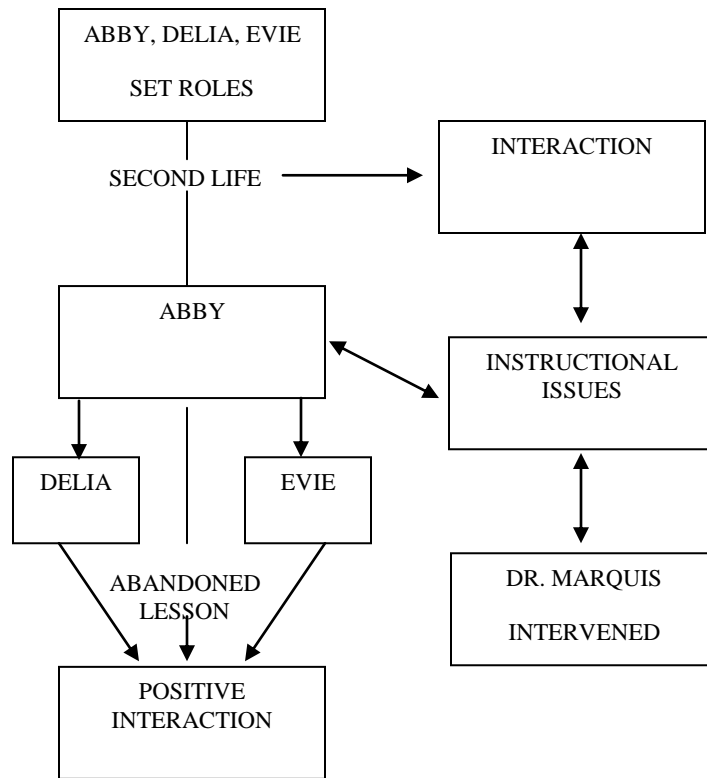
ABBY: <<Mrs. Darbyshire, you speak and we will type ...>>

DR. MARQUIS: <<Since you are on names...ask her the names of her grandchildren...>>

ABBY: <<Do you have any grandchildren?>>

The following is an event flow network used to explicate the interactive characteristics among Abby, Delia, and Evie (Figure 23). In so constructing, my objective was to reconstruct the events of Session 1 in Second Life (Linden Labs, 2004)

in such a way that events occurring in subsequent sessions could be explained (Miles & Huberman, 1994).



*Figure 23.* Event Flow Network: Abby, Delia, and Evie’s Interactive Characteristics Second Life (Linden Labs, 2004) Session 1.

### Interactive Characteristics among Isabel, Julie, and Karen in

#### Second Life (Linden Labs, 2004) Session 3

Session 3 in Second Life (Linden Labs, 2004) lasted for 28 minutes. In this session, Isabel, Julie, and Karen’s roles were comparable to Abby, Delia, and Evie’s roles; Isabel did most of the questioning with Julie and Karen assisting. In contrast to Session 1, Mrs. Rosenblum and I had more direct interaction with Isabel, Karen, and Julie. Dr. Marquis still participated, but the tenor of his interactions with the students changed. Unlike Abby in the first interaction, Isabel’s interactions with Mrs. Darbyshire

were more independent with Dr. Marquis's comments directed primarily to the class as a whole. In other words, her questions to Mrs. Darbyshire were not replications of Dr. Marquis's suggestions as they were in Abby's interaction. When he did direct a comment to Isabel, it was either for rephrasing or as a follow-up question.

*Example of Isabel's Interaction with Dr. Marquis*

ISABEL: <<Do you like to cook Ana...>>

MRS. DARBYSHIRE: <<Oh yes...>>

ISABEL: <<Can you explain to us how to make empanadas?>

DR. MARQUIS (TO CLASS): <<An ELL Level 2 has only one or two word utterances...that as a teacher is what we need to thinking about...>>

Also, unlike Session 1 in *Second Life* (Linden Labs, 2004), Isabel, Karen, and Julie directed more questions to me and Mrs. Rosenblum that could indicate self-regulation. Similar to Dr. Marquis, Mrs. Rosenblum played a supporting role by encouraging the students to ask Mrs. Darbyshire questions related to her daily routine. Again, similar to how the students interacted with Dr. Marquis, Isabel, Julie, and Karen did not ask direct questions of Mrs. Rosenblum but, rather, incorporated her suggestions into their conversation. The student interactions with me had to do more with inquiring about the technology that was being used.

*Examples of Interactions with Mrs. Rosenblum and Me as the Researcher*

ISABEL: <<I want to get into weather...but I don't know how...>>

MRS. ROSENBLUM: <<Ask her if it is winter now or summer in Argentina...>>

KAREN: <<Can we do a gesture?>>

RESEARCHER: <<That is another way you can make it personal...so when she says something.>>

Even though Isabel was able to maintain the conversation with Mrs. Darbyshire and initiated original conversation and built on the suggestions of Dr. Marquis and Mrs. Rosenblum, the conversation eventually became stagnated. As iterated earlier, in Session 1 in Second Life (Linden Labs, 2004) followed by the use of Skype (Skype Limited, 2009), the first two student groups had established a rapport with Mrs. Darbyshire and reduced her affective filter so that the remaining two groups could engage her in conversation. However, because of her limited vocabulary, unless the students changed the content, the conversation would, understandably, not progress.

Additionally, because Mrs. Darbyshire was initially hesitant and uncertain in the first interaction in Second Life (Linden Labs, 2004), introducing new vocabulary or changing the subject in the second interaction in Second Life resulted in reverting back to her original communicative stance rendering the conversation idle. Isabel attempted to present the weather-related vocabulary from her group's original lesson. However, she attempted to introduce the content after students began the interaction by discussing Mrs. Darbyshire's personal interests and home life. Therefore, by introducing new, unrelated vocabulary, she retreated from the conversation and became quiet. It was at this point that Dr. Marquis suggested that the students move from Second Life and switch to Skype.

The next event flow network illustrates the interactions in Session 3 (Figure 24). Abby's interaction with Dr. Marquis was defined by its linearity; in other words, most of the questions and ESOL modifications were prompted by Dr. Marquis. By contrast, the questions and ESOL modifications made by Isabel were more original and not directed by Dr. Marquis suggesting pedagogic self-regulation.



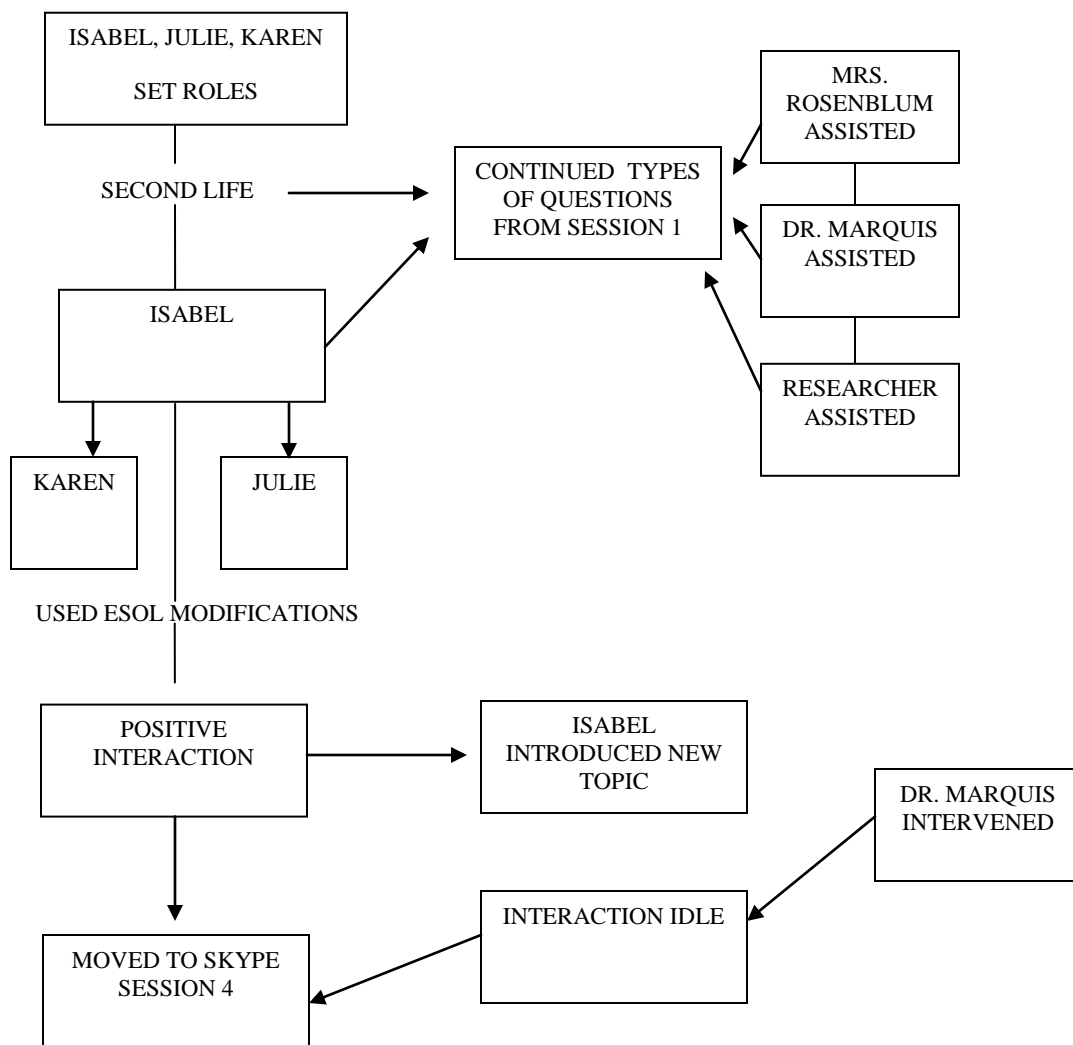


Figure 24. Event Flow Network: Isabel, Julie, and Karen’s Interactive Characteristics Second Life (Linden Labs, 2004) Session 3.

### Interactive Characteristics among Becky, Cara, and Fiona in

### Skype (Skype Limited, 2009) Session 2

Session 2 took place in Skype (Skype Limited, 2009). The content of the original lesson was the three branches of the United States Government and included modifications for an ELL in elementary Grade 3. Key vocabulary from their lesson included “executive,” “legislative,” and “judicial.” Because the first group in Session 1 abandoned their original lesson, the second group opted to continue asking personal

questions. Like the first group, Becky, Cara, and Fiona established a turn-taking protocol. Cara and Fiona suggested that Becky ask the questions; along with the video and microphone features, there was a chat bar similar to the one used in Second Life (Linden Labs, 2004). When Mrs. Darbyshire did not understand Becky's questions, Cara typed the question in the chat bar for her to read. Fiona assisted by taking notes on the questions and suggesting questions for Becky to ask of Mrs. Darbyshire. Their total interaction lasted for 24 minutes.

Unlike Session 1 in Second Life (Linden Labs, 2004), Becky directly guided the conversation with little coaching or prompting from me, Dr. Marquis, or Mrs. Rosenblum. Also, because Mrs. Darbyshire was a regular user of Skype (Skype Limited, 2009) and could now see the students, she was less hesitant in her responses to Becky's questions. This enabled Becky to ask more complex questions and more easily recognize and correct language errors. This was in contrast to the interaction between Abby and Mrs. Darbyshire that was characterized by confusion and frustration.

*Example of More Complex Exchange between Becky and Mrs. Darbyshire*

BECKY: <<Do you like baseball?>>

MRS. DARBYSHIRE: <<No. No like baseball...No baseball in Argentina.>>

BECKY: <<It's actually "I don't like baseball." Can you repeat that?>>

MRS. DARBYSHIRE: <<I don't like baseball. I prefer cooking.>>

Similar to Sessions 1 and 3 in Second Life (Linden Labs, 2004), there were several instances of scaffolding between Dr. Marquis and Becky. Recalling from Session 1 with Abby, the scaffolding was more linear with her prompts to Mrs. Darbyshire being almost mirror images of Dr. Marquis' coaching. For Isabel, the scaffolding process was

more iterative as she exhibited more independence over the exchanges between herself and Mrs. Darbyshire. Becky's experience in Skype (Skype Limited, 2009) was similar to Isabel's although she was able to exert even more control over the content and flow of the conversation (Figure 25). Also, Cara and Fiona more actively participated than did Delia and Evie in Session 1.

*Example of Scaffolding between Becky and Dr. Marquis*

BECKY: <<You don't like football?>>

MRS. DARBYSHIRE: <<No baseball...no football...>>

DR. MARQUIS: <<Now that's a teachable moment guys. It is actually "I don't like baseball or football.">>

DR. MARQUIS: <<Think pronunciation.>>

BECKY: <<Can you repeat that, Mrs. Darbyshire?>>

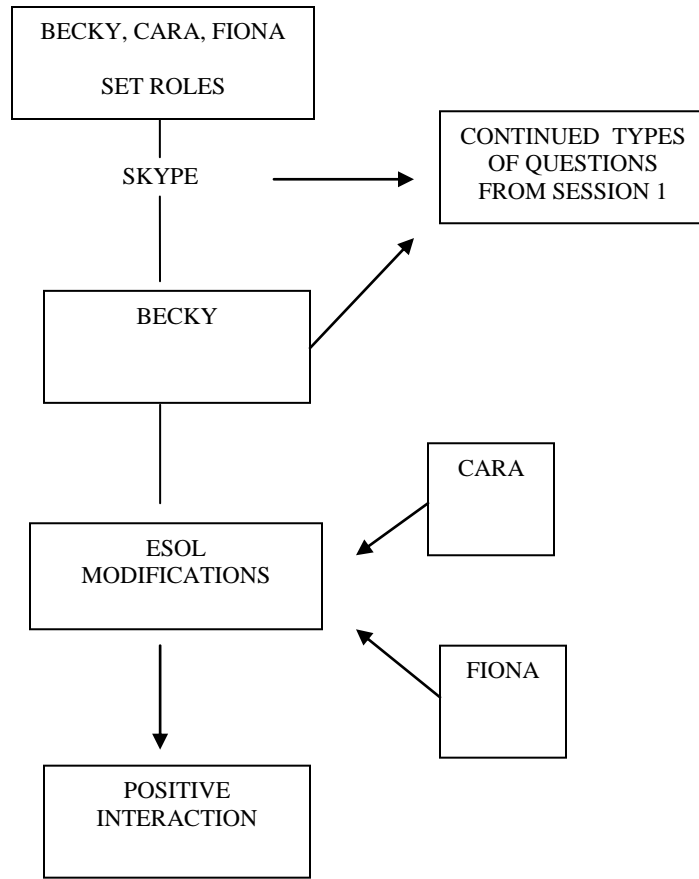


Figure 25. Event Flow Network: Becky, Cara, and Fiona’s Interactive Characteristics Skype (Skype Limited, 2009) Session 2.

Interactive Characteristics among Gabby, Hannah, and Larry in  
Skype (Skype Limited, 2009) Session 4

As the students were debriefing with Dr. Marquis at the end of Session 2 in Skype (Skype Limited, 2009), Larry actually interrupted the debriefing by commenting that he “wants to talk to her next! Can I go next in Skype?” His enthusiasm for using Skype for the interactions in addition to his negative reflections on using Second Life (Linden Labs, 2004) actually foreshadowed the quality of his interactions with Mrs. Darbyshire. In Week 2, Larry worked with Gabby and Hannah to create an ESOL modified social studies lesson for an elementary student in Grade 5. The original content of their lesson

was the westward expansion of the United States and included such key vocabulary as “cowboy,” “expansion,” “settler,” and “wagon”. Their interaction lasted 28 minutes.

Unlike the other groups, there was no collegial exchange among Gabby, Hannah, and Larry relevant to who would assume what role during the interactions. Larry took the lead role and directed Gabby and Hannah during the interactions. For the most part, Gabby and Hannah had no real role and were more observers like their classmates. Larry’s dominant approach to setting roles and negative attitude toward Second Life (Linden Labs, 2004) resulted in confusion and disorganization for his group and did not support Mrs. Darbyshire’s language needs.

*Excerpt from beginning of Session 4 in Skype*

LARRY: <<You guys sit here. There are two chairs. We should have done Skype first. Second Life is yucky!.>>

Becky and Isabel’s groups were able to establish and maintain a rapport with Mrs. Darbyshire that enabled them to introduce some of the key vocabulary from their original lesson plans. For Isabel’s group, this content was related to the climate of the United States, and she was able to ask Mrs. Darbyshire about the weather in Argentina. For Becky’s group, their lesson was on the three branches of the United States government, and she was able to ask Mrs. Darbyshire about the executive branch. By contrast, the exchanges with Larry’s group actually reverted back to the earlier frustrations and lack of communication at the beginning of Session 1 in Second Life (Linden Labs, 2004). In addition, Mrs. Darbyshire’s responses became more abbreviated, and she used more Spanish as she did during Week 4 Session 1.

*Example of Exchange between Larry and Mrs. Darbyshire*

MRS. DARBYSHIRE: <<I like cook Italian.>>

LARRY: <<What kind of Italian food?>>

MRS. DARBYSHIRE: <<Ravioli, lasagna...?Sabes qué es?>>

LARRY: <<I'm Italian.>>

MRS. DARBYSHIRE: <<[No response].>>

Here, Larry did nothing to scaffold her language, especially when Mrs. Darbyshire used Spanish to answer his question. Unlike his classmates, Larry demonstrated noticeable resistance to implementing ESOL modifications. This resistance was particularly in relation to checking Mrs. Darbyshire's comprehension and supporting her language. Even after Dr. Marquis got Larry to implement one of the ESOL strategies, his effort was abbreviated with no real follow-through.

*Example of Larry's Resistance to Scaffolding by Dr. Marquis*

LARRY: <<So, what else do you like to do?>>

DR. MARQUIS: <<You are talking too quickly.>>

LARRY: <<Oh, she understood me.>>

DR. MARQUIS: <<Are you sure about that?>>

The remaining exchanges between Larry and Mrs. Darbyshire were similar to the beginning of the conversation. By the end of the conversation, Mrs. Darbyshire was responding with just one-word answers similar to her responses during Session 1 in Second Life (Linden Labs, 2004). Also, there was notable subject fatigue as Larry redirected the conversation back to cooking that had been covered more than once during the other three sessions. It was at this point that Dr. Marquis decided to end the

conversation and bring the class back for a final debriefing. Unlike Abby, Becky, and Isabel’s experiences, Larry’s experience was almost entirely disconnected from the other three sessions. This is particularly evinced by Larry’s resistance to implementing the ESOL modifications suggested by Dr. Marquis in addition to Mrs. Darbyshire resorting back to one-word responses, no response, or responses in Spanish to his questions (Figure 26).

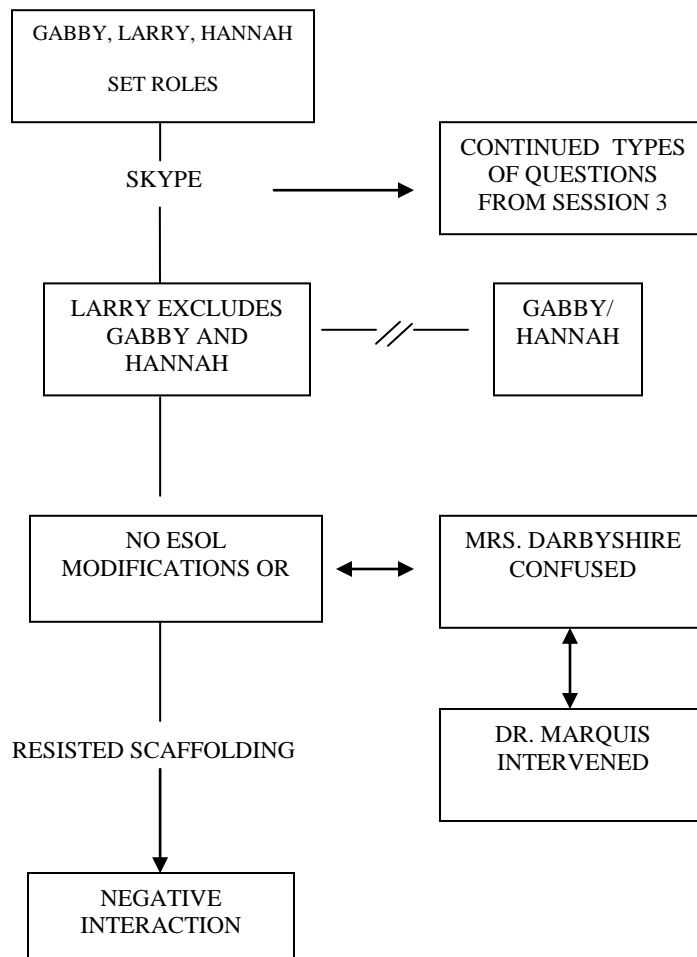


Figure 26. Event Flow Network: Gabby, Hannah, and Larry’s Interactive Characteristics Skype (Skype Limited, 2009) Session 4.

Evidence of Productive, Constructive, and Destructive Collaborations in  
Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009)

From the standpoint of collaboration, I used Erben's (2001) model to identify and to tally the types of collaborative episodes that occurred among the participants. These collaborations included productive, constructive, and destructive utterances. Keeping in mind that the principals during the interactions were Abby, Becky, Isabel, and Larry, I tracked the collaborations specific to these four pre-service teachers. Then, I reduced the types of collaborative episodes to the particular utterances used by the four pre-service teachers during the collaborations. Finally, to determine which types of collaborative utterances were used most frequently, I looked at the interactions among all of the pre-service teachers and compared them against the tallies from Abby, Becky, Isabel, and Larry. I used this information to construct a Causal Network of potential self-regulation through collaboration (Miles & Huberman, 1994) to describe the pre-service teachers' pedagogic growth across the sessions in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009).

*Comparing Collaborative Utterances among Abby, Becky, Isabel and Larry*

Table 19 offers a comparison of the collaborative instances specific to the four pre-service teachers (Abby, Becky, Isabel, and Larry) who had the most direct interaction with Mrs. Darbyshire across the four sessions. In the Week 4 and 5 sessions in Second Life (Linden Labs, 2004), Abby's productive utterances were tallied at 28, which was more than the tallies for Isabel at 22. Of Abby's and Isabel's productive utterances, most (12 for Abby and 14 for Isabel) were used for managing operations. From the tally of constructive utterances, the majority (7) of Isabel's utterances were affirmations, as were



Abby's (3). Isabel had more constructive utterances (8) than did Abby (5). There was only one tally of a destructive utterance and that was from Isabel in the Week 5 interaction.

