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USING A MIXED-REALITY CLASSROOM ENVIRONMENT INCLUDING ENGLISH
LEARNERS: THE PERCEPTIONS OF TEACHER CANDIDATES

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the College of Education and Human Performance
at the University of Central Florida
Orlando, Florida

Summer Term
2016

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ABSTRACT

Technological modernization has impacted various fields such as the field of education, teaching, and learning. The traditional classroom and teaching methodologies no longer meet the needs of the new tech-savvy generation. Thus, recently there have been changes in teacher preparation programs in order to prepare teacher candidates to have the skills to respond to such high technological demands.

Additionally, the demographics of students attending schools in countries with exceptionally high numbers of immigrants such as the United States is another reason to seek novel ways to prepare teachers who have had adequate practice and developed teaching skills needed to reach the English learners (ELs) in their classrooms. Using Multi-User Virtual Environments (MUVES) has been one solution in order to bridge this gap. EL TLE TeachLivE™, which was the focus of this study, is a computer simulated environment that combines real-life participants and digital personas or avatars. The participants of this study were teacher candidates who experienced using EL TLE TeachLivE™ to practice the teaching strategies and skills they had been learning about during their teacher preparation program (n=20). This research investigated the perceptions of these teacher candidates about using this mixed-reality classroom environment through observations, questionnaires, focus groups, and individual interviews.

A qualitative transcendental phenomenological approach was taken to have a more in-depth understanding of the participants' perceptions about the phenomenon of EL TLE TeachLivE™ as a mixed-reality classroom environment in teacher preparation and the meaning

they made of their experiences. Through the data analysis three main categories emerged: TCs' general perceptions about the avatars and EL TLE TeachLivE™ as a mixed-reality classroom environment, TCs' perceptions of the current use of the EL TLE TeachLivE™ in their teacher preparation program, and TCs' perceptions about the future use of EL TLE TeachLivE™.

The *Teacher Candidates' General Perceptions of EL TLE TeachLivE™* consisted of the following sub-themes: (a) Video game dissimilarities, (b) Avatar believability and real-life features, (c) Personification of the EL cases, (d) Fear of the unknown, (e) Avatar movement restrictions, and (f) Suspension of disbelief.

The *Teacher Candidates' Perceptions about the Current Use of EL TLE TeachLivE™* included: (a) Importance of prerequisites, (b) Advantages over role-playing, (c) Teaching in front of peers, (d) Group teaching and random selection, (e) Importance of feedback, and (f) Teaching strategies and aha moments.

Finally, the *Teacher Candidates' Perceptions about the Future Use of EL TLE TeachLivE™* incorporated: (a) Changes in the implementation, (b) Elementary vs secondary classrooms, and (c) Gradual practice.

For My Parents and Siblings
For their unconditional love and support

ACKNOWLEDGMENTS

The road to get to this point in my life has been a rocky one full of ups and downs. Had it not been for those who helped me and did not leave me on the side of the road I would not have made it to where I am today. Hence, I would like to extend my gratitude to those who made this accomplishment a possibility.

First and foremost, I would like to express my appreciation to my chair, Dr. Nutta, for always believing in me from the first day that I started the doctoral program, which feels like a lifetime ago. I sincerely believe that your dedication, perseverance, patience, passion, knowledge, and wisdom kept us and the program going. You have taught me to work hard, carefully analyze each situation/obstacle, and pick my battles when necessary. I will always remember our heart-to-heart conversations and use your valuable pieces of advice both in my career and personal life. Thank you so much for your encouragement, guidance, and support throughout this process.

Dr. Hutchinson, words cannot describe how your presence has been such a source of inspiration, relief, and hope for me during the past couple of years. I learned honesty, fairness, and pure good intentions from you. You always held a light at the end of the tunnel for us to find our way when we thought we were lost. How you care about your students and profession will forever be a spring of motivation for me even though I find it hard to ever achieve such high standards that you have set.

Dr. Mihai, you taught me that simplicity while maintaining intellectuality and clarity is a dying art especially in the academia that needs to be rejuvenated. I learned clear, thoughtful

organization and straightforward instruction from you that will forever be with me and remind me of you throughout my career. I truly appreciate all the mastery and experience that you so effortlessly shared with us during this program.

Dr. Jahani, I do not think that I can ever thank you enough for being there for me during some of the darkest times of my life, listening to me, rooting for me, and never giving up on me. You have the ability to see through people and are one of the most genuine and good-hearted people I have ever met in my life. Your wisdom and knowledge are like a vast ocean that you so generously and kindly share with everyone without expecting anything in return. I am so proud to call you my compatriot and friend.

My sincerest and deepest gratitude goes to my family. To my mother who is with no doubt the most amazing, gracious, selfless, beautiful person inside and out that I have ever seen and will ever see in my life. Thank you for teaching me to never ever give up even when my whole world seemed to have crumbled down. You show me how to always strive for what makes me happy and grants me more freedom in life regardless of what others think. You are the main reason why I am still fighting to let go of the sadness of the past and look forward to a better future when you can see me smile with my heart and achieve fulfillment. To my father who always wanted me to learn and grow without any boundaries or limitations. You had a thirst for knowledge that I have never witnessed in anybody else and I will forever think of you in every decision I make throughout my life to make sure that I can make you proud, even though you are not physically present to see. Thank you for ingraining excellent work ethics and life-long learning (plus a good sense of humor) in me; these are the tools that I need to become a better

human-being. To my siblings: Mahnoosh, Farnoosh, Golnoosh, Behnoosh, and Kianoosh who just like the "noosh" in their names will forever be a part of me; thank you for forcefully teaching me to never take myself too seriously because of what comes after the first part of my name! (Wink) Mahnoosh your sensibility, Farnoosh your liveliness, Golnoosh your outspokenness, Behnoosh your integrity, Kianoosh your loyalty are only one of your many wonderful, unique characteristics and virtues that I continue to learn from and cherish every day of my life. Thank you for choosing me to be your little sister, I could not have asked for a better family unit.

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LIST OF ACRONYMS

- BICS- Basic Interpersonal Communicative Skills
- CALP -Cognitive Academic Language Proficiency
- CLT- Communicative Language Teaching
- DTL- Direct-Teach Lesson
- EL- English Learner
- EFL-English as a Foreign Language
- ELT – English Language Teaching
- ELT- Experiential Learning Theory
- ESL- English as a Second Language
- ESOL- English for Speakers of Other Languages
- ESSA- Every Student Succeeds Act
- IEP- Intensive English Program
- IRB- Institutional Review Board
- JA- Junior Achievement

- L1- First language
- L2- Second or additional language
- MKO- The More Knowledgeable Other
- MUVE- Multi-User Virtual Environment
- NCES- National Center for Education Statistics
- NCLB- No Child Left Behind
- NNS – Non-Native Speaking
- NS – Native Speaking
- PP- PowerPoint
- RQ- Research Question
- SIOP -Sheltered Instruction Observation Protocol
- SL- Service Learning
- TESOL - Teaching English to Speakers of Other Languages
- TC- Teacher Candidate
- TP-Teacher Preparation
- UCF- University of Central Florida

- VR- Virtual Reality
- WI- Workshop Instructor
- ZPD- Zone of Proximal Development

CHAPTER ONE: INTRODUCTION

Background

Constant development of technology has had various effects on our lives during the past decades. From using technology to accomplish scientific research to using personalized devices for daily purposes, we utilize a variety of technological resources in order to get through our day-to-day tasks more efficiently and promptly. The Kaiser Family Foundation (2004) conducted a large scale study which indicated that within the 700 participants from the ages of 8 to 18, 24% live in homes with five or more TVs, 53% live in homes with three or more VCRs/DVD players, and 56% own two or more video game players. Additionally, the Kaiser Family Foundation (2010) reported that young people have been spending more time in media over the past five years, and the proportion of 8 to 18 year olds who own iPods/MP3 players has increased considerably from 18% to 76%. Therefore, there is no denying the fact that regardless of the advantages and disadvantages, technology is an integrated part of our lives nowadays that plays a significant role in how we spend our time.

In addition to daily activities, technological modernization has also impacted the field of education, teaching and learning. According to Allen and Seaman (2013) approximately 6.7 million college students enroll in a minimum of one online course in the United States. The educational technology industry is constantly growing and covers a variety of areas such as electronic books, teaching/learning games, and mixed-reality classrooms (Booker, 2013; Miron, Urschel, 2012). The notion of the traditional classroom setting which consists of a physical classroom with regular teaching and learning methods is no longer as common and effective as

before (Dieker, Grillo, & Ramlakhan, 2012; Jaggars, Edgecombe, Stacey, 2013). Consequently, teacher educators and researchers have been searching to find a new method to close the gap between the new learning style of students and traditional teaching environments (Dieker, Grillo, & Ramlakhan, 2012).

The shift in the context of education of the new tech-savvy generation not only affects students' learning but it also influences teachers' teaching. Teacher preparation programs need to prepare teacher candidates who have the skills to respond to such high technological demands (Alvarez & Anderson-Ketchmark, 2011; Kane, & Cantrell, 2010). One of the results of these efforts to make a connection between the demands of the new generations of students and preparing effective teachers is the introduction of Multi-User Virtual Environments in the field of education.

Multi-User Virtual Environments

Multi-User Virtual Environments (MUVES) have been used for trainings in military, flight, and space simulations as well as in medical fields (Calandra & Puvirajah, 2014). MUVES are generally defined as two or three dimensional computer simulated environments in which the interaction of a combination of real-life participants and online personas or avatars can be made possible (Dede, Nelson, Ketelhut, Clarke & Bowman, 2004). Recently MUVES have entered the field of teacher education and training teacher candidates (TCs) in different areas of education.