Table 19. *Instances of Collaborative Utterances for Abby, Isabel, Becky, and Larry*

Type of Collaboration	Abby	Isabel	Becky	Larry
Productive Collaboration	28	22	78	35
Constructive Collaboration	5	8	4	6
Destructive Collaboration	0	1	0	4

Becky and Larry had a total of 103 productive utterances. Larry's instances of productive collaboration were 35, and Becky's instances were 78. Becky had less constructive utterances (3) than did Larry (6). Four instances of destructive utterances were tallied for Larry with no instances tallied for Becky. Of the productive collaborations, the majority (30) of Larry's utterances were in the form of prompting, assisting, and coaching. Most of Becky's productive utterances (78) were in the form of prompting, coaching, use of common referring expressions, and use of context information. Becky's constructive collaborative utterances (3) were humor as were the majority of Larry's (4) constructive collaborate utterances.

After examining the collaborative utterances of the four pre-service teachers, I next compared the collaborative utterances of all participants across the four sessions. I then constructed a table to compare Abby, Isabel, Becky, and Larry's collaborations with those of all participants in Weeks 4 and 5 (Table 20). I later used these instances to construct a Causal Network (Miles & Huberman, 1994) to describe how the identified themes and interactive characteristics filtered through the technologies created a collaborative environment in which self-regulation and transformation occurred.

The most collaborative utterances among all of the participants were tallied from the interactions in Second Life (Linden Labs, 2004). Of these utterances, the majority were productive (392), followed by constructive (47) and destructive (2) utterances. More than one half (284) of the productive utterances and the largest amount (42) of constructive utterances occurred during Sessions 1 and 3 in Second Life. The only two instances of destructive utterances occurred in Second Life (this number was from the remaining participants and not from Abby, Isabel, Becky, and Larry).

Table 20. *Comparison of the Types of Collaborative Utterances used by Abby, Isabel, Becky, Larry and all Participants*

Type of Collaboration	Abby	Isabel	Becky	Larry	Weeks 4 and 5 Second Life	Weeks 4 and 5 Skype
Productive Collaboration	28	22	78	35	284	108
Constructive Collaboration	5	8	4	6	42	5
Destructive Collaboration	0	1	0	4	2	0

From the standpoint of productive collaborations, the most instances were tallied for Becky (78), followed by Larry (35), Abby (28), and Isabel (22). If the tallies are then considered at the individual student level, the following was revealed. Larry and Becky, who used Skype (Skype Limited, 2009) for the interactions, had the most combined instance of productive collaborative utterances at 113. In terms of constructive collaborations, Becky had the least amount of constructive utterances at 4, with Isabel having the most at 8. Abby's and Isabel's combined tallies from Second Life (Linden Labs, 2004) were 50. By contrast, Abby and Isabel had a greater number of constructive utterances (13) than did Becky and Larry (11). Among the four students, there were 5 instances of destructive collaborations. Becky and Abby did not have any destructive utterances, whereas Isabel had 1 in Second Life and Larry had 4 in Skype.

Although the tallies were instructive in understanding the types of utterances, I needed to explain the relationship among the identified themes, interactions, and technologies.

Using the techniques for Within-Case Analysis (Miles & Huberman, 1994), I constructed a Causal Network (see Figure 27) to trace the pre-service teachers' pedagogic transformations across the collaborative episodes. As with tallying the instances of collaborative utterances, I chose to focus again on the transformations of Abby, Becky, Isabel, and Larry as they had the most direct and sustained interactive experiences with Mrs. Darbyshire.

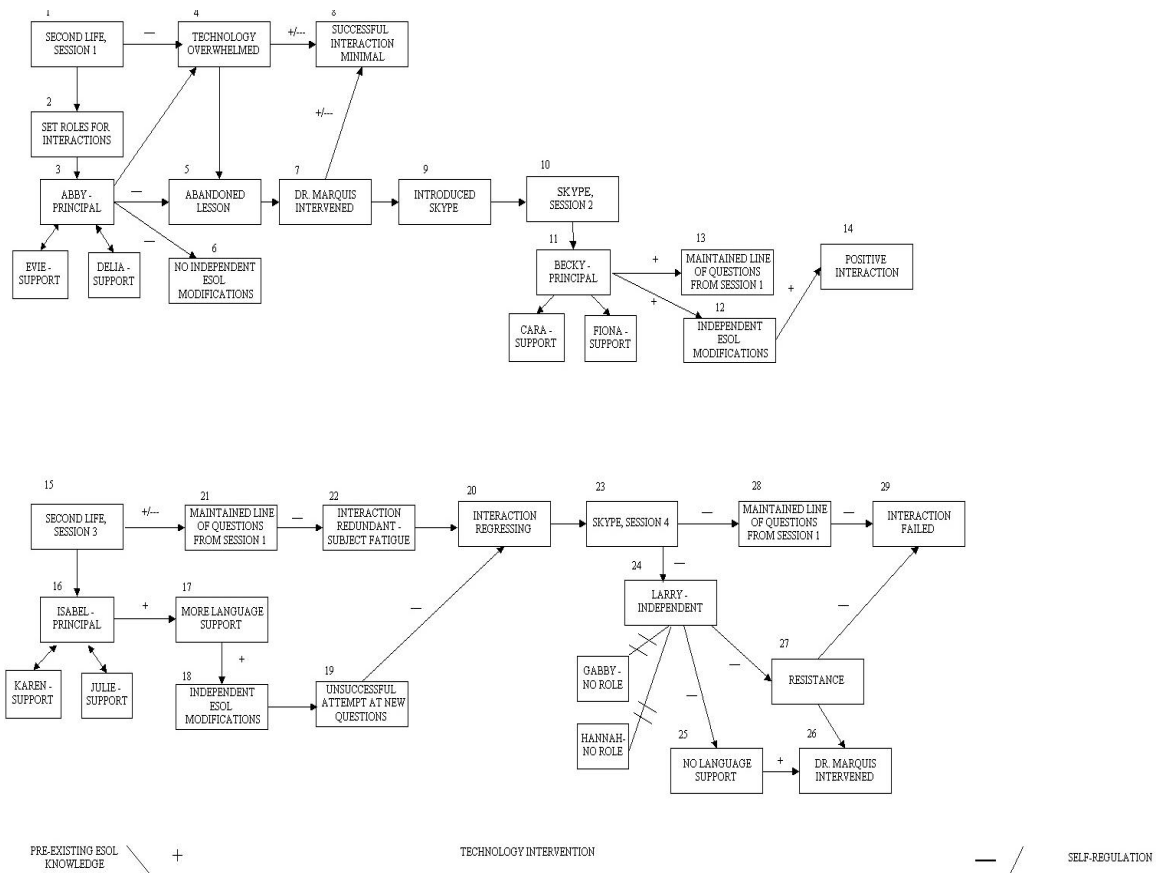


Figure 27. Causal network of potential self-regulation through collaborative episodes.

Using the Causal Network enabled me to demonstrate the most important concepts related to the developmental progressions of Abby, Becky, Isabel, and Larry

during the interactions. The interactions were predicated on the fact that these pre-service teachers had pre-existing knowledge related to the language needs of an ELL. Also, as the cohort had existed for 2 years, the students were familiar with working in teams/groups and delegating tasks (2) for various assignments. From the first interaction (1) in Second Life (Linden Labs, 2004), the collaborative reciprocity (3) among Abby, Delia, and Evie was very apparent. Even though the technology initially overwhelmed the group (4), they - especially Abby - were eventually able to collaborate with Dr. Marquis (7) to implement some ESOL modifications (6), albeit the modifications were not implemented independent of his assistance. Even though the group chose to abandon the lesson (5), the interaction was moderately successful (8).

Part of the collaboration during the session was a direct result of Dr. Marquis's intervention. Based on the students' and Mrs. Darbyshire's reaction to Second Life (Linden labs, 2004), he recommended (9) that the second session take place in Skype (Skype Limited, 2009). In terms of collaboration, there was not the same reciprocity among Becky, Cara, and Fiona. Rather, Becky acted as the principal instructor (11) during the interaction directing Cara and Fiona. Because Abby's group abandoned their lesson (5), Becky chose to continue the same line of questions (13) from the previous session. Here, she was able to implement independently language modifications (12), which resulted in a positive collaboration with Mrs. Darbyshire.

Interestingly, after Skype (Skype Limited, 2009) was introduced and more constructive collaborations were taking place, Session 3 in Second Life (Linden Labs, 2004) mirrored the collaborations in Session 1. Even though Isabel was the leader during the interaction, her collaborations with Karen and Julie were reciprocal (16). Similar to

Becky, Isabel was able to provide more language support (17) and implement ESOL modifications independent of Dr. Marquis's guidance (18). However, because her group chose to continue the same line of questions from the first two sessions (21), she was not successful in attempting to introduce any content from her lesson (19). Thus, the collaborations became redundant (22), and the interaction began to regress (23).

The final session took place in Skype (Skype Limited, 2009). There was such a lack of collaboration among Larry's group and between Larry and Mrs. Darbyshire that the interaction was similar to the first meeting in Second Life (Linden Labs, 2004). Larry opted to maintain the same line of questions (28) from the first session, acting independently (24) of his classmates and Dr. Marquis's suggestions. He offered no language support (25) to Mrs. Darbyshire and was resistant (27) to Dr. Marquis's attempts to positively collaborate (26). Thus, the final interaction was unsuccessful (29).

Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009) were used as the intervening technologies between the pre-service teachers' existing knowledges and what was anticipated in terms of self-regulation. However, as the display indicates, what was evinced in the collaborations would be anticipated from a group of students participating in a cohort. In other words, their interactions were consistent with pre-existing ESOL knowledge and collaborations in other classes.

Snapshot Vignette of the Sessions in Second Life (Linden Labs, 2004)

and Skype (Skype Limited, 2009)

It was Week 3 of the course and Dr. Marquis and I began the class by reviewing the technology component of the syllabus with the students. At the beginning of the class, I took a secondary instructional role as Dr. Marquis explained to the students,

similar to the ESOL I course, that the assignments related to the technologies they would use for interacting with the ELL would fulfill the technology requirement for their ESOL II portfolios. After his explanation, Dr. Marquis introduced me again to the class as one of his co-instructors for Weeks 3 through 6 in which the students would be working with the ELL and the new technologies. He explained to them that I would be training them on how to use Ning (Andreesen & Bianchini, 2004) and Second Life (Linden Labs, 2004) for the interactions with the ELL. Before I began training the students how to use the features of Ning and Second Life, Dr. Marquis explained to the students the differences between the two programs. He emphasized that Ning would be a more familiar program to them based on their experiences using wikis and social networking programs in their other classes. Before describing how they would use Second Life for the interactions, he prefaced his comments by telling the students that this was a new and different program they had not used in their other education courses. He encouraged the students to keep an open mind regarding the program, as it was substantially different from other programs they had used. It was at this point that Dr. Marquis re-introduced me to the students and told them that I would be conducting the training in Ning and Second Life.

Following Dr. Marquis's lead, I decided to begin the training with Ning (Andreesen & Bianchini, 2004). I made this decision based on the following factors: (a) the students' prior use of technology in their education classes; (b) the students' familiarity with social networking programs from their ESOL I and technology in education courses; (c) following Dr. Marquis's familiar instructional lead. My laptop was connected to the classroom's LCD projector where I could show the students the main page of Ning. I began by having the students ask for an "invitation" to join the site

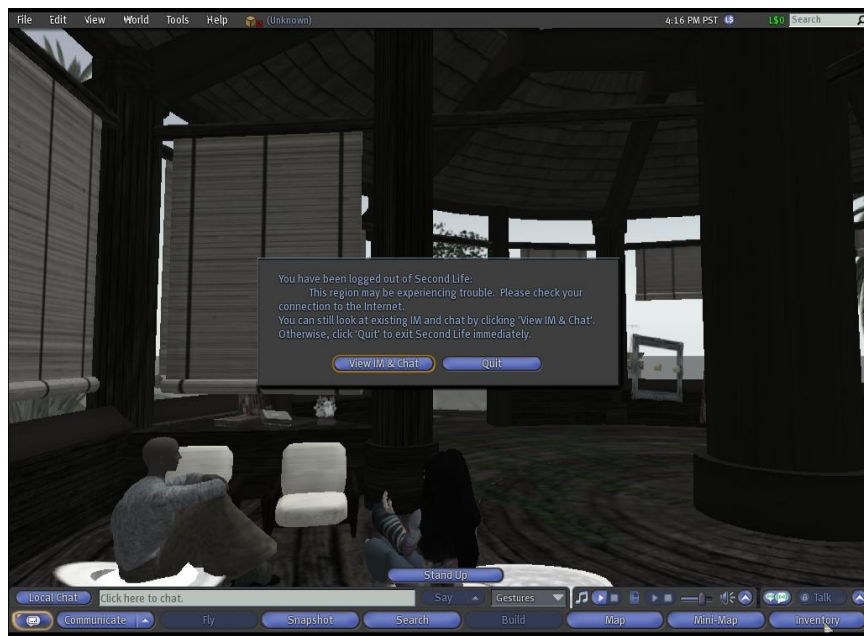
I created for the ESOL II course. After accepting them as members, I introduced the students to the main page where the debriefing sessions would take place and where they would be posting their lesson plans for editing and discussion. The students immediately took to using the site without hesitation. They mostly concentrated on personalizing their pages and uploading their lesson plans. They also practiced posting comments in the forum discussion area. Students had very few questions related to the features of the site, which included uploading their lessons and using the forum discussion area. After they spent approximately 45 minutes on Ning, the class took a break for 15 minutes during which time I transitioned to Second Life (Linden Labs, 2004).

After returning from their break, I asked the students to log on to Second Life (Linden Labs, 2004) and walked them through the registration process. Although there were few comments or questions from the students related to Ning, there was a notable undertone of trepidation among the students as they logged on and began creating their avatars. It was during the registration process that there was an issue with the wireless signal that resulted in log on errors on the site. Of the 12 students, only one half were able to log on consistently to the site. Therefore, most students opted to continue either personalizing their pages on Ning or to work with another student who could stay connected to Second Life. By the end of class, the frustration among students, Dr. Marquis, and me was palpable.

My goal was to have the students create their avatars, learn how to manipulate them, and show the different instructional features of Second Life (Linden Labs, 2004). I also attempted to explain to the students how they would be interacting with the ELL in the Second Life classroom. At the end of class, I called for questions from the students



regarding Ning (Andresen & Bianchini, 2004) and Second Life. Although there were no questions related to Ning, there were questions related to Second Life. Most of the questions took the form of not understanding what the purpose was of interacting with the ELL in Second Life. Students expressed frustration about not understanding how to use the avatar as well as not having access to the hands-on materials they created for their lessons. Figure 28 is a screen shot from the Week 3 practice session in Second Life showing the black and white screen and error message indicating that the connection with the virtual classroom had been lost.



*Figure 28.* Screen shot of error message in Second Life (Linden Labs, 2004) encountered with multiple student log-ons.

As student frustration mounted with my explanations, Dr. Marquis assumed instruction of the class. He discussed Second Life (Linden Labs, 2004) and how the program would be used to instruct the ELL. He also reiterated to the students that, as they had undertaken in previous education classes, they would be introduced to new technology that they could potentially encounter as an in-service teacher. Dr. Marquis

also addressed the lesson plans that the students created and suggested ways to implement the lessons without having direct access to their hands-on materials. As Dr. Marquis addressed the class, I attempted to tell the students about the potential benefits of using Second Life to instruct an ELL. One of these considerations included reducing the affective filter of the ELL by using an avatar-based chat program (meaning that the ELL might feel less intimidated than what he/she would otherwise feel in a face-to-face setting). I also reemphasized Dr. Marquis's point regarding the use of new technologies in the classroom and for professional development. Our reassurances, however, did not seem effective as the students continued to question the purpose of using Second Life in addition to their concerns related to having appropriate materials for their lessons.

The most vocal opponent to using Second Life (Linden Labs, 2004) was Larry. At the end of the discussion, I asked students if they had any additional comments or questions related to using Second Life in Weeks 4 and 5. The female students, whereas they still expressed concern, did offer positive feedback by suggesting that they would at least attempt the program and were anxious to see how it would work when instructing an ELL. These positive thoughts were born out in the reflective statements written by the students at the end of the Week 3 class. Larry's opposition, however, was resolute. He saw no benefit in using Second Life for instructing the ELL. When I questioned him about keeping an open mind for learning a new technology, his response was that he had sufficient experience with different technologies, and Second Life was a program that he would never use. He concluded his comments by asserting that he had significant practice tutoring ELLs in his practicum and did not see the need or value in using Second

Life as another venue for practice. The overall tone at the end of the Week 3 course was negative, which was revealed later in the students' reflective statements.

After the Week 3 class, Dr. Marquis and I met to discuss the minor technical issues that we encountered with Second Life (Linden Labs, 2004). We concluded that much of the frustration and trepidation expressed by the students was not necessarily related to Second Life as a program but more an expression of frustration with the technical issues. One of our instructional goals was to introduce the students to Second Life as an alternative pedagogic tool that they could potentially encounter as an in-service teacher. From a macro perspective, we needed to bring the anxiety level of the students down so that their experience with Second Life could be appropriately scaffolded similar to technology instruction they had received in the past. Therefore, we concluded that the best scenario would be to reduce the activity in such a way as to allow the students to experience the most salient interaction with Mrs. Darbyshire. Rather than have each individual student create an avatar and instruct Mrs. Darbyshire (the original plan), we decided the best scenario would be to have the students work in groups and instruct her using my avatar as the only avatar in the virtual classroom with Mrs. Darbyshire. The remaining students, rather than enter with different avatars, would observe the interactions among the groups and Mrs. Darbyshire using the LCD projector in the classroom.

In Weeks 4 and 5 of the class, the students interacted with Mrs. Darbyshire initially using Second Life (Linden Labs, 2004). Rather than call the groups at random, the students were permitted to volunteer for the different interactive sessions. Abby, Delia, and Evie volunteered for the first instructional interaction with Mrs. Darbyshire in

Second Life. At this point, Dr. Marquis had not revealed the identity of the ELL. Accordingly, the students, based on their Week 2 case study discussion, were expecting a Level 2 or 3 Hispanic male of elementary age. When the first group of students entered the virtual classroom, they were not surprised by the presence of a male avatar (Figure 29). However, as soon as the students began to engage Mrs. Darbyshire with their lesson, the hesitation they expressed in their Week 3 reflections was realized; the voice of the avatar did not match the visual characteristics of the avatar. In other words, the avatar was male and the voice was female. The first thing that the students attempted to accomplish was to establish a turn-taking protocol. At first, Abby, Delia, and Evie were talking over each other and over Mrs. Darbyshire. Dr. Marquis suggested to them that they assume different roles; that is, one person would speak, one person would use the chat bar, and one person would manipulate the avatar. Abby became the speaker with Delia using the chat bar (if Mrs. Darbyshire did not understand what Abby stated) and Evie controlling the avatar. For her part, Mrs. Darbyshire, who would not be manipulating her avatar, had to work out a protocol with her grandson, Theodore, who would move her avatar and assist her with the talk feature and chat bar. Also, the students had to communicate with Mrs. Darbyshire regarding how they would take turns during the instruction. Abby suggested to her that if she did not understand what was being said, that Delia would type the question in the chat bar for her to read (Figure 30). After the students and Mrs. Darbyshire clarified what the instructional protocols would be, the students began tutoring Mrs. Darbyshire on their lesson related to early pioneer life in the southeastern United States.



*Figure 29.* Virtual classroom in Second Life (Linden Labs, 2004) with my avatar, RJ Henig, used by the students for the interactions and Anna Darbyshire, the avatar created for Mrs. Darbyshire for the interactions.



*Figure 30.* Delia using the chat bar to type questions and responses to Mrs. Darbyshire.

There was immediate frustration from both the students and Mrs. Darbyshire. Even though they had established their protocols for communicating with each other, as novice users of Second Life (Linden Labs, 2004), the initial instruction was awkward.

Because Mrs. Darbyshire was not manipulating her avatar and the talk button, Theodore would inadvertently engage the talk feature while Abby was still asking a question. This resulted in a great amount of microphone feedback preventing the students and Mrs. Darbyshire from hearing each other. Mrs. Darbyshire began speaking in Spanish, at which time Mrs. Rosenblum translated that she was frustrated and did not want to continue using the program (Figure 31). Also, Mrs. Darbyshire asked for a translator and expressed that she was very nervous using Second Life for the instruction. Here, Dr. Marquis suggested to Abby, Delia, and Evie that they ask more personal questions to lower Mrs. Darbyshire's affective filter so that they could engage her in the lesson. Evie requested that they abandon the lesson altogether, and Dr. Marquis concurred. The students decided to re-introduce themselves to Mrs. Darbyshire and began asking her more personal questions related to her family and her hobbies (Figure 32). Once Mrs. Darbyshire recognized what she was being asked, she became more comfortable and began answering the students' questions (Figure 33). After rapport was established among the students and Mrs. Darbyshire, Dr. Marquis announced a break so that we could debrief relevant to what had transpired during the interaction.



*Figure 31.* Mrs. Rosenblum translating the frustrations expressed by Mrs. Darbyshire to the students in the first interaction in Second Life (Linden Labs, 2004), Week 4.



*Figure 32.* Abby, Delia, and Evie reintroducing themselves to Mrs. Darbyshire in the first interaction in Second Life (Linden Labs, 2004), Week 4.



*Figure 33.* Mrs. Darbyshire responding positively to the personal questions presented by Abby, Delia, and Evie in the first interaction in Second Life (Linden Labs, 2004), Week 4.