One of the main challenges in teacher preparation in the 21st century or the era of technology is finding more effective and practical ways to train new teachers (U.S. Department of Education, 2009a). Many teacher preparation programs are limited in terms of the practices

they provide for teacher candidates and also lack exposure to different kinds of scenarios that teachers may face in real classrooms (Clarke, Dede, & Dieterle, 2008; Dieker, Hynes, Hughes, & Smith, 2008). Internships, practicums, and field experiences have been developed in order to bridge the gap that exists in the teacher preparation programs, however they do not adequately serve the purpose and teacher candidates are mostly not prepared to reach the needs of the students with their limited knowledge and teaching skills (Andreasen, & Haciomeroglu, 2009; Dieker et al., 2008).

Expanding the use of technology into other aspects of education such as teacher education is a recent endeavor in order to supplement the previous more traditional methods of teacher preparation (Hixon & So, 2009; Hughes, Stapleton, Hughes, & Smith, 2005; Zibit & Gibson, 2005). Mixed-reality classroom environments are a type of MUVES that could be used to train teacher candidates who will be responsible for the teaching of the students in today's schools. One of the mixed-reality classroom environments used in the field of education is called TLE TeachLivE™, which will be the focus of this study.

TLE TeachLivE™

Established and developed at the University of Central Florida (UCF) located in Orlando, Florida, TLE TeachLivE™ is a fully immersive simulator using a mixed-reality and avatar-based simulation environment to train teacher candidates, as well as to improve in-service teachers' performance and efficiency (Dieker et al., 2012). TLE TeachLivE™ is also the only mixed-reality teaching environment that is currently being used to prepare or retrain pre-service and in-service teachers in the United States. Furthermore, this mixed-reality technology can be used in

multiple disciplines for varied purposes. For instance, it has been used for students with disabilities, providing immediate feedback to teacher candidates, preparing teachers in the use of multiple disciplines including STEM-related pedagogies, and examining the effects of teacher practices in mixed-reality classrooms (Dieker, Straub, Hughes, Hynes, & Hardin, 2014).

“No students were harmed in the making of this teacher” is the motto to explain what the TLE TeachLive™ Laboratory stands for. This special lab offers TCs the opportunity to learn teaching skills and strategies, and to repeatedly conduct their teaching practices without placing real students at risk while “incorporating the critical components of personalized learning, suspension of disbelief and a cyclical process” (Dieker et al. 2014, p. 25).

Statement of the Problem

Using MUVES or mixed-reality environments in teacher preparation is a new phenomenon that emerged in 2007 (Dieker, Rodriguez, Lignugaris, Hynes, & Hughes, 2014). Researchers such as computer scientists, special educators, leadership educators, and digital artists have studied this phenomenon from different perspectives. One application of using a virtual classroom with teachable avatars is within the field of teaching English learners (ELs). According to the National Center for Education Statistics (2013) the population of ELs is constantly growing and currently non-native speakers of English make up approximately 10% of classrooms in the US. It is also predicted that by the year 2030, approximately half of students in public schools in the US will be ELs (National Center for Education statistics, 2011).

Even though ELs make up a large portion of student demographics in the US, most teachers have not had adequate training to teach them. As reported by Culp and Schmidlein

(2012) about 85% of novice teachers who join public schools have not had more than seven hours of training in regards to teaching ELs in their classrooms. A significant percentage of novice teachers report that they are not prepared to teach ELs in their classrooms (Nyberg, 2008). Moreover, teacher preparation programs (TPs) do not put enough emphasis on training teachers to reach the needs of ELs (Lucas, Villegas & Freedson-Gonzalez, 2008). “Although teachers cannot be assigned either all the credit or all the blame for student achievement, they play a central role in students’ education” (Gándara et al., 2005, p. 3). Therefore, the evidence depicts the importance of the increasing need to train teacher candidates and equip them with the knowledge and essential teaching skills to teach students from different language proficiency levels and cultural backgrounds.

Additionally, the critical teacher shortage in the United States has been an issue that has been discussed by researchers and policy makers during the last two decades (Ingersoll & Smith, 2003; Flint, & Morton, 2009; Gonzalez, Brown, & Slate, 2008). Multiple reasons for the urgent need for hiring new teachers include the increasing student enrollment, high percentages of retiring teachers, and the high level of attrition in the teaching profession (National Center for Education Statistics: NCES, 2003). According to Darling-Hammond (1998) novice teachers are more prone to leaving the teaching profession by making up 30% of the attrition rate within the first three to five years of their teaching careers. One of the main reasons for this low retention rate could be the lack of preparation and sufficient training prior to beginning teaching in actual classrooms. Providing teacher candidates with proper training and preparation may lead to teachers feeling more equipped and confident, which might result in choosing to stay in the profession longer (Whitworth, 2000; Dieker, Hynes, Stapleton, & Hughes, 2007).

In addition to the lack of preparation, pre-service and novice teachers have limited experiences in directly working with diverse student populations (Gay & Kirkland, 2003; Sleeter, 2001; Sleeter, 2003). The number of non-native English speaking students has been constantly increasing recently resulting in a high demand for hiring teachers who can reach all the students, especially English learners. Studies that have been done in the past examining teacher candidates' beliefs about multicultural classes have shown that a majority of TCs hold negative beliefs about diversity and do not believe that students from diverse backgrounds can be as successful as their native-speaking peers (Scott, 1995; Gay & Kirkland, 2003). The lack of experience as well as misconceptions about diverse classrooms and students from different races and backgrounds need to be addressed in teacher preparation programs before teachers officially enter their profession.

One of the tools that can be utilized to prepare teachers and decrease the attrition rate in the teaching profession in the United States is the use of MUVES. Teacher candidates and practicing teachers can use mixed-reality classroom environments to work on their teaching strategies and techniques to include ELs in their classrooms and maximize their learning outcomes throughout the class. In this regard, it is essential for educators to know how to incorporate these mixed-reality learning environments in teacher preparation programs. Knowing what will benefit teacher candidates or in-service teachers and how they experience this phenomenon is another factor that needs to be fully examined to make sure that these mixed-reality environments are used properly. This qualitative research explores the perceptions of teacher candidates taking a general teaching methodology and classroom management course at a large university in the United States during the fall semester of 2015 in which they had a

chance to be immersed in a mixed-reality classroom environment including ELs as part of their teacher preparation program.

Research Question

The following research question was explored in order to develop an in-depth understanding of the TCs' individual perceptions about the use of a mixed-reality classroom environment in their teacher preparation program:

RQ: What are the teacher candidates' perceptions of using EL TLE TeachLivE™ in their teacher preparation program to prepare them to work with English learners in their future careers?

Phenomenology: The Experiences and Perceptions

This study uses a qualitative transcendental phenomenological approach. From a phenomenological view, the essence of the participants' experience becomes the core of the research in order to find a universal meaning (Moustakas, 1994). According to Creswell (2007) by looking at a phenomenon we accept reality as subjective and by the use of discussions, observations, interviews, and other qualitative research tools we try to make sense of the participants' interaction with the phenomenon and the meaning they make of their experiences. Thus, the participants in a phenomenological study become much more than a number; they represent individuals who provide a critical perspective of the phenomena under study. For the purpose of this study, I as the researcher sought to study a mixed-reality classroom environment

(EL TLE TeachLivE™) in order to explore the participants' experiences and perceptions about the use of this technology in teacher preparation programs.

According to Husserl (1962) perceptions of lived experiences generate the basic foundation of the phenomenon. Thus, perceptions and experiences can be considered as two entities that are intertwined. Thus, in the current research the perceptions of the participants about the use of mixed-reality classroom environments are closely linked to the experiences they had with EL TLE TeachLivE™. In order to operationalize the key term in the research question for the purpose of this study *perception* is defined as the way one views, comprehends, or refers to a phenomenon (Creswell, 2007; Moustakas, 1994; Patton, 2002). The phenomenon in the case of this research is the use of EL TLE TeachLivE™ as a mixed-reality classroom environment for training teacher candidates to develop skills for teaching and reaching the needs of English learners in their classrooms. Thus, the research question sought to investigate the perceptions of those teacher candidates who participated in this study in order to have a more clear and in-depth understanding of how they see and understand this phenomenon and what they think about the use of such technology during their teacher preparation program. These perceptions are not solely based on an abstract view of the phenomenon. In fact, it is by the participants' direct experience with the EL TLE TeachLivE™ that they make sense of the phenomenon and therefore are able to discuss their experiences, thoughts, and perceptions about it.

Importance of the Study

Using MUVES or mixed-reality classroom environments such as TLE TeachLivE™ can potentially narrow the gap that exists between the new tech-savvy generation of students and their teachers (Dieker et al., 2008; Hughes et al., 2005). Moreover, virtual learning/teaching environments can benefit teacher preparation programs in order to train teacher candidates by having multiple opportunities to practice the teaching skills and techniques they learn in their classrooms in a virtual environment. Using student avatars instead of real students can also prevent putting any real students at risk if the correct methods of instruction or behavior are not used.

This study also provides educators and researchers with more information about the TCs' perceptions and the essence of their experiences which can present guidance on how to use MUVES such as the TLE TeachLivE™ in teacher preparation. As classrooms in the US get more diverse each year, TCs need to learn more about different ways to teach and reach the needs of all of their students including ELs and practicing their teaching skills for ELs with the EL TLE TeachLivE™ could be helpful in their teacher preparation programs.