The students were frustrated after the first interaction and again expressed negativity related to using Second Life (Linden Labs, 2004). Most of the comments were directed at the awkwardness of the avatar and not being able to see Mrs. Darbyshire's facial expressions and body language. As in Week 3 of the class, there were several questions related to the purpose of using Second Life for teaching, with most students suggesting that it was a novelty that they would never use in teaching. After the debriefing and outside of the class, Dr. Marquis and I discussed the frustrations and agreed that, to promote positively the students' instruction of Mrs. Darbyshire, we go ahead with Skype (Skype Limited, 2009) as an alternative for the next group to use instead of Second Life. At the end of the debriefing session, Dr. Marquis announced to the students that the next instructional session would take place in Skype rather than in Second Life. There was a noted positive change in the students' attitudes and comments as they continued to debrief from the first interaction. The most vocal positive response came from Larry who, in Week 3, was the most adamant that Second Life should not be



used. Larry stated that he was a frequent user of Skype and “loved” using it to keep in touch with his friends and family. Dr. Marquis then had Mrs. Rosenblum communicate to Mrs. Darbyshire that we would move the second interaction into Skype. As translated by Mrs. Rosenblum, Mrs. Darbyshire was very pleased to be using Skype as she reported being a regular user of the program as well.

The second interaction during Week 4 took place in Skype (Skype Limited, 2009). Again, student groups were asked to volunteer for the interaction. Becky, Cara, and Fiona volunteered for the second interaction in Skype. Because Abby, Delia, and Evie were just beginning to establish a rapport with Mrs. Darbyshire, Dr. Marquis suggested to them that they continue establishing that rapport and abandon their original lesson on the three branches of the United States government. Skype offers a video-conferencing feature that the students could access in order to see each other. Once this was enabled, the communication among the students and Mrs. Darbyshire was much more fluid. Unlike Abby, Delia, and Evie, Becky, Cara, and Fiona were able to ask more questions related to her personal life and hobbies. Additionally, they were able to employ more of the ESOL strategies by correcting her language errors. Mrs. Darbyshire was more relaxed and was able to answer the student questions, even offering follow-up comments related to the conversation. After the second interaction, the students debriefed again relative to the second group’s use of Skype. The debriefing was completely positive, with no students suggesting any negative instructional effect when using Skype. Figure 34 shows a noticeable difference among the affect of the students using Skype to interact with Mrs. Darbyshire in Week 4. Figure 35 shows the contrast

between the affect of the students who interacted in Second Life (Linden Labs, 2004) and Skype in Week 4 of the class.



*Figure 34.* Becky, Cara, and Fiona interacting with Mrs. Darbyshire using Skype in the Week 4 interactions.



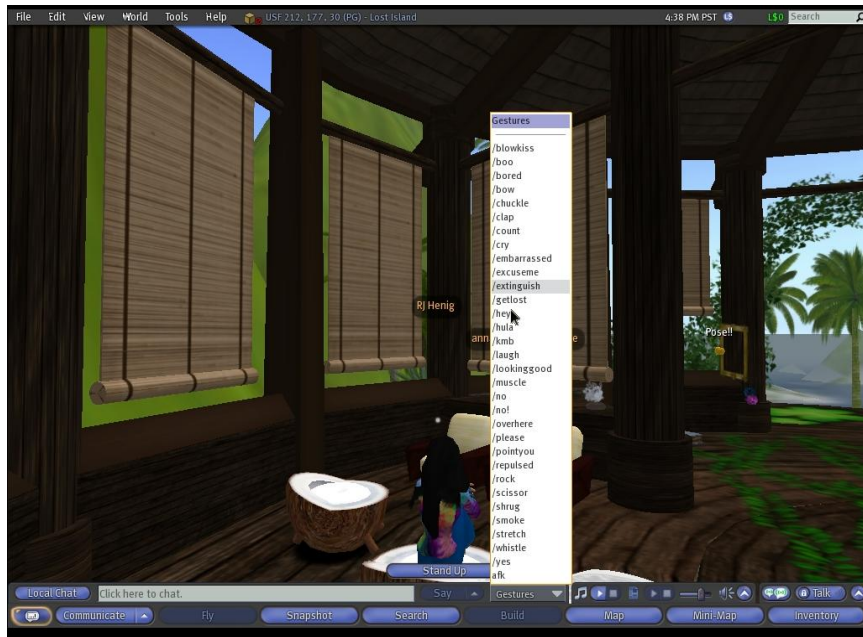
*Figure 35.* Noticeable difference in affect between the student group using Second Life (Linden Labs, 2004) on the left and using Skype (Skype Limited, 2009) on the right to interact with Mrs. Darbyshire.

Interactions 3 and 4 took place in Week 5 of the course. Dr. Marquis and I retained the protocol from Week 4, thereby enabling the students to volunteer for the third and fourth interactions and continue asking Mrs. Darbyshire about her personal life

and hobbies. My concern, given the negative reaction to Second Life (Linden Labs, 2004) and positive response to Skype (Skype Limited, 2009), was that the remaining two groups would not volunteer for Second Life. However, Isabel, Julie, and Karen volunteered and because they had observed and debriefed with their classmates relative to the instructional issues encountered by Abby, Delia, and Evie, their interaction in Second Life with Mrs. Darbyshire was more positive (Figure 36). As in the first session in Second Life, Isabel, Julie, and Karen each assumed a role during the interactions. Isabel would be responsible for asking questions, whereas Karen would type questions and answers in the chat bar. Julie offered to use the gesture features to complement the conversation. Figure 37 shows Julie actively accessing the gesture features during Session 3 in Week 5.



*Figure 36.* Isabel, Julie, and Karen’s positive affect during the Week 5 interaction with Mrs. Darbyshire in Second Life (Linden Labs, 2004).



*Figure 37.* Isabel, Julie, and Karen actively using the gesture features in the third interaction using Second Life (Linden Labs, 2004) in Week 5 of the course.

Mrs. Darbyshire was more relaxed because she had experience with Second Life (Linden Labs, 2004) in the first interaction and knew what to expect from the students. One notable issue related to the third interaction was subject fatigue. In other words, because the first two student groups had established a rapport with Mrs. Darbyshire by asking her personal questions, the remaining two groups struggled to keep the conversation going. Even though the students and Mrs. Darbyshire were more comfortable during the third session in Second Life, the conversation became quickly stagnated as Isabel, Julie, and Karen endeavored to introduce new questions and topics. At one point, Dr. Marquis suggested to them that they might engage Mrs. Darbyshire with some of the content of their original lesson (on weather patterns in the United States). However, when Isabel tried to introduce the vocabulary, Mrs. Darbyshire quickly became flustered once the topic changed from personal information. She asked

to move the activities into Skype (Skype Limited, 2009) so that she could see the students who were asking her questions. Figure 38 demonstrates the change in affect among Isabel, Julie, and Karen as the conversation with Mrs. Darbyshire languished from lack of new subject matter.



*Figure 38.* Isabel, Julie, and Karen showing subject fatigue in the Week 5 interaction with Mrs. Darbyshire in Second Life (Linden Labs, 2004).

The last group, comprising of Gabby, Hannah, and Larry, completed the interactions with Mrs. Darbyshire in Skype (Skype Limited, 2009). This group returned to the original questioning related to her personal life and hobbies. Although Mrs. Darbyshire was more comfortable with Skype and this line of questioning, the conversation was really not progressing as the questions and answers did not change much from Session 2 in Skype. Larry took the lead in his group and was asking most of the questions. Once the identity of Mrs. Darbyshire was revealed as Mrs. Rosenblum's mother during Week 4, the students were more comfortable asking her personal questions. Larry was especially animated and focused his questions on one of her favorite hobbies, cooking (Figure 39). His fellow group members and classmates became

quickly disinterested, as did Mrs. Darbyshire. Seeing that the conversation was not progressing, Dr. Marquis suggested that the students debrief regarding the Week 5 interactions and conclude the interactions with Mrs. Darbyshire. Figure 40 shows the notable difference in the conversational affect among Larry's group members and Mrs. Darbyshire at the conclusion of the Week 5 interactions.



*Figure 39.* Larry, using Skype (Skype Limited, 2009) to interact with Mrs. Darbyshire, displays enthusiasm for the topic of conversation during his group's interaction with Mrs. Darbyshire in Week 5.



*Figure 40.* Noticeable change in affect among Larry's group and Mrs. Darbyshire at the conclusion of the Week 5 interactions in Skype (Skype Limited, 2009).

Most of the student comments related to the efficacy of using Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009) for instructing an ELL. For Second Life, the majority of the student comments were initially negative with most students suggesting that they would not use the program in their classes. Regarding receiving professional development, some of the students indicated that they would be willing to receive professional training in Second Life. All of the students felt that, if an online program was used to tutor or to instruct an ELL, the program should include a video feature so that the instructor and the ELL could see each other.

Not all of the comments related to Second Life (Linden Labs, 2004) were negative. There were also positive comments related to how using an avatar-based program could reduce the anxiety that an ELL might otherwise feel in a face-to-face setting. Further, students noted that a program such as Second Life could be beneficial for distance learning. The Week 6 Final Debriefing mirrored the students' reflections in Week 3 and debriefings in Weeks 4 and 5. Even after a week to reflect on their

experiences with Second Life and Skype (Skype Limited, 2009), the tenor of the discussion among the students and Dr. Marquis did not change in Week 6. Students left the interactions with an overall negative opinion of using Second Life for instruction or professional training. Figure 41 shows students debriefing with Dr. Marquis after the fourth interactive session in Skype during Week 6.



*Figure 41.* Week 6 final debriefing after fourth interaction in Skype (Skype Limited, 2009) with Mrs. Darbyshire.

After Week 6, Dr. Marquis, Mrs. Rosenblum, and I met to discuss the interactions in Second Life (Linden Labs, 2004). Each of us had trained pre-service teachers so we were able to reach some common conclusions related to the students' reflections on using Second Life for professional training and development as well as instruction of an ELL. First, Second Life assumed that the end user is technologically independent - an independence that might not correspond to the pre-service teacher's actual technical ability. Unlike the features of a social networking program such as Ning (Andreesen & Bianchini, 2004) or Facebook (Facebook, 2009) that the pre-service teacher might recognize, Second Life was not an intuitive program with those familiar features.



Second, most of the pre-service teachers' experiences with ELLs were face-to-face occurring under the supervision of either their cooperating teacher or Dr. Marquis. They had no prior experiences interacting with an ELL using an Internet-based program. Third, in order to use all of the available features in Second Life, significant training in the functions of the program would need to take place in a technology for education course in advance of using the program to interact with an ELL. Because the program was not intuitive, it became, at least for the first interaction, a hindrance to the students' teaching. Abby, Delia, and Evie were so concentrated on using the different features that their initial contact with the ELL was negative. Fourth, the introduction of Skype (Skype Limited, 2009), whereas it did provide the students with some positive interactions, actually derailed the effort to engage positively them with Second Life. This change reinforced their initial trepidation and negative reflection on using Second Life with the ELL. Finally, from the macro-level considerations, these were pre-service teachers who had functioned in a cohort while in the university's education program. The introduction of Second Life acted as an instructional disruption to what they had been accustomed to receiving in their other education courses, thereby precipitating their negative reactions to the program.

#### Portrait Vignette of Abby

My name is Abby, and I am in the university's Education Program. I am a 19 year old senior majoring in Elementary Education. As part of my graduation requirements, I have to complete an ESOL endorsement and meet a portfolio requirement. In my portfolio, I must include thematic units that I have created for my third-grade students that include ESOL modifications. I also have to prepare hands-on

activities for my students, which I have to present along with the thematic units for my portfolio. Using technology is an important part of the portfolio process as well. I had a technology in education course that was taught by Dr. Marquis two semesters ago. Dr. Marquis is my supervising professor, and he taught my ESOL I course in the fall semester of 2008. In the ESOL I class, Dr. Marquis introduced us to new technologies that most of us had not used before. Many of the programs were Mac-based programs which was good for me because I have access to a Mac computer lab at the elementary school where I am completing my practicum. We also used a wiki for our class assignments. By using the wiki, we were able to post our lesson plans while sharing and receiving feedback from Dr. Marquis and our classmates.

As far as technology, I use the Internet and e-mail daily. I also use the program Facebook (Facebook, 2009) to stay in touch with my friends and family. I log-on to Facebook an average of two times per day. Although I have received technology training here at the university in my classes, I have not attended any technology trainings at the elementary school where I am completing my second practicum cycle. I am really unsure if they offer technology training at my school. My supervising teacher, Mrs. Howard, and our principal, Mr. Armenia, actively support our use of technology with our students, and that is reflected in the amount of access that we have to the computer laboratory, LCD projector, and ELMO visual presenter. We are especially encouraged to use technology for differentiated instruction of our students, especially for our ELLs. For example, I have access to computer programs to help my lower-level reading and math students. These programs are especially helpful with the ELLs in my class.

Right now, I have 12 ELLs in my third-grade class. Most of them learned Spanish as their first language and speak Spanish exclusively at home. I do have three students from Haiti, and they speak Creole. I was not surprised, then, in the ESOL II course that Dr. Marquis was introducing us to new technologies that we have not used before. The programs were called Second Life (Linden Labs, 2004) and Ning (Andreesen & Bianchini, 2004); I have not used either of the programs. According to Dr. Marquis, Ning was like Facebook; he also said it was like the wikis that we used in the ESOL I class so I was confident that I would be able to understand how to use it. But, Second Life was totally different. I was not sure at first how it worked or how we were supposed to use it to instruct our ELL. I was open to learning a new technology to use in my teaching, and Dr. Marquis encouraged us to keep an open mind.

As in the ESOL I class, we received training on how to use Ning (Andreesen & Bianchini, 2004) and Second Life (Linden Labs, 2004). We spent most of the Week 3 class using Ning and customizing our pages where we would post our lesson plans. We also practiced using the forum discussion area where we would talk about our interactions with the ELL in Weeks 4 and 5. Ning reminded me of using Facebook (Facebook, 2009) and the wiki site that we used in the ESOL I class so I was comfortable using it for the discussions that we would have later on. It was when we started to use Second Life that I became concerned about using this program to present our lessons to the ELL. I was concerned because we are using things called avatars for the instruction. This was the first time that I have used an avatar, and it was difficult to move it from place to place. I think it would be too difficult for the ELL to navigate. Also, if the program were hooked up consistently, then we might have been able to use it

better. Some of us could log on and some of us could not – it was really frustrating. I really don't see how this could replace face-to-face contact with the ELL. It might be good for out of school use, especially if a student misses class.

When Dr. Marquis asked for volunteers to instruct Mrs. Darbyshire during Week 4 using Second Life (Linden Labs, 2004), my group and I volunteered for the first interaction. Even though I had reservations about using the program, I still wanted to experience a new technology. When we started the instruction, Mrs. Darbyshire would not respond to us. The program was too difficult for her to understand. We also experienced some technical issues with the microphone so we tried to type our answers to her in the chat bar instead. She became even more frustrated with us. But, Dr. Marquis encouraged us to try different approaches. I asked him if we could not focus on our lesson and just talk to her instead. I thought the lesson was too hard. He said that it was a good idea and suggested that we ask her more personal questions instead. Once we figured it out, it was nice, especially after we took the focus off of our lessons and focused on the personal stuff.

Overall, I felt that the experience was impersonal and confusing. I do not think that this is the best way to meet a person for the first time, especially an ELL. I do not really see any advantages of using a program like Second Life to instruct an ELL. I think it is too difficult, and I would not want to receive any additional training using the program. I do not think that it can replace what happens in the face-to-face classroom setting. I would never choose to have professional training using Second Life (Linden Labs, 2004). We should have used Facebook (Facebook, 2009) instead.

## Portrait Vignette of Becky

My name is Becky. I am 24 years-old and am a senior at the university. I am taking the ESOL II class because I am majoring in elementary education, and we are required to be ESOL endorsed before we are hired at an elementary school. I will graduate in May of 2009. I am finishing the last required practicum and am teaching a fourth-grade class. In my class this semester, I have six students who are ELLs. Three speak Spanish as their first language, and three speak Japanese. Like most of the elementary schools in our school district, our school received a grade of “A” last year. We have access to some technology in our classrooms. For example, I have a Mac teacher computer station that is connected to the classroom Smartboard. I use both of these every day while I am teaching. Although my cooperating teacher, Mrs. Chalone, encourages me to use technology, I am not sure if using technology is really emphasized at our school. I do know that we have a lot of site-based trainings for technology. As for me, I have had a technology in education course here at the university. That class was taught by Dr. Marquis who also teaches our ESOL courses. Dr. Marquis really emphasized the importance of technology, and we used a lot of different programs in the technology in education and ESOL classes. My personal computer is a Mac, so it is nice that the assignments we had used different Mac programs like “iTunes” and “Garage Band.” Dr. Marquis also taught us how to create good Webquests; we also did some amazing things with PowerPoint that I did not know we could do! I have tried to use some of the projects that we completed in his classes during my practicum because I have my Mac station and Smartboard to use.

I use my personal computer everyday to check e-mails and surf the Internet. I have a Facebook (Facebook, 2009) page that I only check about once a week. I use word processing at least one time a week to complete my class assignments. I was not uncomfortable, then, when Dr. Marquis had us using wiki sites and Mac programs to create and discuss our units and lessons in ESOL I. We used the wikis to post and edit our lessons. Because we are required to complete a technology component for our ESOL portfolios, the ESOL modifications that we made to our lessons had to include some kind of technology. Also, because I use the Mac teacher station and Smartboard every day, I made sure to create activities that were compatible and made the most sense to use with those items.

It was challenging to me when I was modifying my lessons because I had to keep in mind that I have native Spanish speakers and native Japanese speakers in my classes. Among the students in my cohort, I am the only one that has ELLs with first language of Japanese - everyone else has most ELLs with Spanish as their first language. At first, when we were creating lessons, I felt really unsure of myself when I was thinking about how to make the lessons work for my students who speak Japanese. Dr. Marquis was very helpful to me because he speaks Japanese and taught beginning teachers in a Japanese immersion program.

In the first week of our ESOL II class, Dr. Marquis went over the syllabus. Because I had him as an instructor in my technology in education course and my ESOL I course, I was expecting that we would be using a lot of technology in our class for our assignments. This semester, we are going to use two programs that I have never heard of before. One of them is a website similar to Facebook (Facebook, 2009) called “Ning”

(Andreesen & Bianchini, 2004) and the other is something called “Second Life” (Linden Labs, 2004). Dr. Marquis described Ning to us as being really similar to the wiki site we used in ESOL I for our lessons. He also told us that we would be posting our lesson plans on the site just like we did in ESOL I. I am really not sure what Second Life is or how we are going to use it. According to Dr. Marquis, we will be using these characters that we create to interact with an ELL who we won’t be able to see. It will be interesting to see how all of this will work especially because we have to present a social studies lesson to the ELL. I am not worried about creating the lesson, but Dr. Marquis said we cannot use any hands-on materials and this concerns me.

For our Week 2 assignment, we had to create lessons for the ELL that we would be meeting and teaching in Second Life (Linden Labs, 2004). Dr. Marquis let us pick our groups so I will be working with Cara and Fiona. I worked with them in ESOL I on our lesson plans as well. Our lesson plan had to be for a social studies lesson; we were allowed to choose the grade level so we chose Grade 3. We read a case study in our book about being culturally sensitive when creating social studies lessons and our lesson plan had to reflect that sensitivity. We also, based on the case study, had to make the modifications for a Level 2 or Level 3 ELL whose first language was Spanish. For our topic, we chose to create a lesson about the three branches of the United States government. In Week 2, we worked in our small groups and got help with our modifications from Dr. Marquis and the course co-instructor, Mrs. Rosenblum. Mrs. Rosenblum was really helpful because she taught at an elementary school with a lot of ELLs. She also had access to many different types of technology; she was able to give us great advice about what programs and which modifications worked best with elementary

age ELLs. At the end of class, Dr. Marquis told us that we would be receiving training on how to use Second Life and Ning from another instructor in Week 3. So in Week 3, we learned how to use the two new programs, Ning (Andreesen & Bianchini, 2004) and Second Life (Linden Labs, 2004).

I didn't have any problem understanding Ning because it was very similar to the wiki program we used in ESOL I and to Facebook (Facebook, 2008). Second Life was very different from any program I have used before. We are using these characters called avatars to teach our social studies lesson to the ELL. Using the avatar is not really easy, and we are having a lot of problems with the Second Life program. I wanted to create an avatar, but I could not because the program would not work on my laptop. So, I had to watch other students and really didn't get to practice very much. Everyone was getting really frustrated but Dr. Marquis and Mrs. Rosenblum encouraged us to keep an open mind. Even though I am frustrated, my first impressions of the program are positive. The good thing about Second Life is that it takes the intimidation factor off of the ELL. The downside is that we cannot see our ELL, and it can be somewhat hard/frustrating for all parties involved. It also might be beneficial because it is an out of class tool that teachers can use to help their students with questions they might not have had answered during regular class time, but at the same time that can be very time consuming. It also sacrifices the social interaction and personal abilities for all parties involved.

Dr. Marquis, in Weeks 4 and 5, allowed us to volunteer to participate in Second Life (Linden Labs, 2004). Cara, Fiona, and I decided that we would watch the first session before volunteering. Abby, Delia, and Evie were the first to present their lesson. They tried to present their lesson to the ELL but everyone became frustrated. They



decided to change their topic and got back to basics; they focused on what she knows and her personal interests. After about 20 minutes, Dr. Marquis told us that we would be using Skype (Skype Limited, 2009) for two of the other sessions. Since Cara, Fiona, and I have used Skype before, we volunteered for the second session.

Skype was much more beneficial. We were able to use many more of our ESOL techniques to communicate with the ELL. Abby's group was able to ask some basic questions about her life and her interests and that really helped us during our session. Also, unlike Second Life (Linden Labs, 2004), we were actually able to see the ELL using the webcam. Even though there was less frustration for the last two sessions in Week 5, I think that the lack of personal contact caused a high level of frustration. I think, for an ELL, face-to-face is more beneficial. Second Life would be good to use outside of school, like for distance learning, but there are more beneficial technologies that can be used in schools to teach ELLs.

#### Portrait Vignette of Isabel

I am Isabel, and I am a 23-year-old senior at the university. This is my last semester in the education program, and I will graduate in May of 2009. As an elementary education major, I am required to complete a practicum cycle at one of the local elementary schools. This semester, I am working with Kindergarten students. In my class, I have three ELLs who are all native Spanish speakers. In my classroom at the elementary school, I have a Mac teacher computer station as well as an LCD video projector and an interactive SmartBoard for my computer. My school is an "A" school and technology is emphasized by my supervising teacher, Mrs. Lois. My principal, Mr. Martinez, also stresses the importance of using technology in our lessons. I know that

my school offers technology training, but I am really not sure what is offered. I have had technology in education courses here at the university. Dr. Marquis taught my technology in education course as well as my ESOL I course. I am currently taking ESOL II with him this spring. As part of my coursework, I am required to complete a portfolio of the units and lessons that I created for the ESOL I and ESOL II courses. Because I am an elementary education major, I am required by the state to have an ESOL endorsement for my professional teaching certificate. Part of that requirement is completing a portfolio in which I must include units that have ESOL modifications on grade level as well as the hands-on and technology activities to support an ELL.