Definitions of Terms for the Study

In order to clarify the terms used in this study, the following terms and acronyms are defined below:

- Perception- the way one views, comprehends, or refers to a phenomenon

- MUVES- Multi-User Virtual Environments are two or three dimensional computer simulated environments which allow for the interaction of real participants and avatars to take place.
- TESOL - Teaching English to Speakers of Other Languages
- TLE TeachLivE™ - A mixed-reality classroom environment that is used to prepare teacher candidates and practicing teachers in different fields such as Special Education, Mathematics Education, etc.
- EL TLE TeachLivE™- A TLE TeachLivE™ classroom environment including English learner avatars in order for teacher candidates to be able to practice their teaching skills for teaching ELs.
- TCs- Teacher Candidates- undergraduate students who are in the process of learning to teach
- ELs- English Learners
- L1- First language a person learns after birth
- L2- Additional language or languages learned after acquiring L1 or first language
- ESL – English as a Second Language- If a second language learner lives in a country where English is spoken as the primary language, it is referred to as ESL.
- EFL- English as a Foreign Language- If a learner is learning English while living in a country where English is not spoken as the primary language, it is referred to as EFL.
- TP-Teacher Preparation- a course or series of courses taught by educators to prepare teachers for teaching jobs.

- CLT- Communicative Language Teaching- A language teaching method that puts emphasis on the interactional aspect of a language.

Organization of the Study

In Chapter One the background of this study and introduction to the use of mixed-reality classroom environments in teacher preparation were discussed. This chapter also detailed the rationale for conducting this study as well as its potential contributions to the field. Furthermore, the research questions and a list of key terms used in the study were included.

Next, Chapter Two provides an overview of the literature and research related to using MUVES in teacher preparation. A brief review of teacher preparation in the United States is discussed followed by teacher preparation efforts for teaching the constantly increasing population of ELs in mainstream classrooms. The need for alternative methods for training teachers to reach the ELs and the necessity to use technology are linked to the development of mixed-reality classroom environments such as SimSchool, Second Life, and EL TLE TeachLivE™. The chapter concludes with depicting a gap for further research on the use of the mentioned MUVES in particular EL TLE TeachLivE™.

The methodology used to collect data for the current study is presented in Chapter Three. It includes a detailed explanation of the research design, different phases of data collection as well as the instruments used. An account of the pilot studies conducted and how they shaped the study is given. The sampling method and recruitment of the participants are also described in this

chapter. Lastly, the chapter concludes with the data analysis procedures and trustworthiness of the data.

Chapter Four includes bracketing, description of observations and field notes, focus group and interview participants' information and bio-sketches. The findings of this study as well as the supporting data and the most recurring themes are explained in this chapter.

Finally, the discussion of the findings is provided in Chapter Five. An overview of the research, its most significant findings, corroboration and contradiction to the literature, and limitations are discussed in this chapter. The dissertation concludes with implications and recommendations for future research.

CHAPTER TWO: LITERATURE REVIEW

Teacher Preparation

Learning and teaching have been an inseparable part of human experience since the beginning of time. The advancements that have been made throughout history are the results of the constant learning and teaching of one generation to the next across many years of evolution and advancement. However, teaching as a career is a recent phenomenon in the history which has taken years to emerge to the point it stands nowadays and still has a long way to go to get to an ideal position (Cochran-Smith, 2005; Fraser, 2007; Goldhaber & Cowan, 2014). In order to understand teacher preparation programs and how they came into being, it is essential to take a look at the history of teaching as a profession as well as the methods that have been utilized to train novice teachers. Various methods and strategies have been used in different countries and areas around the world in regards to teacher preparation; however the focus of this literature review will be on the teacher preparation in the United States of America: its past, present, and future potential.

Teacher Preparation in the US

Throughout the years there have been many different approaches to education and teacher preparation in the United States. The Colonial Period was the period from 1607 to 1775 when due to many differences in the 13 original colonies (in terms of their history, geographical location, and demography) a variety of approaches were taken in regards to education. During this period religion played a main role and impacted education to a great extent. Teaching was often done by women at home, whereas for men it was a transition point, stepping-stone or

means of employment at the end of their college education and before they started their real careers in the church or the law where better opportunities were available. According to Reese and Rury (2008), teaching practices in the US at this period were influenced by the European frames of thought that had emerged over the centuries. Colonial education was liberal and focused mainly on the classics, sciences, and mathematics. The curriculum did not include anything that could be called professional preparation in teaching by today's standards.

According to Fraser (2007), academics were the pioneers of both high schools and colleges with a more diverse and practical curriculum. Compulsory government-directed public education in the United States was followed by two laws: The General School Law of 1642 and law of 1647. In 1642, General court of Massachusetts law was passed that required that children must be taught to read and write and learn the main principles of religion and capital laws. Moreover, in 1647 Massachusetts passed another law requiring all towns to have public schools. This law required every town of 50 families to hire a teacher of reading or writing and initiated public responsibility for education. Petty or dame schools were an early form of elementary education that were usually taught by women in the home of the teacher. Not much preparation was provided for getting a teaching job. For many decades in the US, the sole requirement for a teaching job was declaring that a person is good enough to teach (Fraser, 2007; Reese & Rury, 2008). In most cases, college graduates never stayed in teaching long enough to make any significant changes. The majority of men taught for a short time before starting their careers in other fields. Meanwhile, most women taught for only a couple of years after they completed school themselves and before marriage or after being widowed. Before the 1830s, the average

teacher only taught for a couple of years and with none to only minimal preparation (Fraser, 2007).

During the early decades of the 19th century, teacher preparation started to change and formal teacher preparation programs began to come to existence by two groups of advocates. Emma Willard, Mary Lyon, and Catharine Beecher were among women who wanted women to have more career choices other than the traditional domestic responsibilities that they had been assigned to throughout history. These advocates also believed that formal teacher preparation is beneficial for both teachers and students. The second group of advocates consisted of men, Horace Mann and Henry Barnard to name a few, who wanted to create a more formal, organized school systems and teacher preparation in order to have national standards in all the states (Fraser, 2007).

From 1870's until the beginning of the 20th century, Normal Schools and Teachers' Institutes were the main means of teacher preparation; however, a movement towards professionalism and standardization of teacher preparation was taking place. Between 1920's and 1965, the requirements for teaching jobs began to change and more teachers were expected to have a college degree in order to be able to get teaching jobs. During this time universities came into play for teacher preparation, issuing teacher certifications. Since 1960 new models of teacher preparation have been developed in colleges of education in various universities across the United States. As the time went by programs started to increase teacher preparation time and professional courses and graduate degrees were also added to prepare teachers.

One of the main concerns throughout the new era of teacher preparation was the diversity of students and the lack of experience and professional training for teacher candidates to reach the needs of this diverse population. Immigration has always been in the roots of the United States of America and the number of immigrants increases substantially every year (Dabach, 2015; Rouse, 2014). These immigrants account for a large percentage of the population in schools and as a result preparing teachers who can reach the needs of these students has been, is, and will be an extremely important task that requires immediate consideration (Gándara & Hopkins, 2010; McCloud, 2015).

Teacher Preparation for Teaching English Learners

The number of English learners enrolled in mainstream classrooms in the United States has been constantly increasing in recent years. According to Goldenberg (2008), one in every 20 students was an EL in 1990; however this number increased to 1 in 9 in 2008 and it is predicted that one out of every 4 students will be an EL in the next 20 years. Moreover, the statistics provided by NCES or the National Center of Education Statistics (2013) showed that currently ELs constitute 10% of student population in the US (approximately accounting for 5 million English learners). Out of the numbers mentioned above, about two third of these ELs are enrolled in at least one course that is taught by a mainstream classroom teacher, however not all of these teachers are prepared to teach using EL strategies. Culp and Schmidlein (2012) in their study found out that about 85% of novice teachers have had less than 7 hours of training for teaching ELs. The lack of preparation of teachers and the statistics of the number of ELs depict

the importance of teacher preparation programs' responsibility to include teacher training in order to prepare teacher candidates to reach the needs of ELs in their classrooms.

Another significant reason for preparing teachers to teach ELs is the academic achievement gap that exists between the ELs and their native-speaking peers. Studies have shown that ELs perform less well on standardized tests in schools and this academic achievement gap might be partly due the differences between the language skills and the ELs' difficulties in reading, writing, speaking and listening skills that are needed to perform well in such tests. Even advanced ELs who might have spent a few years in the L2 environment might need extra help because although they might have developed communicative skills (BICS or Basic Interpersonal Communicative Skills), there is still a gap in regard to their academic skills (CALP or Cognitive Academic Language Proficiency) (Cummins, 1984). According to the No Child Left Behind Act (NCLB) in 2001 as well as the Every Student Succeeds Act (ESSA) in 2015, institutions, administrators and teachers are responsible to make sure that all students, including ELs, are provided with sufficient instruction and materials in order to get better results in their education path regardless of their racial, physical, or financial background. Therefore, it is vital to have teacher preparation programs that are designed to train teachers to assist this EL population in their classrooms.

Frameworks, Strategies, and Practices

In order to bridge the gap between teachers and ELs, a framework is needed for skill development of teacher candidates. One of the frameworks that has been widely used in teaching is referred to as Sheltered Instruction Observation Protocol (SIOP) model. Originally created by

Echevarria, Vogt, and Short (2000), this model is utilized to examine teachers' effective use of sheltered instruction in their lessons. Sheltered instruction refers to helping ELs in developing academic language skills as they are learning the content according to their grade-level.