Outside of teaching, I use my personal computer daily to check e-mails and surf the Internet for information that I need for my classes. I also use word processing programs at least once a week to complete class assignments. I have a Facebook (Facebook, 2009) page but am not a frequent user of the site; I usually only access my page twice a month. The computer programs with which I am the most familiar are the ones that I use for my Kindergarten classes. With Kindergarten students who are ELLs, my supervising teacher, Mrs. Lois, prefers that I use more hands-on lessons rather than use the computer to supplement their language learning. For Kindergartners, face-to-face time is very important, especially for those students who need additional practice or modifications. The ELLs in my class exclusively speak Spanish at home so the face-to-face interactions that I have with them on a daily basis are very important.

In my ESOL I class, Dr. Marquis worked with us on making the appropriate grade-level modifications for our ELLs. Although part of these modifications did involve using some technology, most of our modifications involved using hands-on materials that

we created to use with the students. So, the technologies that we used during the ESOL I course were more for planning our units and lessons and giving each other feedback. We used a wiki program to post our lessons, and we also used PowerPoint for our in-class projects. Dr. Marquis showed us how to use some of the newer Mac programs, like Garage Band, to enhance our presentations as well as to create activities for our lessons. Before the ESOL I class, I had not used a wiki or the Mac programs, but Dr. Marquis provided us with lots of guided practice on how to use the programs. So, I was comfortable when Dr. Marquis, in the ESOL II class, showed us some new technologies that we could use when creating lessons for our ELLs.

In Week 3, Dr. Marquis introduced us to the programs Ning (Andreesen & Bianchini, 2004) and Second Life (Linden Labs, 2004). As he explained it to us, Ning was really similar to the wiki we used in the ESOL I class. To me, it also looked very similar to Facebook (Facebook, 2009), so I was comfortable personalizing my page and placing my lesson in the discussion area. The other program, Second Life, was very different from the wiki and from Ning. We created these things called avatars that we would use to instruct the ELL. We were able to make the avatar's features look similar to our own features, and we were able to dress them in something that we might normally wear. The room where we met the ELL was part of an island-themed classroom that was created by another university; there were no student desks or other items that I would associate with a typical classroom setting. The classroom looked more like a café or patio lounge area. There was a virtual blackboard that we could use but I did not see a place for us to post any of the handouts or visual aids that we created to go with our lessons. This was a big concern of mine because I would not be able to use the hands-on

activities that I created to go along with my lesson. Also, I was concerned about the program itself. There seemed to be a lot of technical glitches so it was hard for us to practice moving the avatar around and using the different gestures. Even though I became frustrated, Dr. Marquis encouraged me (and the rest of the class) to keep an open mind about using Second Life to interact with our ELL.

I really wanted to interact with the ELL in Second Life (Linden Labs, 2004) so I volunteered for the second round of interactions in Week 5. I think this program would be good for satellite students and since the ELL was not in the classroom with us, this would be a good opportunity to see how it would work with an ELL learning at a distance. I also think that using the avatars would be good for an unconfident ELL. I think my group's interaction was easier because Abby's group was able to get the ELL to open up more by asking more personal questions. Also, we used Skype (Skype Limited, 2009) for Session 2 which helped during our session because everyone became more comfortable,

At the beginning of our session, Mrs. Darbyshire, the ELL, was very animated, and we were able to get her to respond to a lot of our questions. However, by the end of our session, we started to run out of things to talk about. I think the program is just awkward in general. We could type answers to her but then we couldn't see her body language when she answered. The session was very unnatural, and especially for an ELL, I think it was too difficult to use. Also, I don't think this a good program for students that a teacher might see regularly. I am all for technology but not at the expense of social interaction. It was good to have the experience of using a new technology, but I

would not receive professional training in Second Life (Linden Labs, 2004) because I do not see it as being very useful.

#### Portrait Vignette of Larry

I'm Larry, and I'm a senior this year at the university. This is my final semester in the elementary education program, and the ESOL II class is the last one I need for the ESOL endorsement. To finish my practicum, I am teaching fifth grade at an "A" school where I have seven ELL students in my class. Five of these students speak Spanish as their first language, and the other two speak Chinese and Russian. In my classroom, I have a teacher computer station that is hooked up to a Smartboard. I use both of these daily. My principal, Mr. Mondavi, and my supervising teacher, Mrs. Draper, both support my use of technology. I am not really sure if we have any technology training at our school, but Mrs. Draper always encourages me to use the latest technology in my lessons. I really enjoy using technology, especially the Internet. I surf the Internet and use e-mail several times a day. I have a Facebook (Facebook, 2009) page, and I post things almost every hour. I also regularly use Skype (Skype Limited, 2009) to stay in touch with my family and friends.

At the university, I have had the ESOL I course and the technology in education class. Both of these were taught by Dr. Marquis. He really emphasized using technology in our lesson planning. In both of those classes, we used a lot of Mac-based programs for our assignments, and we covered a wide-range of different programs. It was really no surprise to me, then, that the syllabus for our ESOL II course included some new technologies. In the first Week, Dr. Marquis talked to us about our assignments that would become part of our ESOL portfolio. One of the tasks included creating a social

studies lesson plan for a Level 3 ELL in elementary school. Like we did in the ESOL I class, we would post our lessons on a website for discussion and editing. For this class, we are using a site called “Ning” (Andreesen & Bianchini, 2004) which Dr. Marquis described as a combination of a wiki and a social networking site like Facebook (Facebook, 2009). This was interesting to me because I really enjoy interacting on my Facebook page. I am not sure what we are going to be doing with the other site, Second Life (Linden Labs, 2004). Dr. Marquis described it to us as a chat-type program only we would be using avatars. He encouraged us to keep an open mind, and I am all for learning something new.

During Week 3, we were introduced to the second co-instructor for the class. She was going to be training us on Ning (Andreesen & Bianchini, 2004) and Second Life (Linden Labs, 2004) and also go into more detail about how we would be using the sites. I had no problem understanding Ning and creating my own page. It was really similar to Facebook (Facebook, 2009). When it came to Second Life, I was really turned off to the program. I think the first reason is because of the technical issues with the site. I could not log on and create an avatar and got really bored just watching other students create and move their avatars around. So, I just surfed the Internet and checked my Facebook page. At the end of the class, most everyone was frustrated because we were really unsure what we were supposed to be doing in Week 4 with the ELL. We were also frustrated because we did not know why we were using the Second Life site. Dr. Marquis and his co-instructor tried to explain it to us, but I still didn’t see the advantages of using the site. Even though I am frustrated, I am trying to keep an open mind for the Week 4 sessions with the ELL.

For the first session in Week 4, Abby's group volunteered to present their lesson in Second Life (Linden Labs, 2004). It did not go well for them. It was very impersonal and too frustrating for everyone involved. There are no advantages to using this site, and I would never use it or receive any kind of professional training on the site. I would actually pay extra money for a class to be in person rather than use Second Life! I was glad, then, when Dr. Marquis said we were going to use Skype (Skype Limited, 2009) because I use Skype all of the time. Gabby and Hannah were in my group so I suggested to them that we volunteer for the last session in Skype. We did not present our social studies lesson and instead, continued on the personal conversation. The session was much easier, and no one was frustrated like in Second Life. I will never use Second Life; I think we should have used Skype for all of the sessions.

## CHAPTER 5:

### DISCUSSION

#### Overview

The purpose of this chapter is to discuss the theory that emerged relevant to how a group of pre-service teachers seeking an ESOL endorsement experienced change in their pedagogic identities and professional knowledges after interacting with a Level 2 ELL in a chat-based virtual classroom. From this group, the experiences of four pre-service teachers were more closely examined to determine how, through the interactions with the ELL, their classmates, and course instructors, they were able to achieve intersubjectivity thus enabling them to experience professional growth beyond their existing instructional skills. Using the data collected from the face-to-face debriefings and transcripts taken from the videos of the interactive episodes, the results of this study exposed those instructional and interactive experiences ultimately revealing a range of developmental progressions from acceptance and change to resistance and abatement across the training episodes.

The primary theories used to inform the design and conduct for this study were constructivist theory (Kanuka & Anderson, 1999), critical pedagogy (Freire, 1990), and sociocultural theory (Vygotsky, 1978). Because this study involved different stages of interaction among the participants using distinct technologies, theories of collaboration (Erben, 2001) and dialogic engagement (Bakhtin, 2006) were considered as well. In



Chapter 2, these existing theories were discussed relevant to how a teacher forms pedagogic knowledge and identity. Zembylas (2003) asserted that administrators and teachers in public schools in the United States have focused on individualism and isolationism. Shulman and Hutchins (2004) suggested that most training opportunities actually promote isolationism resulting in limitations on the ability of a teacher's professional identity and pedagogic knowledge to develop truly. Thus, most teachers become the *object* (constrained pedagogic identity) rather than the *subject* (liberated pedagogic identity) of their institutional settings (Freire, 1990). Based on these institutional constraints, a teacher's pedagogic identity becomes objectified such that any independent expressions of professional knowledge are perceived as deviating from institutional norms. A teacher only becomes the subject of his/her professional identity when that isolationism can be overcome such that intrinsic knowledges appear uninhibited during instruction. Also, the teacher as subject demonstrates active ownership of his/her own professional development and growth suggesting liberation from institutional constraints.

As Vygotsky (1978) pointed out, in order for a learner to become self-regulated, knowledge must be jointly constructed such that higher mental functioning becomes a construct of the interactions between the novice and master - self-regulation that can be achieved in a dialogically collaborative setting (Bakhtin, 2006; Erben, 2001). Here, this co-construction results from cyclical iterations such that each episode of higher mental construction is the result of the cognitive synergistic experience among participants. This type of construct strays from the traditional linear approach to teacher training and development in which the teacher is seen as the vessel of canned professional knowledge

resulting in what Freeman (1996) described as cognitive isolationism. Kaplan (1997) went on to suggest that such institutionally bound trainings result in teachers becoming passive rather than active participant-owners of their pedagogic growth and development. Thus, in using a socially based virtual environment for the interactions among the pre-service teachers and the ELL, intrapsychological development could be facilitated across the socially interactive plane (Wertsch, 1985). Accordingly, it would be anticipated that the growth of the teacher as the pedagogically liberated subject of his/her instructional identity would be facilitated through such collaborative dialogic engagement.

The purpose of this study, then, was to determine how a cohort of 12 pre-service teachers, who were seeking an ESOL endorsement, could achieve intersubjectivity through their dialogic engagements while interacting with each other, their course instructors, and a Level 2 ELL using the venues of a virtual avatar-based classroom and an Internet-based video-conferencing program. Also of interest was determining how the dialogic episodes enabled the pre-service teachers to extract cognitively existing instructional knowledge such that pedagogic self-regulation could occur (Erben, 1999; Vygotsky, 1978; Wertsch, 1991). Much of the literature related to teacher training and professional development consistently recognizes that, whereas technology-based trainings are available in most school districts, the training is meant simply to “reproduce the [existing] system” (Chalmers & Keown, 2006). The teacher is meant to be detached from the process such that s/he becomes “tamed” (Lingard, 2003) to institutional norms. Thus, most training (whether technology-based or face-to-face) is pre-scripted to mirror existing professional standards specifically in order to maintain the distance in relationship between trainer and teacher (Johnson, 1997; Zembylas, 2003).

Although Second Life (Linden Labs, 2004) is a simulated environment, this study was significant in that using this type of technology gave the pre-service teachers the opportunity to go beyond *what is expected* with traditional face-to-face training to *what is transformative* in a more realistic setting (Shulman & Hutchins, 2004). What is lacking from current professional training is the ability for teachers to experience *real world* simulated practice – practice that could be achieved in an avatar-based program like Second Life. In this study, the objective was not only to provide that *real world* experience but also to use Second Life as a meditational device to unpack in-the-head professional knowledge among the pre-service teacher participants as they collaboratively interacted with the ELL, Mrs. Darbyshire (Bakhtin, 2006; Erben, 1999; Wertsch, 1991).

The methodology used to gather and analyze the data from the interactions was discussed in Chapter 3. I began by theoretically situating the study, discussing the study's constructivist design (Kanuka & Anderson, 1999) as it was filtered through the lenses of critical pedagogy (Freire, 1990) and sociocultural theory (Vygotsky, 1978). I next explained the rationale and protocols used for creating the interactive episodes among the pre-service teachers and the ELL. Specifically, I discussed the theories used to guide the data collection in addition to the rationalization for using Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009) for the interactions. I then iterated how the participants were selected using a criterion-based nonrandom sampling scheme (Onwuegbuzie & Collins, 2007). Profiles of the study's participants were provided as well. I also stated the three research questions that guided the data collection and concomitant analysis. Issues relevant to legitimation were also discussed.

Chapter 4 provided an analysis of the data collected during the interactions. The two primary sources of data were the debriefings and reflective statements of the pre-service teachers in addition to the video transcripts of the collaborative interactions among the pre-service teachers and the ELL. The data were analyzed using three qualitative analytic tools: (a) within-case analysis (Miles & Huberman, 1994); (b) tallied collaborative utterances (Erben, 2001); and (c) portrait vignettes (Ely, et al., 1997; Spalding & Phillips 2007). Results of the data analysis were then used to answer the three research questions. In answering the questions, a theory emerged relevant to the potential of using avatar- and chat-based virtual programs to affect positively pedagogic growth and shift in the identities of the pre-service teachers from a constrained (objective) to liberated (subjective) identity.

Finally, this chapter concludes with a discussion of the findings, especially as those findings related to the experiences of four of the pre-service teachers and how those experiences clarified the relationship between learning objects, learning objectives, and learning outcomes. Included in this discussion is how I answered the three research questions in terms of the students' collaborative episodes as filtered through sociocultural and critical lenses. From these questions, I suggest the implications and limitations of using avatar- and chat-based virtual classrooms on collaborative dialogue (Bakhtin, 2006; Erben, 2001; Wertsch, 1991), communities of practice - especially as that practice relates to using virtual environments - (Bravmann, 2000), sociocultural constructivist theory (Vygotsky, 1978; Windschitl, 2000), and critical pedagogy (Freire, 1990). I also address how this study could potentially impact teacher training, pedagogy, and instructional technologies particularly as those areas relate to pre-service teacher development. I

conclude with a reflection of my role as a participant-researcher in this study and by proposing areas for future research in using avatar-based and chat-based programs for teacher training and professional development.

#### Understanding the Collaborative Episodes using Critical and Sociocultural Lenses

Three research questions were presented for this study. In answering the questions, I was interested in determining, from a sociocultural perspective, if the combination of the technology and interactive episodes opened the students' ZPDs so that inter- and intrasubjectivity could be achieved. From the critical pedagogic perspective, I wanted to establish if, through the interactions, the pre-service teachers were able to speak with more of a subjective voice reflective of a person who was less adapted and more integrated into his/her environment. In other words, did the pre-service teachers use language that would indicate their integration in rather than adaptation to what could be considered the *expected* or *traditional* model for instructing an ELL?

#### *Answering Research Question 1 using Sociocultural and Critical Lenses*

The first research question addressed what instructional issues the pre-service teachers encountered as they instructed an ELL using Second Life (Linden Labs, 2004). The primary objective of the first research question was that of being able to demonstrate that this group of teachers made an authentic instructional transition from the face-to-face interactions that they had with the ELLs in their cooperating schools to virtual instruction of the avatar ELL. In other words, the question was did these pre-service teachers make the transition from instructional point A (face-to-face) to instructional point B (virtual)? From a sociocultural perspective, this transition would occur if the instructional issues, whether positive or negative, enabled intersubjectivity to take place. Accordingly, if

intersubjectivity occurred, the ZPD would open such that the students would be able to self-regulate their instruction within the virtual classroom. From a critical perspective, students would be *expected* by the university to demonstrate effective face-to-face instructional skills. Thus, teaching in the virtual environment would be considered transformational in the sense that such instruction would go beyond the pedagogic skill set as institutionally determined.

After analyzing the students' comments and reflective statements, I determined that two instructional issues emerged. The first instructional issue was transforming the guided practice in Second Life (Linden Labs, 2004) into the actual interactions with Mrs. Darbyshire, the ELL. This was especially challenging given the technical issues that emerged while the students were practicing their lessons in the virtual classroom. Although most students in their Week 3 reflective statements responded positively to learning a new technology, they still had concerns relevant to the purpose of using the avatars and the ease of using the program. From their reflective statements, the students expressed the following positive aspects of using Second Life for the interactions with Mrs. Darbyshire: (a) good to experience a new technology; (b) gives a different perspective; and (c) good for students learning at a distance. The students also expressed these frustrations related to using Second Life for the interactions with Mrs. Darbyshire: (a) not a face-to-face setting; (b) did not have access to hands-on materials; and (c) did not have the stability that students associated with a face-to-face classroom (these negative reactions would be consistent with constraints related to the idealized instructional model as conceived by the institution; Shulman & Hutchins, 2004).

The second instructional issue that the students' encountered was implementing the content of their lessons in Second Life (Linden Labs, 2004). As the students explained in their reflective statements and debriefings, they discussed the instructional barriers in terms of lack of access to the hands-on supplemental materials they had created as part of the modifications to their lessons and the inability to see facial expressions and gestures. Thus, in Session 1, the first group elected to abandon their lesson and use personal questions in order to establish a rapport with Mrs. Darbyshire that would act as a bridge for the remaining groups to present some modified content of their original lesson plans. Both instructional issues would later become important in understanding the interactive characteristics (i.e. collaborative episodes) among the students when they were engaged in the virtual instruction of the ELL, Mrs. Darbyshire. This is especially significant when considering how their interactions created dialogues through which they could experience professional growth beyond existing instructional knowledge.

The potential for cognitive and pedagogic transformation were directly related to the instructional issues that the students encountered when using Second Life (Linden Labs, 2004). These transformations were revealed in the students' individual reflective statements as well as the dialogues among the participants. From critical and sociocultural perspectives, then, the students could have experienced cognitive and pedagogic changes across a continuum of transformation from adaptation (constrained object of the experience) to integration (liberated subject of the experience). To understand the transformations, I selected four students - Abby, Becky, Isabel, and Larry

- who had the most direct interaction with Mrs. Darbyshire in addition to collaborations with the other student participants.

As Prensky (2010) asserted, technology is meant to act as an enabler so that students can work collaboratively and independently whereas the teacher acts as a partner who coaches and guides the students during the lesson. Thus, Dr. Marquis, Mrs. Rosenblum, and I acted as *partnering teachers*, which made it possible for the students to learn the skills needed to use Second Life (Linden Labs, 2004) and teach themselves how to adapt their face-to-face lessons to the virtual classroom (p. 99). Prensky further suggested that modern technologies are meant to support the underlying pedagogy. Accordingly, the technologies used in the study were meant to act as mediational devices to enable the students' interactions and transformations. As a result of these interactions, the two instructional issues emerged through which the students' transformations were exposed.

Abby's group was the first group of students to use Second Life (Linden Labs, 2004) in Session 1. With our coaching and guidance, she was able to have, by the end of Session 1, a positive interaction with Mrs. Darbyshire by abandoning the content of her lesson and asking personal questions. As a result, her transformation was tempered by her initial frustrations with the technology and the inability to implement the content of her lesson. In her reflective statements, she noted that using a program like Second Life would be effective as a supplemental instructional tool external to the regular face-to-face classroom setting. Although her initial perception of using Second Life was negative, upon reflection, she stressed the importance of learning and using new technologies.



Abby's reflections parallel Prensky's (2010) suggestion that the paradox facing modern education is that for most students, learning is occurring "afterschool" - a learning that he characterized as informal collaborations among peers (p. 1). Once the teacher recognizes this paradox, it is then his/her responsibility to be proactive in understanding current and future technologies (p. 99). Rosen (2010) further noted that virtual environments are tools used in the present for gaming and social networking and represent the paradigmatic future of education. From a transformative perspective, then, Abby's reflections evinced the beginnings of the unconstrained thought process associated with the liberated pedagogue as she recognized the instructional potentials of using Second Life (Linden Labs, 2004).

Here, I suggest that Abby's transformation was in the beginning stages because her initial experience with Mrs. Darbyshire in the virtual classroom was overshadowed by the technology; her positive experience did not occur until the end of Session 1. This is based on her final reflective statement in which she stated that she would not choose to teach her students or receive professional development in a virtual environment as her preference was face-to-face interactions. However, had she continued her interactions across the four sessions, there is the potential that a complete objective to subjective transformation would have occurred.

Becky, who used Skype (Skype Limited, 2009) in Session 2, and Isabel, who used Second Life (Linden Labs, 2004) in Session 3, had similar reflections about using Internet-based technologies as an instructional venue. Like Abby, Becky and Isabel also reflected that using virtual classrooms would be ideal in an afterschool setting and both recognized the importance of learning new technologies. Further, it is important to note

that all three students stated that, whereas there were positive aspects to using Second Life, there were disadvantages as well which were revealed in the two instructional issues that emerged from their reflections and collaborations, i.e. the guided practice/technical issues and implementing the content of their lessons.

According to Prensky (2010) and Rosen (2010), beginning teachers in the 21st century should be less resistant to incorporating modern technologies into their pedagogic repertoires. Rosen particularly noted that for the veteran teacher, many classroom-based instructional strategies have been replaced by some technology leaving the teacher resistant to the change (p. 184). This is especially the case with activities linked to virtual realities and social networking. In Week 2 of the course, the pre-service teachers were presented with a technology survey so that I could understand their level of technical skill and familiarity with different technologies. In response to the frequency of using social networking, Abby, Becky, and Isabel were frequent users logging onto sites at least once a week.

Although Abby, Becky, and Isabel shared similar transformations, Larry's transformation was quite different. Larry reported being the most active of his classmates on social networking sites stating that he logged on hourly. However, he was the most resistant to using a virtual classroom. As he reflected in Weeks 3 and 5, he stated that he would never use the program or receive any professional training in a virtual classroom. Larry's reflections are actually the antithesis of Rosen's (2010) notion that the young, modern educator is digitally literate and, therefore, more receptive to integrating new technologies into their classrooms. In contrast, Abby, Becky, and Isabel, who used social

networking less than Larry, were the most receptive to using a virtual classroom and thus, experienced transformation across the interactions.