There are a number of instructional techniques and strategies that teachers can use to make their lessons more comprehensible for ELs. These teaching skills can be included in teacher preparation programs to teach all the students as well as ELs and can benefit both teachers and ELs by providing a firm foundation for learning to take place. The SIOP framework involves eight major components and 30 features that guide lesson development. However, of those components there are ones that have particular elements of SIOP that teacher candidates need to develop and have more practice with.

Adjusting communication is one of the SIOP components that teacher candidates need to learn more about. Tangible and moderate speech can help all learners, in particular English learners, to comprehend the lesson and aid them in grasping the key points of the lesson. Teacher candidates need to make lessons understandable by using vocabulary and phrases that the students understand, giving clear instruction, and modeling tasks for students.

Moreover, teacher candidates need to develop teaching strategies to help all of their students, including ELs. Some of the strategies that teacher candidates can use include using explicit instructional design and questioning techniques. For instance, TCs need to learn about asking questions that are comprehensible to ELs in their classrooms and check for understanding to make sure that ELs are interacting with the content that is being taught in class.

Interaction as well as practice and application are two other components of the SIOP model that can help teacher candidates and practicing teachers to make their classes more EL-friendly. TCs need to provide the students with various chances to interact within the classroom with the teacher as well as other students such as having classroom discussions or putting them in small groups/pairs. Furthermore, TCs need to include hands-on experiences and practical activities that will help ELs to learn by doing even though the language might be too demanding.

The framework described above is only one of the frameworks that can be used to train teacher candidates. There are more teaching techniques, strategies, and concepts that teacher candidates can learn to aid them in helping the English learners in their classrooms some of which will be discussed in the following sections.

Scaffolding

In construction in order to build a building one of the first steps is to create a temporary structure or “scaffold” to support the workers while they are working. As the building gets completed the scaffold is then removed since it is no longer needed. A similar concept is true when it comes to teaching and learning. Teachers need to utilize various instructional strategies in order to help learners in their primary stages of learning. With the aid of the scaffold constructed by the teachers students gradually gain autonomy and get to a point when the additional support is not needed (Wood, Bruner, & Ross, 1976; Gibbons, 2006; Johnson, 2006; Clarke, 2008; Engin, 2013).

Zone of Proximal Development

Closely relevant to the idea of scaffolding is the Zone of Proximal Development or ZPD. Originally developed by Vygotsky in 1978, he defined ZPD as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (p. 86). In other words, the Zone of Proximal Development claims that there is a significant difference between what learners can learn on their own and what they can learn through the guidance, teaching, and working with teachers or their peers. Thus, scaffolding techniques and strategies play a key role in how and to what level learners learn. There are a number of such instructional approaches that are discussed in this chapter.

Modeling and Demonstration

Modeling is a valuable strategy for teacher candidates to scaffold and help students especially English learners to understand the lessons that are being taught in class (Darling-Hammond, 2005, 2010; Hiebert, Morris, Berk, & Jansen, 2007; Welsh, & Schaffer, 2015). When introducing a new topic or lesson teachers can explicitly teach and demonstrate different parts of the lesson or activities that they want the students to learn. By seeing how an activity or task is done students can learn by doing and therefore have the opportunity to observe and process the task before it is their turn to do it (Montgomery, 2001; O'Neal, Ringler & Rodriguez, 2008; Evans, Williams, King, & Metcalf, 2010).

Visual Aids

Understanding that there are different learning styles and types of intelligences that students possess in each classroom is one of the key concepts that teacher candidates need to learn about and take into consideration early on in their careers (Gardner, 1983, 1991, 1999; Celce-Marcia, 2001; Gilakjani, 2012). Three main learning styles have been frequently used in the literature to refer to different types of learners which include visual, auditory, and kinaesthetic (Browm, 2000; MacKeracher, 2004). Visual learners learn by seeing, therefore teachers and teacher candidates need to think about various mediums that they can use to make their lessons more comprehensible to visual learners. Using pictures, posters, flashcards, charts, and writing on the board are only a few examples of how teachers can incorporate visual aspects into their lessons (Gilakjani, 2012; Mall-Amiri, & Arabgol, 2015).

Body Language and Gestures

Body languages and gestures can be another strategy that can be used to aid visual learners in class. We normally use gestures with spoken language to convey meaning and make communication easier on a daily basis (Kendon, 2004; McNeill, 2005; Yukari, Kelly, Huang, & Manansala, 2014). However, it is important that teacher candidates become aware of the importance of using gestures while teaching. Moreover, studies have shown that gestures not only help English learners but they also make lesson comprehension easier for native-speaking learners in class (Tellier, 2008; Kelly, McDevitt, & Esch, 2009; Yukari, Kelly, Huang, & Manansala, 2014).

Leveled-Questions

Comprehension questions are frequently asked by skillful teachers throughout the lesson to make sure that learning is taking place and any confusions or questions students might have can be answered before students lose interest or the lesson gets too difficult for them to follow (Cochran-Smith, 2001; Diaz-Rico, 2004) . When it comes to English learners a classroom can have a mixture of learners who are at different levels of proficiency in English. Therefore, knowing how to ask questions that are at the level of proficiency of the learners as well as simplifying the language of the lesson are effective strategies that can teacher candidates need to learn about (Gibbons, 2008; Nutta, et al., 2014).