Further, even though a complete transformation from the objective to the subjective did not occur and the students expressed negativity towards using Second Life (Linden Labs, 2004) in their final reflective statements, their collaborative experiences would not be considered a failure. As Wertsch (1985) asserted, failure in the ZPD can actually enable intrasubjectivity and self-regulation to occur. Prensky (2010) also noted that lack of access to or lack of success in using a particular technology might actually be more powerful in terms of the partner relationship between teacher and student. In the case of the pre-service teachers here, the lack of initial success in using Second Life actually enabled me and Dr. Marquis to use the debriefings and concomitant sessions to provide a framework around which positive collaborations could occur.

The instructional experiences of Abby, Becky, Isabel, and Larry reflect the trends and challenges facing teacher education and professional development programs. As noted in Horizon Report (2010), the continued increase and use of Internet-based, collaborative learning environments is an expected skill of today's student. As a result, the role of the university is changing such that programs must prepare students not just in content areas but also in digital literacy skills (p. 5). One of the trends noted in the report is the move towards using simple augmented realities which the report suggests will become part of the educational mainstream in 2 to 3 years. However, implementing the current trends in technology is frequently tempered by different institutional challenges, as was the case with this group of pre-service teachers. Returning to Prensky (2010) and Rosen (2010), it is here - and Horizon Report acknowledges this as well - that in order for

the technologies to be truly integrated into the modern classroom, the institution and the teacher must take the responsibility of collaborating with students such that the technology becomes a truly meditational device capable of eliciting transformation and self-regulation.

*Answering Research Question 2 using Sociocultural and Critical Lenses*

The interactive characteristics among the pre-service teachers emerged from their collaborations during the instructional sessions. Thus, the second research question examined the interactive characteristics among the pre-service teachers during their instruction in Second Life (Linden Labs, 2004). Second Life was initially to be used as the only instructional venue for the interactions. However, Skype (Skype Limited, 2009) was introduced as the second instructional venue to mitigate the technical and instructional issues that the students encountered in Week 3 and Week 4, Session 1 in Second Life. Therefore, it was essential in answering the second research question to examine not only the interactive characteristics of the students during Sessions 1 and 3 in Second Life but also to consider the interactions during Sessions 2 and 4 in Skype.

The interactive characteristics of the pre-service teachers emerged from the instructional episodes. Accordingly, the transformations they experienced as a result of the instructional issues they encountered appeared again as interactive characteristics. Based on Session 1 in Second Life (Linden Labs, 2004), it was evident that the students' transformations were occurring secondarily to the institutional constraints of completing the assignments and concomitant ESOL endorsement. Again, I refer to the collaborations of Abby, Becky, Isabel, and Larry as they had the most direct contact with me, Dr. Marquis, and Mrs. Darbyshire.

For Abby, her interactions were directly with Dr. Marquis and Mrs. Darbyshire. Because her group was the first to interact with Mrs. Darbyshire, she used her instructional time to establish a rapport in order to facilitate the future interactive experiences of her classmates. To do this, she was receiving direct, linear scaffolding from Dr. Marquis to the point of implementing his suggestions almost word-for-word. This scripting was characteristic of the traditional process-outcome linear approach characteristic of the traditional notion of the student-teacher relationship (Johnson, 1997; Zembylas, 2003). Consequently, her interactive experience was constrained such that intersubjectivity was limited, thereby maintaining her position as the object (institutionally controlled) of her experience.

This linear approach did not mean that Abby's experience was not transformative. Dr. Marquis's approach, whereas it was indicative of the traditional relationship, would be considered by Prensky (2010) and Rosen (2010) as more of a partnered relationship. A partnered relationship is particularly important when implementing new technologies into a more conventional classroom setting. As Chan and Pang (2006) asserted, it is not enough for the 21st-century educator to have a set of institutionally predetermined skills. The partnering relationship, therefore, becomes critical in that it enables the teacher to envision how a technology might be applied to a particular lesson as well as the implications of using such a technology in the future. It is at this point that the information about the technology can be stored and then cognitively unpacked during future instruction (Erben 1999). Thus, by the end of Session 1, Abby was able to unpack both her existing and newly acquired technical skills in order to implement the ESOL modifications with Mrs. Darbyshire.

By contrast, Isabel's experience was more iterative in terms of her interactions with Dr. Marquis and Mrs. Darbyshire. In other words, whereas she did implement the instructional suggestions offered by Dr. Marquis, much of her instruction was independent of his suggestions. By contrast, Becky, who used Skype (Skype Limited, 2009) for her interactions with Mrs. Darbyshire, evinced the most independent instruction during the session. She was able to introduce some of the vocabulary in her group's original lesson as well as implement many of the ESOL strategies and modifications supplemental to the lesson without prompting from Dr. Marquis. Thus, Isabel and Becky experienced less constrained interactions than did Abby, suggesting that they were experiencing self-regulated transformation. This, of course, would indicate that they were transitioning from the pedagogic objective to the pedagogic subjective by means of their interactive collaborative dialogues.

Although Abby, Becky, and Isabel experienced positive interactions, Larry's experience was significantly different. Unlike the other groups, Larry did not collaborate with his fellow group members to establish a turn-taking protocol. Essentially, he directed them to sit next to him as he talked, even declaring at one point that "I like to talk!" Also, he was resistant to implementing the ESOL modifications as suggested by Dr. Marquis. Even after suggesting that Mrs. Darbyshire could not understand him, Larry moved on with the interaction basically disregarding her language needs and ignoring Dr. Marquis's prompting and coaching. Accordingly, Larry did not experience any self-regulation or transformation beyond his existing set of instructional skills. As a result of his resistance, pedagogic self-regulation and transformation did not occur as he

subjugated himself to existing institutional constraints in addition to his own idealized version of his pedagogic identity.

Larry's experience represents the paradox that exists in teacher training programs. Although his technology skills had changed external to the institution, he did not experience change within the system (Horizon Report, 2010). In order to achieve self-regulation, the student must transform both inside and outside of the system. It is this cognitive self-awareness that enables the teacher to identify the self according to different institutional and social contexts. For an objective to subjective transformation to occur, the individual must consciously reflect on his/her relationship with the institution's pre-determined reality (Freire, 1990). It is when the teacher engages in an iterative reflective process that s/he becomes the most effective and is capable of professionally developing beyond his/her existing set of skills (Bell & Gilbert, 1996). For Abby, Becky, and Isabel, their reflective statements and contributions to the debriefings revealed self-regulatory behaviors such that effective instruction could occur. For Larry, these iterations did not occur, resulting in his identity being objectified to his own set of pre-existing instructional and technical skills (Cooper & Olson, 1996).

*Answering Research Question 3 by Understanding the Pre-service Teachers'*

*Collaborative Dialogic Engagements*

In what ways did the dialogic engagements of pre-service teachers regulate professional growth and enable identity transformation? Additionally, what evidence during the interactions suggested that the pre-service teachers used these dialogic engagements to identify first and then to create a relationship among their learning objects, learning objectives, and learning outcomes? The majority of the collaborative

language used by all of the participants was productive. According to Erben's (2001) collaborative model, productive utterances are those utterances in which intersubjectivity is facilitated by the sharing of knowledge. Most of these utterances commonly appear in the form of providing support through language, which includes prompting, assisting, and coaching. The language used while prompting, assisting, and coaching actually works in tandem during an interaction to facilitate productive collaborations. When prompting, one interlocutor is attempting to stimulate the dialogue such that the other interlocutor(s) is able to implement effectively an instructional strategy. After prompting, the first interlocutor might offer assistance during the instruction by supporting the approach taken by the other interlocutor(s). While prompting and assisting, a cyclical iteration of coaching is taking place in which the receiving interlocutor(s) is scaffolded.

In order for Becky, Isabel, and Larry to have any sort of successful interaction with Mrs. Darbyshire, Abby used productive utterances to facilitate and to manage the first interaction. Most of her productive utterances were in the form of negotiating rules (i.e. turn taking, lesson content), moderating the pace of the interaction, and managing the instructional operations. Of the participants, Becky used the most productive language. She used her language to prompt, to coach, and to assist Mrs. Darbyshire during the interaction. The fact that Becky primarily used these types of utterances would be expected given that a rapport had been established with Mrs. Darbyshire in Session 1 with Abby in Second Life (Linden Labs, 2004). Also, because Becky was using Skype (Skype Limited, 2009) and Mrs. Darbyshire was more comfortable using Skype, both she and Mrs. Darbyshire felt freer to explore their instructional relationship.



From the standpoint of constructive collaborations, Abby used the most constructive language during her interaction in Second Life (Linden Labs, 2004). According to Erben (2001), constructive collaborations are those utterances that “promote social cohesion among the group (p. 325).” Most of her constructive language was in the form of affirmations as she acknowledged the coaching and prompting of Dr. Marquis as well as the responses by Mrs. Darbyshire to her prompts. In other words, Abby was confirming that she understood and was implementing Dr. Marquis’s instructional suggestions.

Becky and Isabel used the least amount of constructive utterances as their focus was on productive support particularly in the forms of prompting, assisting, and coaching. Here, it is important to note that Abby, Becky, and Isabel were positive about learning a new technology and were optimistic in their opinions regarding using Second Life as an instructional venue for teaching an ELL. Although they collectively agreed that face-to-face instruction should not be sacrificed simply to use an emergent technology such as Second Life, they did suggest that the program would be helpful for less confident ELLs and would be ideal for students learning at a distance or for after-school tutoring. Thus, their primary use of productive and constructive utterances matched their impressions of using a virtual classroom for interacting with an ELL.

There were instances of destructive collaborations during the interactions. Destructive collaborations are those collaborations in which some utterance in the group jeopardizes the group’s cohesion (Erben, 2001). The first instance of destructive collaboration was during Isabel’s interaction with Mrs. Darbyshire in Session 3 in Second Life (Linden Labs, 2004). As a result of this destructive collaboration, Karen became

quiet and had very little interaction with Mrs. Darbyshire. The most destructive utterances came from Larry. From the introduction of Second Life in Week 3 to the final debriefings in Week 6, Larry offered no positive comments related to using Second Life for interacting with an ELL. In particular, during the Week 3 debriefing, he was the most vocal opponent to using Second Life. His resistant attitude transferred to his interaction with Mrs. Darbyshire as well as his reception towards the instructional venues thus preventing him from experiencing any authentic pedagogic transformation.

The majority of the collaborations from all of the participants were productive. These productive utterances (prompting, assisting, and coaching) were in alignment with the underlying learning objective of using a virtual classroom for instructing an ELL. The primary learning object was that of scaffolding these pre-service teachers in such a way that they would, without prompting from the course instructors, implement the ESOL strategies they learned across their ESOL coursework. Becky showed the most transition in that she used her productive utterances to scaffold Mrs. Darbyshire's language throughout the interaction. Conversely, Larry showed no appreciable change from Week 3 to Week 6 and actually became more destructive in his utterances by the time he interacted with Mrs. Darbyshire in Skype (Skype Limited, 2009).

From the standpoint of establishing that intersubjectivity occurred among the participants during the interactions, the fact that most of the utterances were productive lends support to what Erben (2001) suggested was the "facilitation of shared knowledge and establishment of intersubjectivity." Although there were instances of constructive collaborations, the students' focus was more on production than maintaining the class's social cohesion. Accordingly, in applying the tenets of sociocultural theory to the

interactions, the sessions in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009) enabled this group of pre-service teachers to collaborate and to reflect using a series of complex intersubjective processes rather than through an institutionally pre-determined set of discreet learning objectives (Jones, et al., 1998).

### Understanding How the Experiences of the Pre-service Teachers Implicate Sociocultural and Critical Theories

Because I used sociocultural theory (Vygotsky, 1978) and critical pedagogy (Freire, 1990) as the primary theoretical frameworks around which I conceptualized the study, it was important to understand how this group of pre-service teachers' experiences could be understood in theoretical terms. To understand these transformations, I consider them below in relationship to the relevance of the two theories' to the learning objects, learning objectives, and learning outcomes across the interactive episodes.

#### *Implications for Critical Pedagogy*

Some critical theorists might question my use of critical pedagogy as a lens through which to filter the experiences of this group of pre-service teachers, especially as it applies to their learning experiences. For the critical theorist or pedagogue, the interest is in examining traditionally underrepresented populations (Kincheloe & McLaren, 2005). As Norton-Pierce (1995) asserted, the critical researcher is interested in the way that individuals make sense of their experiences in terms of human agency within the social context being studied (i.e. the movement from learning object to learning outcome). In the literature review, I suggested that the critical population for this study was a group of pre-service teachers seeking an ESOL endorsement. This is particularly the case if we consider how pre-service teachers have traditionally received professional

development in the past. So, from a critical perspective, I wanted to understand three concepts: (a) how the characteristics of an institution can positively or negatively affect teacher development; (b) the experiences of the pre-service teachers during the training; and (c) how those experiences were conceptualized and implemented from initial learning objects to final learning outcome.

As Windschitl and Joseph (2000) contended, how a teacher develops knowledge and identity through professional development has frequently been referred to as a “constrained reality” (p. 140). Atwell (2007) went on to characterize this as a dysfunctional relationship between the institution and the teacher. Freire (1990) pointed out that knowledge has typically been perceived as being gifted to a teacher by the omniscient institution, thereby maintaining the teacher as object. The purpose of this study, then, was to lift those constraints so that this group of pre-service teachers could feel more liberated in exploring and growing beyond their existing knowledges. Accordingly, the learning objects had to be constructed such that these known institutional constraints (such as course assignments, graduation requirements, and state licensing mandates) did not impede the ability of the pre-service teachers from achieving the learning outcomes. Thus, given the instructional setting for this study, were the proposed learning outcomes unattainable from the beginning?

Most of the students suggested that they felt hindered by the fact that they did not have access to the hands-on materials they created to accompany their lesson plans. They also expressed, particularly after Session 1 in *Second Life* (Linden Labs, 2004), concern that they were not able to “see” Mrs. Darbyshire. This anxiety was heightened because the avatar (a young, African-American male) did not match the voice of the avatar ELL

(a Hispanic female). As a result, did the students' existing knowledges actually prevent them from progressing from learning objective to learning outcome, thereby inhibiting self-regulation and authentic transformation?

Although most of the students did recognize the importance of using new technologies and the potential of using a venue such as Second Life (Linden Labs, 2004) for instructing an ELL, the transformations from first reflection to final debriefing were limited. Here, I do not suggest that there was not the potential for broader transformations to occur. There was evidence in the dialogue (especially during Becky's and Isabel's sessions) that some self-regulation was occurring or had already occurred and was being implemented. However, what was not discernable from the dialogue is if the self-regulation was an expected reaction to their previous institutional experiences or if the new instructional venue was enabling the self-regulation to occur. It was evident, especially from the final debriefings that potential pedagogic transformations stopped when the assignment ended. Thus, as noted by Shulman and Hutchins (2004), this group of pre-service teachers did what was "expected" rather than what was truly "transformative." If the interactions had taken place outside of the university setting, were not a course assignment, and were not linked to the technology competency of the ESOL portfolio, the students might have felt less restricted, thereby facilitating a potential authentic transformation from the objective to the subjective.

#### *Implications for Sociocultural Constructivist Theory*

The idea of creating communities of practice for teacher training contributes to the notion of constructing training such that self-regulation can occur. In order for the constructed community to be successful, there must be collaboration among all

participants (Erben, 2001). For the pre-service teachers to achieve any change beyond their existing pedagogic knowledges, some moment in the interactions had to occur such that the ZPD was opened to enable inter- and intrasubjectivity to take place. In the case of the collaborations here, there was the potential for the ZPD to be opened by filtering the learning objects through the technologies used for the interactions.

For Vygotsky (1978), higher mental functioning results from social interactions. The knowledge that is a product of these interactions results from the associations between the knower and the known (Kanuka & Anderson, 1998). In a cohort setting, then, the opportunity exists for the pre-service teachers to enable each other's cognitive pedagogic development through collaboration (Windschitl, 2000). The purpose of this study was to relocate the collaborations from a face-to-face to virtual venue in order to determine if the same type of transformational collaboration was attainable.

As Lantolf and Aljaafreh (1995) noted, Vygotsky suggested that there are levels associated with an individual's actual and potential development. These developmental moments are enabled when the ZPD is opened such that an individual can experience growth. Opening the ZPD is what Lantolf and Aljaafreh characterized as acts of "negotiated discovery" such that the novice and expert can determine what the novice can learn both assisted and unassisted during the interaction (p. 620). Further, it is during these moments of negotiation that the level of self-regulation is evinced as the assistance is withdrawn once the novice either demonstrates self-regulation or when the novice actually rejects continued support.

One could argue that, in order for the ZPD to open and intersubjectivity to occur during the collaborations, there must be some sort of event that facilitates an individual's

cognitive development. In the case of SCT, that event would be associated with a scaffolded interaction between a less experienced and more experienced interlocutor. It could also be associated with the intervention of some artifact related to the interaction. In terms of the interactions for this study, the communicative successes experienced by the groups during Sessions 2 and 3 were the result of the introduction of Skype (Skype Limited, 2009) as a mediating technology. What would have happened had Skype not been introduced between the first and third sessions in Second Life (Linden Labs, 2004)? Would there have been the same opportunities for collaboration among the students and positive interactions with Mrs. Darbyshire, thereby facilitating the learning outcomes? Here, it could be argued that the subsequent productive interactions were more of a positive response to using a familiar technology. Had Skype not been introduced, the pre-service teachers might not have experienced any collaboration and the interactions, including the sessions in Second Life, might have failed. Conversely, if Skype had not been introduced, the students might actually have achieved intersubjectivity leading to pedagogic self-regulation as enabled through Second Life as the intervening mediational technology.

Here, it is instructive to return to Lantolf and Aljaafreh's (1995) article in which they discuss moments in an individual's development. For Vygotsky (1978), intersubjectivity is a function of the quality and frequency of the interaction between the novice and master "resulting from implicit and/or less frequent forms of assistance" (p. 620). Further, Vygotsky defined four genetic domains through which higher mental development and concomitant self-regulation could occur. Of specific relevance to understanding the pre-service teachers' ability to achieve self-regulation and

transformation during the interactions with the ELL in the virtual environments is what Vygotsky defined as *microgenesis*.

According to Vygotsky, there are two types of microgenesis, short-term and long-term (Wertsch, 1985). In the short term, a novice learner is being prepared for the activity by the master learner. During this initial preparation, the novice is making initial cognitive links between the activity and pre-existing knowledges. For the pre-service teachers in this study, their introduction to Second Life (Linden Labs, 2004) and Ning (Andreesen & Bianchini, 2004) in Week 3 of the ESOL II course served as that initial preparation. Based on their responses to the technology survey questions presented in Week 2 and their first reflective statements in Week 3, it is evident that the pre-service teachers were making initial connections between technologies they had used in past education courses as well as technologies they used in their daily teaching and personal lives.

All of the students had Facebook (Facebook, 2009) pages and positively associated the features of Ning (such as video and picture upload and various messaging features) with the features available to Facebook users. In terms of Second Life (Linden Labs, 2004), there was a positive association related to learning a new technology. The pre-service teachers, in their Week 3 reflective statements, suggested the positive benefits of learning new technologies. Each of the students (with the exception of Larry - whose case will be discussed later) suggested that they were open to discovering new technologies as they had over the course of their studies as elementary education majors. Gabby noted that “[it] gives a different perspective” to teaching ELLs whereas Evie suggested that “[it] is good to experience a new technology.” Hannah’s and Julie’s



assertions really emphasize the short-term cognitive connections that they were making relating their past technical experiences to their initial reactions to using Second Life. Hannah maintained that using Second Life was a “modern way to instruct students” whereas Julie stated that Second Life had “good potential with accurate training.”

It is in the long-term microgenetic movements that the novice and master engage in explicit and implicit collaborative iterations. These iterations, as Vygotsky (1978) suggested, are non-linear involving multiple developmental layers (Lantolf & Aljaafreh, 1995). In other words, self-regulatory behaviors are not finite and do not occur in blocks of time. Thus, it is through the sociohistorical mediated collaborations between novice and master that the novice, during some intervention by the master, moves what has been learned into a higher order concept. Here (and most relevant to the four individual cases highlighted in this study), Vygotsky recognized the potential for developmental regressions that result from the dynamic and asymmetrical nature of these collaborative interactions.

Lantolf and Aljaafreh (1994) delineated 5 levels of sociocognitive transformation across the ZPD to indicate at what point the novice has moved from intermental to intramental functioning such that self-regulation occurs (p. 470). At Level 1, the novice cannot act independently of the master; in other words, the master is completely explicit in preparing the novice to begin the process of co-constructing knowledge. At Level 2, the novice is able to recognize the knowledge but is still heavily reliant on the tutor through negotiated feedback. At Level 3, the novice is able to recognize the knowledge and is able to act on that knowledge but still must rely on the master’s feedback. At Level 4, the novice recognizes and acts on the knowledge with minimal or no direct

feedback from the master. At Level 5, the novice is able to act on the knowledge independent of the master.

Murray and Arroyo (2002) characterized the 5 levels of self-regulation in terms of their relationship to a computer-based instructional tutoring system. Their operational definition of the ZPD was described in terms of what the student is capable of “mastering” within the “parameters” of the tutoring environment (“M out of P”, p. 754). In this stepped approach, different instructional sequences are implemented such that there are enough “hints in the problem set” for the zone to open and self-regulation to occur (p. 755). Their definition also assumes that the learner has an existing level of mastery of the problem set for which they are receiving additional instruction. Thus, they characterized the progressions across the ZPD in terms of “lucky guesses” (Levels 1, 2) to “gradual learning or improvement” (Levels 3, 4) to “an *a-ha* moment” (Level 5).

In Abby’s case, she achieved Levels 2 and 3 during the interactions with Mrs. Darbyshire in *Second Life* (Linden Labs, 2004). Whereas she received direct linear scaffolding from Dr. Marquis, this does not suggest that she was cognitively impeded from developing across different levels. She was able to recognize the technical issues (Level 2) and was able to act on those issues by eventually implementing the ESOL modifications (Level 3). However, she was not able to move past Level 3 because she was still heavily dependent on Dr. Marquis’s assistance. Lantolf and Aljaafreh (1995) would suggest, based on their metric for determining levels of progression, that Dr. Marquis’s interventions were more explicit. Murray and Arroyo would characterize her interactions as gradual improvements. Thus, by the end of the interaction, Abby was able to positively implement ESOL modifications with Mrs. Darbyshire with assistance from

Dr. Marquis which suggests progressions from inter- to intramental development. Further, it is possible, according to Vygotsky for a learner to regress to a previous stage but it is in that regression that the partial revelation of a higher mental state is revealed (p. 621).

For Becky, she was able to negotiate her relationship with Dr. Marquis such that she was able to move from his initial explicit direction of the interactions to more implicit implementations of the ESOL strategies. Her interactions with Dr. Marquis became very strategic such that she only requested assistance when needed during the instruction of Mrs. Darbyshire. Lantolf and Aljaafreh (1995) characterized these types of interactions as “graduated” and “contingent” reflective of the iterative collaborative attribute of the novice and master relationship (p. 621). Self-regulation by the novice is evinced when s/he can demonstrate more self-control and independence. This was particularly noted in Becky’s case as she received little to no input from Dr. Marquis during the interactions. Accordingly, Becky would have entered the interaction at Level 3 with knowledge of the previous instructional issues with Second Life (Linden Labs, 2004) and was able to use that knowledge during her interaction in Skype to achieve a high Level 4, low Level 5 sociocognitive progression.

Isabel entered Second Life (Linden Labs, 2004) and began the interactions at a Level 4. She required little to no explicit direction from Dr. Marquis at the beginning of the interaction with Mrs. Darbyshire. However, by the end of Session 3, Isabel actually experienced regression to Level 2 because she was unable to implement any further ESOL modifications with Mrs. Darbyshire. The students had to abandon their original lesson plans in favor of dialoguing with Mrs. Darbyshire related to her personal interests.

This was done in an effort to establish a rapport with her to facilitate the dialogue during the interactions. By Session 3 in Second Life, Isabel essentially ran out of questions related to Mrs. Darbyshire's personal interests. Isabel even attempted to change the conversation by introducing the weather-related vocabulary of her group's original lesson plan, but Mrs. Darbyshire became confused and retreated from the conversation. It was at this point that Isabel experienced regression as Dr. Marquis had to intervene and assist her with maintaining the dialogue.

Larry's case was unique in that he began and ended his interactions with Mrs. Darbyshire at Level 1. Whereas he did have some mastery knowledge of the technology that he used for the interaction, he accepted no assistance from Dr. Marquis during the interaction with Mrs. Darbyshire. In his self-reporting from the technology survey presented to the students in Week 2 of the ESOL course, Larry reported regularly using Facebook (Facebook, 2009) and Skype (Skype Limited, 2009). For the Week 5 Session 4 interaction, Larry and his group used Skype. However, Larry's interactions were one-sided; even after Mrs. Darbyshire became silent because she could not understand Larry's questions, he rejected Dr. Marquis's support. Even though Larry confirmed that Mrs. Darbyshire did not understand him, he continued with the conversation despite Dr. Marquis's efforts to scaffold his interaction. Larry's failure to progress implicates other considerations that will be discussed as a separate case below.

Vygotsky (1978) also suggested that an individual's awareness is a by-product of socially constructed interactions. Freire (1990) asserted that an individual becomes liberated once the conscious self becomes the subject rather than the object of the environment. From the standpoint of collaborations, the pre-service teachers evinced

significant constructive and productive collaborations such that there were positive interactions with Mrs. Darbyshire, thereby achieving the learning outcome of successfully scaffolding the language of a Level 2 ELL. However, were the students successful in Sessions 2 and 3 because of an existing pedagogic skill set (ESOL competencies) that was facilitated by a familiar technology (Skype)? Or, were their successes the result of an authentic pedagogic transformation facilitated by a series of constructive collaborations?

As I suggested when discussing the implications for critical pedagogy, the pre-service teachers' experiences were more consistent with the collaborations characteristic of a cohort. Here, I do not suggest that their learning objectives were not achieved – productive communication during Sessions 1, 2, and 3 did occur. However, whereas some scaffolded interactions did occur within these collaborations, the pre-service teachers' reflective statements suggested that intrasubjectivity had already occurred based on previously acquired pedagogic knowledges and skills. Thus, these existing knowledges and skills most likely contributed to the successful implementation of the learning objectives for the interactions. This is further confirmed based on Session 1 in *Second Life* (Linden Labs, 2004). The first group's initial inability to implement the ESOL modifications was directly mitigated by Dr. Marquis's interventions (more linear scaffolding), which later enabled the second and third groups to engage in more iterative collaborative practices. Thus, as Mather and Hanley (1999) asserted, cohorts can be very influential for the socialization and development of pre-service teachers. Therefore, their reflections really represented the *collective beliefs* associated with a cohort rather than an authentic subjective to objective transformation.

However, it is important to frame the above assertions within the Vygotskian (1978) concept of microgenetic regression. Although it is not unreasonable to suggest that the students' reactions were associated with their collaborations as a cohort, there was evidence in Abby's case, Becky's case, and Isabel's case that the ZPD did open and they were moving between cognitive levels. Donato recognized (1994) this as the power of the collaborative experience. Figure 42 represents the explicit to implicit progressions as experienced by Abby, Becky, Isabel and Larry.

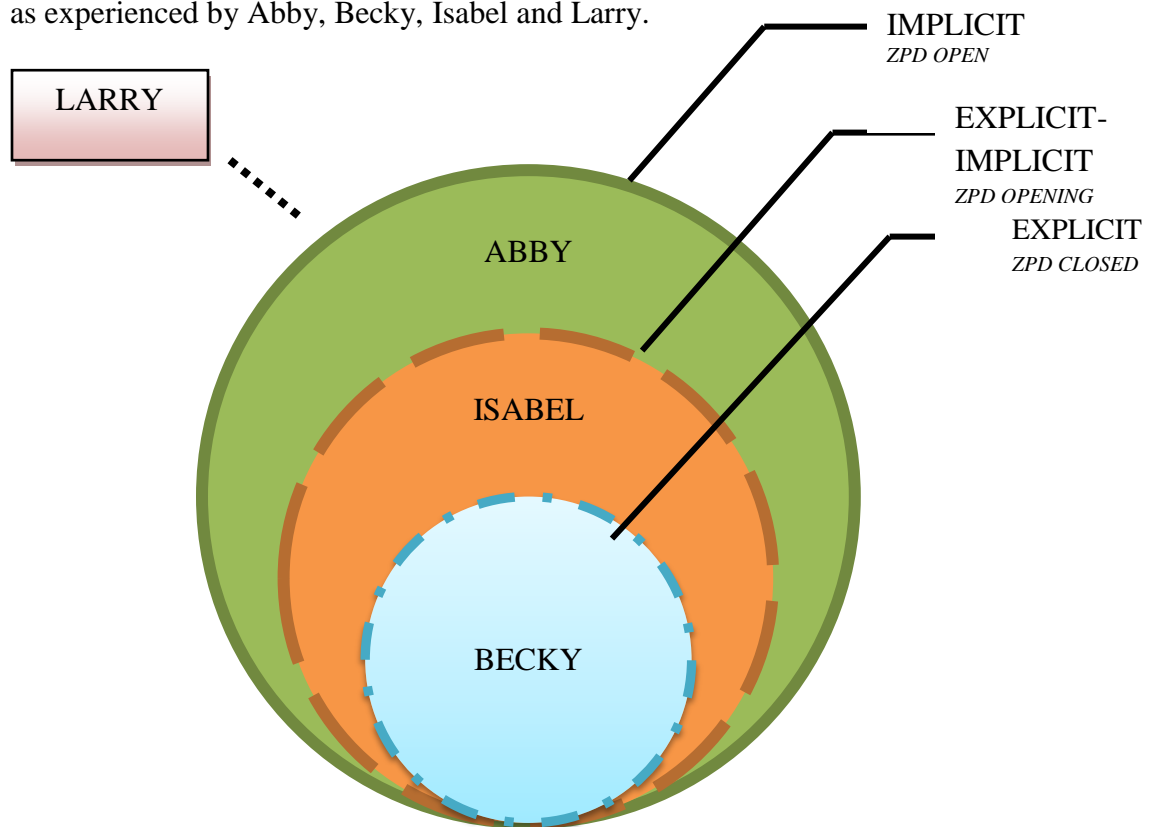


Figure 42. Explicit to implicit developmental progressions as experienced by Abby, Becky, Isabel, and Larry during the instructional episodes in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009).

It is here that I suggest a model for understanding the transition from face-to-face to virtual training. This transition must reflect the lifting of institutional constraints and sufficient allocation of resources such that the participant experiences positive

sociocognitive movement such that self-regulation can occur (see Figure 43). At Levels 1 and 2 of the sociocognitive scale (Lantolf & Aljaafreh, 1994), the ZPD is closed and remains closed until some moment happens between the novice and master to enable the ZPD to open. In the case of the virtual interactions in this study, that moment was the introduction of Skype (Skype Limited, 2009) as the second virtual venue for the interactions with Mrs. Darbyshire. The novice would then experience Level 3 once institutional constraints are lifted such that the interactions become more implicit. During these iterative progressions, the novice moves from an intermental state to an intramental during which time the ZPD opens and self-regulation can occur.

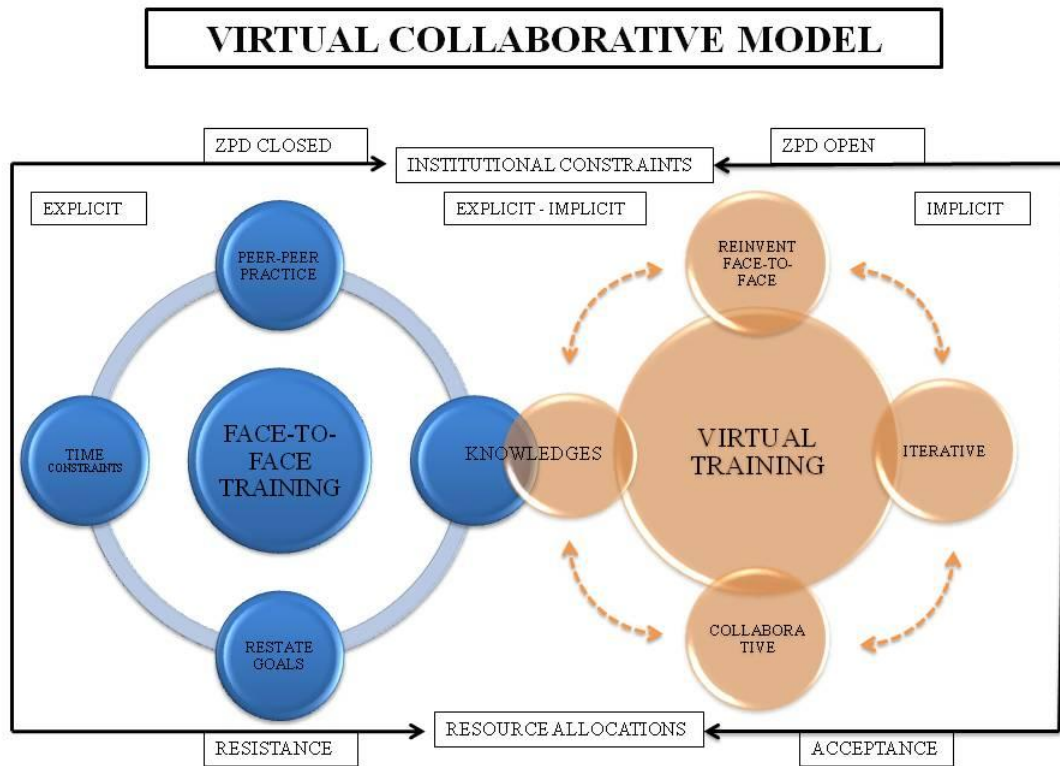


Figure 43. Virtual collaborative model of sociocognitive iterations from the face-to-face to virtual environments.

## Understanding Larry's Case in Terms of Sociocultural Theory and Levels of Use

Larry's case was unique in that it presented a challenge in explaining and understanding why, of the 11 other members of his cohort, he was the only student who had a completely negative experience. From first reflection to final debriefing, Larry's impressions of using Second Life (Linden Labs, 2004) and his collaborations with his classmates were destructive (Erben, 2001). He specifically stated that he saw "no advantages" to using Second Life to instruct an ELL. He suggested that the site was "too impersonal" and even, during the debriefings, used the term "yucky" to describe the virtual classroom. In the final debriefing, when students were asked if they would use Second Life in their classrooms or receive professional training in the virtual environment, Larry's response was resolute: "Never." As Larry was the only pre-service teacher with an overwhelming negative experience, I believe that it is important to understanding the pedagogic and training implications of using virtual environments for professional development by addressing his individual case. Accordingly, I will consider his case in terms of sociocultural theory and levels of use.

Two of the four genetic domains as defined by Vygotsky (1978) are essential to explicating Larry's destructive collaborations. These two domains are: (a) microgenetic regression and (b) sociohistorical context. In terms of regression, Lantolf and Aljaafreh (1995) created a scale of cognitive movements that a novice may experience during collaborations. These movements are non-linear and represent the cyclical iterations from explicit to implicit interactions such that the ZPD opens and self-regulation can occur. The novice learner is deemed as self-regulating when s/he requests less explicit direction from the master or functions independent of the master.



Lantolf and Aljaafreh (1995) also pointed out that the novice may completely reject any scaffolding by the master, thereby fully regressing across the interaction resulting in failure of the ZPD to open for self-regulation. In Larry's case, his initial experience with the technologies used for the interactions may explain, from a sociohistorical perspective, his rejections of Second Life (Linden Labs, 2004) and destructive collaborations. Here, it is important to note that Larry's collaborations with his group members in Week 2 were productive. As the groups worked on creating their lesson plans for Mrs. Darbyshire, Larry, Gabby, and Hannah were productive as evinced by their constructive dialogue. During the Week 2 course, Mrs. Rosenblum (the co-instructor for the ESOL II course) debriefed with the students regarding their lesson plans and modifications. Throughout the discussion, Larry positively contributed to the discussion with most of his dialogue containing constructive utterances (Field Notes, Week 2).

In Week 3 of the course, the students were introduced to Ning (Andreesen & Bianchini, 2004) and Second Life (Linden Labs, 2004). Ning was introduced first as a scaffolding measure because of its technical approximation to the features offered to Facebook (Facebook, 2009) users. As all of the students had a Facebook page, introducing Ning gave them the opportunity to make a cognitive connection with an historically familiar object (Lantolf & Aljaafreh, 1995). Larry was very receptive to using Ning, even importing some of his images, videos, and other personal information from his Facebook page. As I was assisting the teachers with Ning, I noted Larry's enthusiasm and productive collaborations with his classmates (Field Notes, Week 3). He was receptive to both my explicit and implicit assistance - once the cognitive connection

was made with the familiar object, his self-regulation with the technology was apparent as he ceased in asking for assistance with Ning.

The next step was to introduce the students to Second Life (Linden Labs, 2004). His self-regulatory progression evinced while using Ning (Adreesen & Bianchini, 2004) abruptly turned into regressive behaviors once he entered Second Life. While collaborating with Larry, my assistance to him required more sustained explicit instruction than with Ning. Unlike his experience with Ning, he was not able to move to more implicit instruction with Second Life and continued to regress. His dialogue became increasingly destructive resulting in his complete rejection of assistance from me, Dr. Marquis, or Mrs. Rosenblum. By the end of the session, he was the only student who logged-off of Second Life and returned to personalizing his Ning page. Larry then commented that he “didn’t get it,” even remarking that Second Life was “stupid” and that he would “never use it.”

Larry’s regressive behaviors may be explicated in terms of Levels of Use (Hall, Loucks, Rutherford, & Newlove, 1975). Levels of Use (LoU) describe a user’s behaviors at different stages of interaction with the technology (p. 52). Hall, et al. identified 6 levels of use which included: (a) Level 0 - non-use; (b) Level I - orientation; (c) Level II - preparation; (d) Level III - mechanical use; (e) Level IV A & B - routine and refinement; (f) Level V - integration; and (g) Level VI - renewal. Larry (in addition to his classmates) began at Level 0, the state at which the user has no previous knowledge of the technology. He then moved to Level I at which stage he was acquiring information about Second Life (Linden Labs, 2004) and how it was going to be used in terms of the

course assignments and interactions. It was at Level I that his regression occurred resulting in his resistance to and abatement from the technology.

By contrast, most of Larry's classmates achieved Level II in which they were preparing to use Second Life (Linden Labs, 2004). Abby's group and Isabel's group achieved Level III, the stage at which the user is actually attempting to master the features of the technology. Further, his classmates did not regress to earlier stages. Abby's progress and Isabel's progress at Level III suggests the previous opening of their ZPDs while collaborating with Dr. Marquis and instructing Mrs. Darbyshire.

Hall, et al. asserted that "strategies must then be developed that deal with the user's present LoU and facilitate growth" (p. 56). They further suggested that facilitation must extend across several iterative cycles - in the Vygotskian (1978) sociohistorical sense, this would implicate the cognitive connections that the user associates with the technology. In Horizon Report (2010), one of the challenges of implementing technology in teacher education programs is ensuring not only the saliency of the technology in relation to the learning objectives but also evaluating the efficacy of the technology in terms of the student's level of digital literacy. Hall, et al. also pointed out that, in order for these supportive iterations to occur across the 6 levels, the situational parameters of the individual, group, and institution must be considered.

Larry's regressions could also be explicated in terms of his concerns regarding using Second Life (Linden Labs, 2004) for the interactions. Hall and Loucks (1978) created the "Concerns-Based Adoption Model" to provide a framework for understanding how a user expresses concern about using a particular technology. The model is constructed in terms of levels of intensity across the awareness and concern for using the

technology. According to the model, Larry was at the Level 2 Personal suggesting that he was uncertain his role in using the technology and how the technology related to the requirements of the course assignments and ESOL portfolio. Again, returning to his reflective statements and comments during debriefings, Larry expressed that he did not understand the purpose of using Second Life and would choose to use Skype (Skype Limited, 2009) or Facebook (Facebook, 2009) for the interactions. Again, Larry regressed to earlier levels of concern (Level 0 - Awareness; the individual is aware of the technology but has no interest in learning its features).

Thus, Larry's regression could be explained in terms of institutional constraints. There was a "hit-and-run" (Hall, et al., p. 52) time allotted for the training in Ning (Andreesen & Bianchini, 2004) and Second Life (Linden Labs, 2004). These time restrictions were directly associated with the parameters set by the course syllabus resulting from the need to meet the ESOL portfolio and graduation requirements. From a partnering perspective, then, institutional constraints actually prevented Dr. Marquis, Mrs. Rosenblum, and me from more effectively partnering with Larry - partnering that was essential in assuring his successful socicognitive movement across the interactive episodes (Prensky, 2010; Vygotsky, 1978; Wertsch, 1985). As Hall and Loucks (1978) asserted, the individual must be the primary target of training which should be an intensely personal experience (p. 3). In order for Larry to have experienced those moments of cognitive liberation, the institutional constraints of the ESOL II course would have to be lifted such that he could move from the explicit to implicit interactions through which he could experience self-regulation and pedagogic transformation.

## Pedagogic Implications of Using Second Life (Linden Labs, 2004)

The findings of this study present various implications for pedagogy. Of first consideration is creating a course syllabus with appropriate activities that can truly elicit the competencies under consideration. The instructional interactions must be unambiguous in their educational objectives – participants must have clearly defined roles and performance outcomes. In the present study, there was a disconnect between what we as the course instructors expected and what the pre-service teachers understood to be the purpose of using Second Life (Linden Labs, 2004). In their first reflective statements and during the technology training in Week 3, many of the students expressed that they really did not understand what pedagogic benefit there was in using Second Life for teaching their lessons to the ELL.

Although the purpose of these interactions was to determine if this group of pre-service teachers was capable of implementing their pre-existing ESOL knowledges, the needs of the ELL with whom they were interacting had to be considered as well. Accordingly, the students had to use the technology such that they were effectively implementing ESOL modifications. From an instructional standpoint, then, the students, through their collaborations, had to ensure that Mrs. Darbyshire's technical and language needs were being met at the same time during the interactions. In Sessions 1 and 4, this did not occur. During Session 1, Abby's group focused primarily on the technology, which led them to abandon the content of the original lesson. Implementing ESOL modifications did not occur until the end of the session. Larry, during Session 4, dominated the session resulting in the loss of communicative progress gained from Sessions 2 and 3.

Effective classroom teachers share many common characteristics. Among those characteristics are the ability to create a comfortable classroom environment in which an open and uninhibited dialogue flows between teacher and student (Danielson, 2007). From my experiences as a classroom teacher, one of my first instructional goals is to establish a rapport with my students. It is around this rapport that I frame my interactions such that I am able to scaffold one instructional episode to the next. This, of course, strays from the traditional linear approach where teaching becomes something *done* to the student (Lingard, 2003). Because the administration expects to see the traditional teaching model, I have my objective teaching persona and my subjective teaching persona. When being observed and/or formally evaluated, I become teacher as object; and, conversely, when I am not being observed or evaluated, I assume my role as teacher as subject. I maintain both personas as a direct result of institutional constraints.

For the pre-service teachers here, establishing a rapport with Mrs. Darbyshire might provide the most significant evidence that there was some movement from the objective to the subjective. In Session 1, once Abby realized that implementing the lesson was not working, she independently determined that a rapport needed to be established, abandoned the lesson, and began asking basic personal questions. This, of course, resulted in Becky and Isabel being able to continue not only with personal questions but also to implement some of the vocabulary and content of their original lessons. Thus, whereas the interactions and collaborations were not overwhelmingly transformational, the positive potential of using Second Life (Linden Labs, 2004) as a venue for professional development and classroom instruction cannot be dismissed.

After the interactions, the debriefings were immediate, and instructional adjustments were made subsequent to those debriefings. In other words, there really was no reflective downtime for the students to consider their collaborations or instructional interactions with Mrs. Darbyshire. This lack of deeper reflection is consistent with the traditional training model in which teachers receive pre-determined bites of information with no opportunity for reflection or practice (Johnson, 1997; Lingard, 2003; Zembylas, 2003). Danielson (2007) points out that reflective teaching contributes to the development of an effective teacher with sound instructional practices. These reflections could also have the positive potential of enabling the teacher to move from the objective to the subjective by reviewing and questioning what is considered to be the pedagogic status quo (Freire, 1990). Using programs like Second Life (Linden Labs, 2004) or Skype (Skype Limited, 2009) have the potential of providing training environments in which teachers feel more liberated to explore their true instructional selves and transform beyond institutional constraints.

#### Implications of Using Virtual Environments in Teacher Education and In-Servicing Programs

Because this study concerned teacher education, the implications of using virtual environments in teacher education programs must necessarily be addressed. Second Life (Linden Labs, 2004) assumes a certain level of technical ability on the part of the end-user. Although there is a social element to using the program, most of the features are not what the typical users of social networking sites (such as MySpace, 2009 or Facebook, 2009) would recognize. In order to conduct training in an avatar-based virtual program, then, participants (including those persons conducting the sessions) would have

to be trained how to manipulate the avatar and use the program's different features before training could take place.

The actual content of the training would have to be reconceptualized for the virtual environment. Simply having the students present a traditional face-to-face lesson to an ELL avatar might not be the most salient method of revealing what the pre-service teachers actually have internalized in terms of ESOL strategies. There must be clearly defined learning objects, objectives, and outcomes related to the competencies that participants should be able to demonstrate before, during, and at the conclusion of the training sessions. The learning objects would include creating the lesson with ESOL modifications, meeting the ELL in the virtual classroom, and implementing the lesson. The learning objectives would be to instruct the ELL while implementing ESOL strategies. Also, collaboration among the pre-service teachers would be considered part of the learning objectives such that they could scaffold each other's instruction to promote self-regulation. The outcome should result in the ELL positively responding to some sort of post-instructional assessment. Additionally, the collaborations should result in the pre-service teachers experiencing an instructional transformation such that self-regulation occurs.

As Rosen (2010) pointed out, there has not been a study conducted to suggest if or how teachers are using social networking programs with their students. Therefore, in considering the technical skill set of the 21st-century teacher, most teachers have basic computer skills as associated with the fiduciary responsibilities of their job. For the most part, teachers can compose e-mails, work in word processing programs, calculate grades using some grade-documenting program, and use Internet-based resources. External to



the institutional setting, many teachers are regular users of social networking sites such as Facebook (Facebook, 2009) or are at least familiar with instant messaging and chat programs. However, using social networking programs does not necessarily require the same skill set that is needed for an avatar-based virtual world. Accordingly, many of a teacher's existing computer skills mirror the skills needed to interact effectively in a social networking program (typing, inserting pictures in a document, using a local chat bar). Therefore, the students in this study had to experience not only a pedagogic transition but also to experience technical growth beyond their existing skills.

Most professional development training as it presently exists requires little to no advanced technical skill. In other words, it is sufficient for the teacher to have just basic computing skills. Also, many of the programs that teachers use on a regular basis (i.e. word processing, e-mail, grade programs) share similar features. This, of course, is not insignificant. To maintain the status quo and the teacher's position as object, the institution would not encourage the use of non-traditional programs for training. Even when the training involves technology, the results for reflection and practice are similar to those when the training involves instructional strategies. Training, even that training involving technology, is simply meant to reproduce the system (Chalmers & Keown, 2006).

Thus, even for the 21st-century teacher who is more engaged with technology than ever before, a significant rationale would have to be put forward by the institution for offering or requiring training in an avatar-based virtual environment. Just as with the pre-service teachers in this study, most in-service teachers still receive professional training face-to-face. Even if the training is offered on-line, the options for interaction

with colleagues is limited, and the programs tend to be more behaviorally based to illicit static responses. For today's teacher, then, there would have to be some significant motivation (either from the institution or some personal/professional motivation) to receive professional training using a program such as Second Life (Linden Labs, 2004).

In this study, the motivation was completing graduation and ESOL certification requirements. However, even with these institutional constraints shadowing the collaborative processes, there was evidence, especially from the end of Session 1 through the end of Session 3, that some self-regulation and transformation was occurring among the students. Accordingly, under the ideal collaborative circumstances (ideal being institutionally unconstrained), Second Life (Linden Labs, 2004), and other virtual environments, have the positive potential of acting as a mediational device through which a teacher might experience intrasubjectivity and authentic pedagogic transformation.

In terms of resources, Second Life (Linden Labs, 2004) as a program uses a significant amount of a computer's hard disk space. Also, for the program to operate at maximum efficiency, the Internet connection must be substantial. As noted in The Horizon Report (2010), allocation of resources presents a significant challenge to using virtual programs. Thus, any educational institution that relocates face-to-face training to an avatar-based virtual program must consider the financial cost of allocating sufficient resources in order for Second Life to operate efficiently and the training program to generate the desired outcomes. For many school districts struggling to meet the basic supply needs of their students, offering such training would be cost-prohibitive. Thus, if a district determined that using such training would be beneficial for its teachers, external funding resources (by way of grants or private funding) would have to be elicited.

Another issue related to cost would be that of re-inventing the face-to-face content in a virtual world. Unlike a more inert website program, different considerations must be given to creating activities in a virtual environment. In the case of Second Life (Linden Labs, 2004), downloading the program is free, and there are free areas where avatars might meet for interactions. These areas are typically created by other users and do not require a monetary commitment on the part of the end-user to participate in the environment. The downside to these open areas is that any avatar might enter; therefore, training in such an environment might not be the ideal setting. However, Second Life also offers the ability to privatize a meeting area such that entry requires permission from the creating institution. Hence, creators of a “world” pay in “Linden dollars” - which have a currency exchange rate to actual dollars - to construct a world specific to their users’ needs. For a college or university, funds might be set aside for exploring new technologies such as Second Life, thereby freeing course instructors to explore the possibilities of using virtual worlds around which to present their entire course or modules thereof. For a public school district, however, whereas funds are set aside for technologies, they tend to be more for hardware maintenance and routine upgrades rather than for what some might consider superfluous and unnecessary when the existing training has been deemed *successful* in the face-to-face venue.

There is also the issue of institutional security. Most school districts have web-sensing tools that block end-users from accessing certain content on the Internet. In the public school district where this study was conducted, the web-sensing tool blocks access to any content that is associated with “social networking” or “mature/adult content.” Although the university where this study took place does not block such access, school

districts, out of safety concerns for under-aged students, routinely block access to more open websites, especially social networking sites. Also, based on my own experiences with the school district where the pre-service teachers completed their practicum cycles, seeking permission to unblock a site such as Ning (Andreesen & Bianchini, 2004) or Second Life (Linden Labs, 2004) has consistently been rejected due to security and privacy concerns. Therefore, if Second Life or another social networking program were used for student instruction or teacher training, it would have to be used after hours and off campus. Of course, asking participants to take part in a training activity on their own time after school hours presents a significant challenge, especially if the same training is offered in a time and place that the participant considers more conducive to his/her needs.

Although there are certain negatives to using a program like Second Life (Linden Labs, 2004) for professional development, as this study demonstrates, there are positives as well. Returning to the students' reflective statements, learning a new technology is beneficial in building professional skills. This is especially important (Prensky, 2010) in the 21st century as technologies are advancing and changing on almost a daily basis. Also, as Prensky (2004) pointed out, most teachers would be considered digital immigrants with regards to the latest technologies. In establishing and maintaining a rapport with today's digital natives, it is important that teachers have a working knowledge of the types and variety of programs that students are currently using so that they can effectively partner with them for meaningful and relevant instruction (Rosen, 2010). Here, the teacher has the opportunity to move from the digital objective to the digital subjective by exploring and implementing such programs as Second Life into their teaching.

Further, Second Life (Linden Labs, 2004) carries certain implications for distance education. For example, a teacher in a remote area (such as a rural community or village) might not have access to face-to-face professional development with other teachers. Using programs like Second Life or Skype (Skype Limited, 2009) would provide the opportunity for such a teacher to remotely collaborate with colleagues. Universities also have the opportunity to use such programs to offer not only professional training but undergraduate and graduate degree programs in education for students in remote areas or other countries.

From the standpoint of collaboration, teachers might use virtual environments to liberate themselves from the institution such that they feel emancipated to reflect on their teaching. Again, as Freire (1990) noted, by engaging in an iterative reflective process, an individual's mind is freer to explore his/her relationship with the institution and make alterations to that relationship. With the emerging technologies discussed here, teachers might choose to establish, independent of the institution, their own collaborative network where they freely discuss and reflect on their instruction. As evidenced by the study here, a teacher's existing knowledges might facilitate collaborations such that a significant movement from the objective to the subjective enables self-regulation and pedagogic transformation to occur.

### Discussion of the Findings

My interest in understanding the potential of using a virtual environment for teacher training came from my own experiences with professional development and as an in-service trainer. Having participated in multiple in-services provided by the school districts where I have taught and presently teach, my experiences are very characteristic

of the established training model in which the teacher is perceived as a vessel waiting to receive canned professional knowledge (Green, 2000). In these trainings, opportunities to engage in collaborative practice were abandoned in favor of efficiency (Albion & Maddux, 2007). Also, most practice was peer-to-peer, the results of which were intended simply to restate the goals of the training session. As Kwo (1996) pointed out, our reactions to the training sessions were reflective of what we *thought* the trainer wanted to *hear* rather than a true reflection of what we had actually internalized from the training sessions. Thus, we continued to be objects of the training, conforming to the set institutional standards. Atwell (2007) suggested that this evinced a dysfunctional relationship between institutional expectations and teacher cognitive development. Also, there was no follow-up discussion after the trainings occurred further contributing to both cognitive and pedagogic isolation (Johnson, 1997; Zembylas, 2003).

Similarly, as an in-service trainer, I have always been directed by administrators to retain the traditional model, thereby maintaining the status quo - again, this was a question of time and resources allotted for training. Even though in my own instructional experiences I considered myself as the subject of my pedagogic knowledge and identity, this freedom did not translate to the institution's fixed training model (Chalmers & Keown, 2006). Thus, any sociocultural interactions I might have had or attempted during the trainings were reduced to pre-determined bites of information considered relevant by the administrator but irrelevant to the actual teacher-participants (Freeman & Richards, 1996). Accordingly, my learning objective in this study was to determine if relocating traditional face-to-face training to a virtual environment would be liberating enough such

that these pre-service teachers could experience authentic development beyond their existing pedagogic knowledges.

This led me to consider an overall question that provided the exploratory foundation around which this study was conceptualized. This more global question was the following: How can teachers experience authentic pedagogic transformation when traditional face-to-face training is relocated in a virtual environment? The idea of reconceptualizing how teachers receive training would certainly not be in alignment with current trends in professional development. One of the immediate recommendations from Horizon Report (2010) was the need for teacher education programs to reconceptualize training such that it more closely addresses the skill set needed by the 21st-century educator. As Shulman and Hutchins (2004) pointed out, much of the information presented in current training comes in the form of pre-packaged items conceived around what are considered to be idealized instructional models. Thus, the *simulations* and *practice* are so detached from the teacher's reality that they frequently become stored away rendering their practical application meaningless which contributes to the teacher remaining as the institutional object. The learner, then, is seen as deviant or inferior, which is consistent with the traditional instructivist model that has characterized much of the pre-service and in-service teacher training in the United States (Albion & Maddux, 2007). According to Kanuka and Anderson (1999), instructivism is so detached from reality that it overlooks changes occurring in the real world. This detachment is what most often leads to the cyclical pattern of pedagogic isolation that is entirely characteristic of teacher training programs and practicing in-service teachers in the United States. Also, reinventing the traditional training model presents time and cost

issues that many school districts consider prohibitive (Horizon Report, 2010); for most school districts, it is easier just to maintain the status quo (Shulman & Hutchins, 2004).

*How the Instructional Context of the ESOL II Course Affected the Interactions*

In the case of the ESOL II course here, none of the 12 pre-service teachers had received any professional development outside of the institution's context. All of their instructional training was conducted face-to-face, which included their opportunities to practice teaching. Although they had technology in education courses and had experience in their ESOL I course using wikis to post and to provide feedback for lesson plans, most of their coursework-related collaborations occurred face-to-face. Also, all of the pre-service teachers reported using Facebook (Facebook, 2009) and Skype (Skype Limited, 2009), but it was purely in the context of social networking; that is, they were not participating in professional collaborations. In considering the more global question presented for this study, my objective was to determine if relocating assignments into an interactive virtual environment would serve as a mediating factor such that self-regulation could occur, resulting in pedagogic transformation.

In the department of education at the university where this study was conducted, students were arranged in cohorts upon acceptance to the program in the sophomore year. For the remainder of their undergraduate program, each cohort took classes, attended seminars, and undertook other university functions together as prescribed by the university for students in the teacher education program. According to Dr. Marquis, students frequently collaborated on course assignments, typically working in pairs or small groups. Because they had these collaborative experiences, the purpose was to determine if they were able to achieve the same type of collaboration once their



assignments were relocated from the face-to-face classroom to a virtual environment. From the sociocultural constructivist perspective, training in a virtual classroom would be considered mediated social units through which the pre-service teachers could co-construct their knowledge of applying ESOL strategies to scaffold an ELL's language. The idea, then, was for each instructional episode and concomitant debriefing to act as a framework around which potential instructional growth - and, thus, transformation of the pedagogic identity - could be achieved.

Creating these interactive episodes presented different choices and challenges to me as the designer – considerations that would later implicate the interactions and experiences of the pre-service teachers. Of first consideration was ensuring that the activities were in some way familiar to the pre-service teachers (i.e., creating lesson plans, modifying lessons for ELLs, designing hands-on activities). As Shulman and Hutchins (2004) noted, pre-service teachers rely on those familiar elements such that making drastic changes might actually impede rather than enable pedagogic growth. Next, I had to ensure that the activities were amenable to the ESOL II course and portfolio requirements. There was, of course, the potential that institutional requirements could overshadow the learning objective; however, these requirements could not be completely abandoned as these were graduation and state licensing requirements that had to be met by each student. Here, I worked closely with Dr. Marquis to make sure that the interactions were placed logically within the course syllabus and his instructional sequence. There were also considerations for accountability; as these were course assignments, Dr. Marquis had to have the ability to hold the students responsible for the lessons and debriefings. I wanted to make sure that these institutional factors did not

prevent the students from authentically reflecting on their experiences in favor of regressing to “tell me what I wanted to hear” in order to finish the assignments and meet their course requirements, as Kwo, (1996) suggested.

Also, the activities had to make sense in terms of the ESOL competencies and standards that the pre-service teachers were expected to demonstrate in their portfolios at the end of the term. To reiterate, these competencies and standards comprised: ESOL Competencies 1 and 7 (knowledge of language principles) and Standards 13 and 17 (knowledge of language as a social phenomenon and use of technology). As such, the interactions were designed so that the pre-service teachers could maximize their ability to demonstrate effectively proficiencies in these areas while meeting their ESOL portfolio requirements.

Returning to the overall question, was I able to work with Dr. Marquis to structure the interactions such that the pre-service teachers had the maximum opportunity to experience transformation? From the standpoint of syllabus design, the activities made sense in terms of the competencies that the students needed to demonstrate for their final portfolios. Also, the progressions from discussing the case study to creating lessons with appropriate modifications to the virtual interactions were logical in terms of constructing activities that would best support the pre-service teachers’ learning. Thus, from the standpoint of syllabus design, the activities and interactions made sense. This is especially true in terms of the skill set that the pre-service teachers had prior to the ESOL II course; that is, they had experience with discussing case studies, working in groups/pairs to create lessons, and actually teaching ESOL modified lessons in their cooperating schools. However, actually implementing the assignments presented

challenges specifically related to the technology that was used - especially Second Life (Linden Labs, 2004).

Second Life (Linden Labs, 2004) was unlike any program that the pre-service teachers had used during their coursework as education majors. Most of their technical experience related to using social networking or wiki sites and programs for creating ancillary materials (such as Microsoft Office PowerPoint or Publisher). Using Second Life also assumes a certain level of technical skill and independence, which is really not characteristic of technologies they had used in the past. The only familiar features for the pre-service teachers were the chat bar and voice functions. These technical unfamiliarities directly resulted in the pre-service teachers becoming overly focused on the technology rather than focusing on their lessons and ESOL strategies during the Week 3 training session and Session 1 in Week 4.

In conceptualizing the interactions, I should have reconsidered how the students were introduced to Second Life (Linden Labs, 2004) and at what point it would be used for the interactions. These initial decisions resulted in both positive and negative interactive experiences for the students. Even though I took their previous coursework into account, the instructional and technical skills they acquired did not necessarily translate into a virtual environment. Thus, in the training session and the first interaction, the pre-service teachers were so focused on the technology that it distracted them from implementing the ESOL strategies and presenting the content of their lessons. These initial impressions prompted Dr. Marquis and I, as a scaffolding and partnering measure (Prensky, 2010), to introduce Skype (Skype Limited, 2009). Our goal was for the students to have a positive interaction using a familiar technology upon which they could

use ESOL strategies to explore their instructional strengths. Therefore, it might have been better to use Skype for the first interaction so that a rapport with Mrs. Darbyshire could be established and then move the interactions into Second Life. By so doing, the trepidation over not being in the same room face-to-face with Mrs. Darbyshire could have been mitigated by a positive first interaction in which the participants were able clearly to see and to hear each other.

I next discuss the pre-service teachers' interactive experiences in the virtual classroom. Their initial negative first impressions and experiences with Second Life (Linden Labs, 2004) were revealed in their reflective statements and debriefings. However, not all of their final impressions of using Second Life to instruct an ELL were negative. Their reflections implicate potential avenues of continued research as well as implications for pedagogy, teacher training, and instructional technologies in education.

#### *Pre-service Teachers' Interactive Experiences Instructing in the Virtual Environment*

In analyzing the data, I looked at the experiences of the 12 pre-service teachers as a whole and then reduced those experiences by focusing on four of the ESOL II students - namely Abby, Becky, Isabel, and Larry. I selected these four students based on their responses during the debriefings and interactions with Mrs. Darbyshire, their classmates, and course instructors. Their experiences represented a range of pedagogic experiences from the ability to adapt and to change their instruction based on the dynamics of the virtual environment (Becky and Isabel) to complete rejection of change and inability to adapt (Larry). Of interest as well was the initial reaction to instructing in the virtual environment during which Dr. Marquis linearly scaffolded the instruction and language modifications of the first group. This intervention resulted in an interaction characteristic

of the traditional relationship between instructor and student (Abby's experience). Here, I do not suggest that Abby did not experience some degree of transformation. As previously indicated, her transformation was in the beginning stages as she was, by the end of Session 1, able to unpack her technical knowledge and ESOL modifications while in the virtual classroom.

Regarding the pre-service teachers' experiences, three issues presented as essential to understanding the overall collaborations and transformations. The first instructional issue was the practice that the students received in Week 3 using the avatars in Second Life (Linden Labs, 2004). During the Week 3 practice session, it was evident that the students were negatively responding to using the avatar in the virtual classroom. This negativity was expressed by the students in the Week 3 reflective statements. Most students responded positively to learning a new technology but still had concerns relevant to the purpose of using the avatars and the ease of using the program. Some of the negative response was definitely a reaction to the stability of the program. Although some students could log on and practice with their avatars, others experienced multiple error messages that prevented them from logging into the site, resulting in their passive rather than active participation in the training session.

Even though there were technical issues with Second Life (Linden Labs, 2004), this does not suggest that the Week 3 training session was a failure. As noted previously, failure in an activity might actually enable intersubjectivity to occur (Erben, 1999; Wertsch, 1985). In the study here, resistance to Second Life actually made it possible for the students to reflect on both the positives and negatives of using virtual classrooms. The content of their reflections actually presented during the collaborations as they

adapted instructional strategies across the sessions. Further, this gave Dr. Marquis and me the opportunity to partner actively with the students to scaffold their technical and instructional needs (Prensky, 2010; Rosen, 2010).

From their reflective statements, the students expressed the following frustrations related to using Second Life (Linden Labs, 2004): (a) not a face-to-face setting; (b) no access to hands-on materials; and (c) did not have the stability that students associated with a face-to-face classroom; that is, the technology was too unpredictable. However, the students' responses were not entirely negative. Many of the students recognized that Second Life would be good for students learning at a distance. They also suggested that it would be good as a supplement to face-to-face lessons. In addition, they recommended using Second Life for an ELL who might be self-conscious and resist meeting face-to-face. Finally, the majority of students were amenable to learning a new technology by indicating that it would positively inform their pedagogic knowledges.

The second instructional issue that the students' encountered was implementing the content of their lessons. During Session 1, Abby, Delia, and Evie attempted to introduce the key vocabulary and content of their lesson. However, once they entered the virtual classroom, there was immediate resistance (particularly on the part of Mrs. Darbyshire) to the interactions. As the students explained in their reflective statements and debriefings, the program presented too many barriers (whether those barriers were actual or perceived) for them to instruct properly Mrs. Darbyshire relative to the content of their lessons. These barriers included: (a) lack of access to hands-on supplemental materials; (b) inability to see Mrs. Darbyshire's facial expressions and gestures; (c) technical issues with Second Life; (d) avatar image did not match the ELL's voice; and

(e) lack of sufficient practice with the program. Even though there was initial resistance, Abby, Delia, and Evie relied on their existing instructional experiences in order to affect a more positive interactive outcome.

A third instructional issue was participation. Although the students did work in groups to present their lessons, not all of the students directly interacted with Mrs. Darbyshire. Thus, the ability of a true pedagogic transformative experience to occur was necessarily overshadowed for most students by indirect participation. Overall, the students did evince a desire to learn a new technology and were committed to completing their course assignments. However, based on their responses to the debriefing questions, their frustrations with the technology and focus on completing graduation and ESOL certification requirements actually eclipsed their ability to instructionally benefit Mrs. Darbyshire with respect to content-related vocabulary. However, with respect to establishing a relationship with Mrs. Darbyshire such that some positive interaction could take place, there was a clear transition from the communicative success at the end of Session 1 through the end of Session 3 (with Session 4 ultimately resulting in negative interaction due to Larry's destructive collaborations).

The students expressed a willingness to learn a new technology and recognized positive attributes of using Second Life (Linden Labs, 2004) to instruct an ELL. Their positive reflections actually led me to consider future implications for pedagogy, teacher training, and instructional technologies that I discuss below. Their reflections were tempered, however, by the instructional issues that they encountered in addition to the technical issues that affected the stability of the program across the instructional episodes. One would expect this cohort of pre-service teachers, who had been exposed to

different technologies in their ESOL I and technology in education courses, to respond positively to learning a new technology. Also, the activities were tied to their course assignments and portfolios so they had additional motivation to make sure that they completed the assignments involving Second Life irrespective of their beliefs, positive or negative, regarding the effectiveness of its use for long-term instruction of an ELL.

Here, it is important to reemphasize the significance of this study. The purpose of this study was to investigate how a group of pre-service teachers, using a virtual classroom, could experience pedagogic transformation and become instructionally self-regulated while collaborating with classmates during interactions with an ELL. This study was significant in that the use of virtual environments for teacher training and long-term professional development comprises an underrepresented area of research in teacher education. Further, this study had the potential of enabling this group of pre-service teachers to transcend “what is expected” to “what is transformative” in terms of their professional development (Shulman & Hutchins, 2004).

The results of this study demonstrated the positive potential of using a virtual environment, such as Second Life (Linden Labs, 2004), for professional development. There was evidence that some transformation was occurring among the students, especially after Session 1 in Second Life. Although still under the institutional constraints related to fulfilling graduation and ESOL endorsement requirements, the students were able to modify their lessons such that the interactions could take place with Mrs. Darbyshire (this is especially the case during Sessions 2 and 3).

Introducing Skype (Skype Limited, 2009) was an instructional instinct by both me and Dr. Marquis. Based on our own pedagogic experiences, if a lesson is failing to



progress, the instructional strategy must change to meet the students' needs. In this case, the students' frustration levels during Session 1 in Second Life (Linden Labs, 2004) were escalating to the point that we decided to introduce a technology they used regularly to deescalate the frustration and redirect the interactions. However, had we continued on in Second Life, there was the possibility, based on Abby's reaction at the end of Session 1, that deeper transformation could have occurred among all of the students.

Revealing the potential for more authentic transformation suggests the need for this study to be repeated and future studies to be conducted in the area of teacher training using virtual environments. As suggested in the literature review, most training is seen as something that is *done* to the teacher so that s/he becomes *tamed* according to institutional standards (Lingard, 2003). The idea of how teachers receive their training has not changed very much since the industrial, business models of the 1950s and 1960s (Albion & Maddux, 2007). Under the current system of training, there is no opportunity for transformation to occur because there is no opportunity for collaboration, reflection, or practice beyond the training session. In the virtual setting, the training does not have to end once the session is over. Rather, teachers can continue to collaborate after the training is over which also frees them from institutional scrutiny during their interactions. This is particularly noted at the end of Session 1 when Abby abandoned her lesson in order to establish a rapport with Mrs. Darbyshire to affect a more successful interaction. Without institutional scrutiny, then, the teacher in the virtual environment might have a better opportunity to experience authentic transformation.

Even though the 21st-century educator is expected to implement the latest teaching techniques for her/his subject area, they still maintain an institutionally pre-

determined set of skills, which according to Chan and Pang (2006), is not enough. This pre-determined set of skills also applies to the types of technology (e.g. word processing, e-mail, Internet) that teachers are expected to master as part of their daily instructional and fiduciary duties. Here, it is important to note the dichotomy that exists between what is institutionally expected and what is institutionally anticipated. The institution expects that teachers will have a certain set of skills with most trainings being designed to maintain those skills. Conversely, the institution anticipates that the teacher will, independent of the institutional context, acquire the skills to use modern technologies such as iPhones, social networking sites, and virtual programs (thus the institutional paradox as suggested in Horizon Report, 2010).

This anticipation comes from the current skills of the 21st-century student. Many of the accessories and programs that students currently use are restricted in most school districts making it difficult for teachers to practice or to incorporate the technologies in their instruction. Therefore, for the teacher to practice these new technologies, they must be outside of the institutional context. Independent of the institution, then, the teacher can use programs such as Second Life (Linden Labs, 2004) or Skype (Skype Limited, 2009) to collaborate with colleagues where a technical transformation could potentially take place. Should this transformation occur, the teacher then might engage students outside of the institutional context for such elements as additional practice or tutoring.

In terms of transformation and self-regulation, this study is important in that it demonstrates the potential of using virtual professional development. As teaching evaluation and professional standards evolve across the United States, it is imperative that teacher education programs and school districts explore non-traditional methods that

encourage collaboration and reflection. It is conceded that the traditional model is not conducive to promoting these ideals. As evidenced by the results of the study here, using a virtual environment has the potential of providing an environment in which teachers feel free to explore collegially their existing and potential knowledges.

#### *How Institutional Constraints Affected the Interactions*

The pre-service teacher participants in this study were part of a cohort of elementary education majors seeing an ESOL endorsement. In the state where this study was conducted, ESOL endorsements are required by the state licensing board for all elementary education and language arts teachers. The endorsement requirement may be obtained one of two ways: (a) for the pre-service teacher, it is included as part of the coursework required for graduation or (b) for the in-service teacher coming from another state or profession, school districts offer comprehensive training programs to meet the endorsement requirements. At the end of the coursework or training, participants are expected to produce a comprehensive portfolio in which they demonstrate proficiency in the different ESOL competencies. These competencies are typically demonstrated by the creation of ESOL modified lessons, ancillaries, and field experience with ELLs.

Accordingly, one institutional constraint over the interactions in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009) were structuring the collaborations such that the pre-service teachers could demonstrate their technical aptitudes as part of the technical piece of their ESOL portfolios. In tandem with using the technologies, the students had to provide evidence that they had created and modified appropriate lesson plans for the ELL and the lessons were implemented. These constraints created issues in terms of how the students would provide evidence of the

interactions in the portfolios. To meet this institutional need, students included the reflective statements, debriefing questions, and lesson plans as part of their portfolios.

Another institutional constraint that affected the interactions was meeting the university's evaluative requirements for the course and for graduation. In other words, Dr. Marquis, via some metric, had to demonstrate that the students were assessed for their participation in the activities so that they could complete their portfolios to meet graduation requirements. This posed a challenge for Dr. Marquis as he had to develop some metric through which he could accurately evaluate the virtual interactions (a challenge as noted by Horizon Report, 2010). Further, in creating the metric, Dr. Marquis had to ensure that the assessment tool assessed the individual contributions that the students made to the lesson planning, interactions, and debriefings. Because the students had used a wiki in the ESOL I course with Dr. Marquis to create and dialogue regarding their lesson plans, he determined that the metric he created for evaluating those interactions would be appropriate for the activities in the ESOL II course.

Technology posed a constraint as well. The university where this study was conducted is a small, private university over 100 years old. At the conduct of this study, many of the buildings and campus facilities were being retrofitted to meet the increasing technology needs of the faculty and students. Thus, the issue with the wireless connection encountered in Week 3 of the course was representative of that retrofitting process. At the time this study was conducted, the bandwidth simply could not support the multiple log-ons to support the resources needed to run a program like Second Life (Linden Labs, 2004). This, of course, supports the assertion made by Horizon Report

(2010) that as technology advances, institutions are continually challenged to meet those demands.

### My Reflections as Participant-Researcher in This Study

The qualitative researcher is in a unique position to act not only as the principal investigator in a study but also to act as a participant. As I have extensive experience in K-12 education in public schools in the United States as well as in-service training experience, I determined prior to data collection that my role in this study would be best served by assuming the dual role of participant-researcher. As a practicing teacher, I did not want my study to be so removed from my actual teaching context as to render its results meaningless in my own professional life. Assuming this dual role provided me with the opportunity to participate and then reflect on the different sessions. Reflexivity, as Merriam (2009) called it, is essential in helping the reader understand how the researcher arrived at a particular conclusion. In reflection, the researcher is able to articulate how certain decisions were made, what biases might have affected conclusions, and what assumptions were made relative to the findings (Maxwell, 2005). Accordingly, the researcher is transformed into the instrument through which the data is eventually analyzed and reported (Lincoln & Guba, 2000).

Hence, it is important to understand my assumptions and biases such that I can effectively articulate what I learned from this study. Of course, these assumptions and biases that I present below certainly do not offer an exhaustive list. However, they do represent what I considered, upon reflection, to be the most salient in terms of interpreting and reporting my results. In terms of technical skills, I consider myself to be atypical in comparison to my colleagues. As part of my instructional strategy (to

establish and to maintain a rapport with my students), I actively seek out and learn the latest technologies. Had I been born in the 1980s or 1990s, Prensky (2004) would consider me a “digital native.” Also, I had experience, in the previous semester at the same university where the study was conducted, teaching a population of students similar to the ones in this study. I had success with these students using wikis and social networking programs, and they did successfully experiment with Second Life (Linden Labs, 2004). However, these experiential assumptions did not translate to the population of students here. Aside from the technical issues encountered in Week 3, the students did not adapt to using the avatar (unlike the ESOL students in the previous term). In most cases, they rejected the program, preferring instead to work on their lesson plans or watch other classmates use the program.

My assumption was, based on my own technical abilities, that the students should have no problem creating and using the avatar. Once I discovered their level of technical skills, I should have offered additional training before the interactions began. However, I felt constrained by the time allotted on the course syllabus to complete the assignments as well as the institutional constraints to complete the graduation and ESOL endorsement requirements. Should I decide to replicate this study, I would re-conceptualize the course such that training either took place the semester before or occurred during the semester well in advance of the actual interactions. Because I had success with Second Life (Linden Labs, 2004) with my ESOL I course in the fall semester, I assumed that I would have success with this ESOL II course as well. The populations of both the ESOL I and ESOL II course were similar and the technologies being used were the same. However, these assumptions did not transfer to the ESOL II course.

If I were to use a virtual program for teacher training, I would definitely offer extensive training prior to using it for collaboration. As I learned from this study, technical skills in one area do not necessarily translate to technical skills in another area. Also, the objective is for the technology to be the mediational device; not a device that so dominates the collaborations as to overshadow the transformational potential that the program might offer.

In reflecting on my experiences as a pre-service teacher, I can remember having subjective feelings and questioning the constraints that the institution was placing over my professional knowledge. As a practicing teacher, I still have the same feelings although they are tempered by the need to follow state-mandated curricula and certification guidelines. Therefore, my assumption with this group of pre-service teachers was that there would be similar subjective feelings. I especially thought this would be the case at the undergraduate level, given the fact that they had not been fully acculturated to the external institutional constraints of the public school system. What I did not take into consideration was the cohort mentality already adopted by the students, which was derived from an institutionally created collective pedagogic belief system.

There was evidence that subjective transformation was occurring among the participants, but these transformations were quickly overshadowed by the constraints of completing the course and ESOL certification requirements. More authentic transformation might have occurred had the interactions taken place in an off-campus location. Further, had the interactions not been directly tied to a course assignment, the students might have felt freer to engage in more open collaborations. Having had experience as an in-service trainer, I recognize how institutional constraints can inhibit a

teacher's authentic responses during training. For Second Life (Linden Labs, 2004) or any similar program to be successful, the teacher must feel that they are not limited and are free to collaborate openly with their colleagues.

Even though my purpose in this study was to lift institutional constraints such that the students were able to experience an authentic pedagogic transformation, I became an object of those constraints. At the end of Session 1, when it became clear that the students were experiencing frustration with Second Life (Linden Labs, 2004), Dr. Marquis and I decided to introduce Skype (Skype Limited, 2009) so that the students could experience successful interactions using a familiar technology. From an instructional standpoint, this was logical in the sense that an effective instructor knows when to alter the lesson if the original plan is not working. However, upon later reflection, I had really become an object of the institutional requirements to complete the course, graduation, and ESOL certification requirements. If I attempted the same type of training in a future ESOL course, I would need to remove the students entirely from the institutional setting so that neither they nor I would be subjugated to institutional constraints.

#### Future Areas of Research

The findings of this study were primarily meant to inform teacher training and professional development. Secondarily, the results implicated the use of virtual environments for conducting such training. The lack of authentic pedagogic transformation for these pre-service teachers leaves significant areas available for continued research in the area of virtual environments and teacher training. As Young (1998) pointed out, much of the training that teachers receive has not maximized the



concept of the learning community. If this is considered in the context of Second Life (Linden Labs, 2004), the program is organized around theme-related communities, thereby creating the potential for teacher education programs and school administrators to construct trainings around such communities. The results of this study, then, implicate the need for future research in the use of virtual environments for pre- and in-service teacher training.

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## APPENDICES

The following are appendices referenced in the above study. Appendix A explains the proficiency levels for English Language Learners. Appendix B were the technology survey questions used in Week 2 of the course. Appendices C through F were the debriefing questions used after the sessions in Second Life (Linden Labs, 2004) and Skype (Skype Limited, 2009). Appendix G were the questions used during the Week 6 final debriefing.



## Appendix A:

### English Language Proficiency Levels

- Level 1—Beginning/Preproduction [WIDA level = Entering]:**  
A pupil shall be classified level 1 if the pupil does not understand or speak English with the exception of a few isolated words or expressions.
- Level 2—Beginning/Production [WIDA level = Beginning]:**  
A pupil shall be classified level 2 if all of the following criteria are met:  
(a) The pupil understands and speaks conversational and academic English with hesitancy and difficulty.  
(b) The pupil understands parts of lessons and simple directions.  
(c) The pupil is at a pre-emergent or emergent level of reading and writing in English, significantly below grade level.
- Level 3—Intermediate [WIDA level = Developing]:**  
A pupil shall be classified level 3 if all of the following criteria are met:  
(a) The pupil understands and speaks conversational and academic English with decreasing hesitancy and difficulty.  
(b) The pupil is post-emergent, developing reading comprehension and writing skills in English.  
(c) The pupil's English literacy skills allow the student to demonstrate academic knowledge in content areas with assistance.
- Level 4—Advanced Intermediate [WIDA level = Expanding]:**  
A pupil shall be classified level 4 if all of the following criteria are met:  
(a) The pupil understands and speaks conversational English without apparent difficulty, but understands and speaks academic English with some hesitancy.  
(b) The pupil continues to acquire reading and writing skills in content areas needed to achieve grade level expectations with assistance.
- Level 5—Advanced [WIDA level = Bridging]:**  
A pupil shall be classified level 5 if all of the following criteria are met:  
(a) The pupil understands and speaks conversational and academic English well.  
(b) The pupil is near proficient in reading, writing, and content area skills needed to meet grade level expectations.  
(c) The pupil requires occasional support.
- Level 6—Formerly Limited-English Proficient/Now Fully-English Proficient:**  
A pupil shall be classified level 6 if all of the following criteria are met:  
(a) The pupil was formerly limited-English proficient and is now fully English proficient.  
(b) The pupil reads, writes, speaks and comprehends English within academic classroom settings.
- Level 7—Fully-English Proficient/Never Limited-English Proficient:**  
The student was never classified as limited-English proficient and does not fit the definition of a limited-English proficient student outlined in either state of federal law.
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Appendix B:

Week 2 Technology Survey Questions



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WEEK 2 TECHNOLOGY SURVEY

INSTRUCTIONS: *Please respond to the following questions regarding your use of technology.*

1. Do you have a Facebook/Myspace or do you participate in other social networking sites? If you answer “yes”, how frequently do you use these sites? What is your level of participation?
2. What technologies do you use most frequently (i.e. cell phone, computer, e-mail, word processing)? Of the technologies you mention, what do you mostly use them for?
3. Have you taken classes on using technology in education? If so, what technologies were mostly mentioned/used in the class?
4. During your teaching practicum, what technologies have been available to you in your cooperating school? Have you used these technologies? Why or why not?

5. Does the administration or faculty at your school support the use of technology in the classroom? Do they make training available to the faculty? If so, what type of training have you attended or heard about/observed?

Appendix C:

Week 4 Guiding Questions for Second Life Session 1



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WEEK 4 DEBRIEFING QUESTIONS

SECOND LIFE (Linden Labs, 2004) AVATAR ELL TUTORING SESSION 1

1. Based on your discussions in Week 1 of the course, how can hegemonic lessons affect an ELL?
2. In the social studies lesson presented in Chapter 5, how did the teacher address the cultural and language needs of the ELL?
3. How did the teacher's lesson plan affect the ELL?
4. If you were planning this lesson, what would you have done differently?
5. When you developed your social studies lessons for the tutoring sessions, what modifications did you make to ensure that the lessons are not hegemonic?
6. Given your knowledge of English Language Proficiency Levels and vocabulary strategies, how did you modify your lesson to meet the needs of the ELL presented in the case study who has Level 2 proficiency?

7. How do you plan on tutoring the ELL student in Second Life? What strategies have you put in place?
8. What do you anticipate will happen during your interactions?
9. If the avatar ELL does not respond the way you think he/she should, to your lesson, how will you make adjustments?
10. What additional resources will you use if your strategies do not work? How will you adapt to the student's needs during the interactions?

Appendix D:

Week 4 Debriefing Questions for Skype Session 2



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WEEK 4 DEBRIEFING QUESTIONS

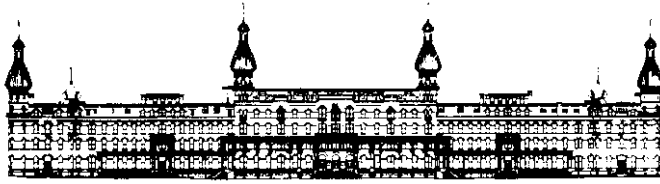
SKYPE (Skype Technologies, 2009) ELL TUTORING SESSION 2

1. Based on your discussions in Week 1 of the course, how can hegemonic lessons affect an ELL?
2. In the social studies lesson presented in Chapter 5, how did the teacher address the cultural and language needs of the ELL?
3. How did the teacher's lesson plan affect the ELL?
4. If you were planning this lesson, what would you have done differently?
5. When you developed your social studies lessons for the tutoring sessions, what modifications did you make to ensure that the lessons are not hegemonic?

6. Given your knowledge of English Language Proficiency Levels and vocabulary strategies, how did you modify your lesson to meet the needs of the ELL presented in the case study who has Level 2 proficiency?
7. How do you plan on tutoring the ELL student in Second Life? What strategies have you put in place?
8. What do you anticipate will happen during your interactions?
9. If the avatar ELL does not respond the way you think he/she should, to your lesson, how will you make adjustments?
10. What additional resources will you use if your strategies do not work? How will you adapt to the student's needs during the interactions?

Appendix E:

Week 5 Debriefing Questions for Second Life Session 3



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WEEK 5 DEBRIEFING QUESTIONS

SECOND LIFE (Linden Labs, 2004) AVATAR ELL TUTORING SESSIONS

SESSION 3

INSTRUCTIONS: As you observe the tutoring session in Second Life, please write your thoughts about the following questions.

1. Describe the avatar that your classmate selected for the tutoring session.
2. Do you think the avatar is more reflective of your classmate's personality or more reflective of what the ideal tutor/teacher should look like?
3. Describe the ELL avatar. Is the avatar what you expected?
4. How did the avatar tutor and avatar ELL greet each other? Did they use any of the gesture features?
5. How did the tutor begin the session? What was her approach?



6. Describe the content of the lesson. What vocabulary is the tutor trying to reinforce?
7. How is the avatar ELL responding to the tutoring?
8. Is the tutor modifying her strategies to accommodate the needs of the ELL? If so, what specific strategies is she using?
9. Are the modifications working? Is the ELL responding to the modifications?
10. How did the second tutor modify her strategies based on what happened in the first tutoring session? Did her modifications work?

Appendix F:

Week 5 Debriefing Questions for Skype Session 4



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WEEK 5 DEBRIEFING QUESTIONS

SKYPE (Skype Technologies, 2009) ELL TUTORING SESSION

SESSION 4

INSTRUCTIONS: As you observe the tutoring session in Second Life, please write your thoughts about the following questions.

1. Describe the avatar that your classmate selected for the tutoring session.
2. Do you think the avatar is more reflective of your classmate's personality or more reflective of what the ideal tutor/teacher should look like?
3. Describe the ELL avatar. Is the avatar what you expected?
4. How did the avatar tutor and avatar ELL greet each other? Did they use any of the gesture features?
5. How did the tutor begin the session? What was her approach?

6. Describe the content of the lesson. What vocabulary is the tutor trying to reinforce?
7. How is the avatar ELL responding to the tutoring?
8. Is the tutor modifying her strategies to accommodate the needs of the ELL? If so, what specific strategies is she using?
9. Are the modifications working? Is the ELL responding to the modifications?
10. How did the second tutor modify her strategies based on what happened in the first tutoring session? Did her modifications work?

Appendix G:

Week 6 Final Debriefing Questions



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WEEK 6 FINAL DEBRIEFING QUESTIONS

SECOND LIFE (Linden Labs, 2004) AVATAR AND SKYPE (Skype Limited, 2009)

ELL TUTORING SESSION

INSTRUCTIONS: *After observing the tutoring sessions in Second Life, please write your thoughts about the following questions.*

1. Discuss the modifications that each tutor made.
2. Describe how the avatar ELL responded to the modifications.
3. How did each participant use the gestures with their avatars?
4. Discuss the selection of avatars. If you were setting up a tutoring session in Second Life, what types of avatars would you choose and why?
5. What is your opinion of the Lost Island classroom? Would you have chosen another location for tutoring?

6. Discuss the amount of time used for each tutoring session. Do you think that the sessions would be more or less effective based on the amount of time spent with the avatar ELL?
7. What were the advantages of using Second Life for the tutoring sessions with the avatar ELL?
8. What were the disadvantages of using Second Life for the tutoring sessions with the avatar ELL?
9. Would you use Second Life to tutor an ELL outside of your classroom? Why or why not?
10. If you were offered professional training in a Second Life classroom, would you participate? Why or why not?

## ABOUT THE AUTHOR

A graduate of the University of Tennessee in Knoxville, Rebecca Blankenship holds two Master's degrees in Political Science and Secondary Education. Since receiving her Master's in education in 1998, she has taught both Spanish and Italian as second languages in public high schools in the states of Florida and Tennessee. In Florida, she has served as a Department Chair of World Languages at high schools in both Hillsborough and Polk Counties. Active in state and national language conferences, Rebecca's primary research interest is in teacher training and professional development. Upon confirmation of her Ph.D., she plans to pursue a career in academia and continue her active research interests in modern technologies and teacher development. Rebecca and her husband reside in Plant City, Florida.