Observations

In addition to learning about teaching strategies directly, observing experienced teachers can be an asset in learning about the effective teaching methods and techniques they use (Waxman, Rodriguez, Padron, & Knight, 1988; Anderson, Barksdale, & Hite, 2005; Jenkins, 2014). Most teacher preparation programs have observations as part of their curriculum to ensure that teacher candidates have the chance to observe practicing teachers and learn more about the skills they need to develop, teacher-student interactions in classrooms, and the environments they will work in when they are finished with their trainings and are ready to embark on their own teaching journeys. Furthermore, studies have shown that teacher candidates can also learn from observing their peers (Jenkins et al., 2005; Jenkins & Veal, 2002) via role-playing, microteaching, or group teaching which will be explained in the following sections.

Role-Playing

According to Crookwell, Oxford, & Saunders (1987) role-playing is defined as “a social or human activity in which participants take on or act out specified roles often within a predefined social framework or situational blueprint”(p. 155). In preparing teacher candidates for their future careers role-plays are often used to give the TCs the opportunity to put theory into practice or in other words learn by doing (Cakici & Bayir, 2012; Williams, 2012; Zhang, Beach, & Sheng, 2016). When using role-play in teacher preparation teacher candidates take the role of students while one TC or a group of TCs teach a particular lesson. Studies have shown that role-playing gives TCs new perspectives on student learning and how they as teachers can make the class more comprehensible to all learners (Sinclair, 2004; Case, Marshall, & Linder, 2010). Role-plays can be done in the form of microteaching both individually or in groups.

Microteaching and Group Teaching

Microteaching refers to when teacher candidates take one concept or a short lesson to teach to their peers who pretend to be students for the duration of the role-play. Therefore, microteaching can be an imitation of real-life scenarios that teacher candidates can practice in order to develop their teaching skills and gain knowledge and practice in teaching (Ananthakrishnan, 1993; Brown, Sivabalan, & McKenzie, 2001; Roush, 2008). Studies have shown that microteaching can increase TCs’ self-confidence, effective student teaching skills, and classroom management techniques (Elsenrath, Coker, & Martinson, 1972; Millis, 2010; Deniz, 2011).

Microteaching can be performed by TCs either individually or in groups. Based on Social Development Theory developed by Vygotsky in 1978 social interactions provide the foundation for learning to take place and suggested that “knowledge can be created within a group where members actively interact by sharing experiences and taking on asymmetric roles (Mitnik, Recabarren, Nussbaum, & Soto, 2009). Therefore, by interacting and collaborating in groups teacher candidates can share their experiences and learn from one another. Moreover, since these interactions occur in classroom environments not only peers can observe and learn from each other, the instructor of the course can also act as a “coach” and give feedback to the teacher candidates about a variety of teaching related topics such as their lessons and teaching presence (Johnson, & Johnson, 1999; Klimovienė, Urbonienė, Barzdžiukienė, 2006; Farrell, 2014).

Coaching and Feedback

Another principle of Vygotsky’s theory is called The More Knowledgeable Other or MKO (Vygotsky, 1978). MKO refers to “someone with more knowledge or a greater understanding of a particular task or process than the learner” (Cicconi, 2014, p. 58). Therefore, the MKO can be anyone with more knowledge on a topic. For instance, in teaching and education the MKO can be a teacher, coach, or a learner’s peers. During microteaching, role-playing, or group teaching in teacher preparation programs teachers or instructors of the course usually act as the “coach” to give teacher candidates feedback about their performance (Akcan, & Tatar, 2010; Hoffman, Wetzell, Maloch, Greeter, Taylor, DeJulio, & Vlach, 2015). Through careful observations and reflections teachers need to give TCs proper constructive feedback to improve their teaching skills and develop better understanding of the strengths and weaknesses

of their instruction (Bennetts, 2002; Tang, & Chow, 2007). Hence, by the use of coaching and feedback provided by the MKO or teacher, TCs take responsibility by making meaning of their experiences and practices and are further able to expand their knowledge to their own classes and teaching experiences in the future (Fletcher, 2000; Akcan, & Tatar, 2010; Hoffman, Wetzell, Maloch, Greeter, Taylor, DeJulio, & Vlach, 2015).

Cooperative Learning

Through microteaching, role-playing, and group teaching described above teacher candidates can engage in Cooperative learning. Cooperative learning refers to a group of people joining and working together toward a shared goal which can be learning a particular context (Klimovienė, Urbonienė, & Barzdžiukienė, 2006; Millis, 2010; Slavin, 2011). In teacher training teacher candidates can get together to form groups in which they can practice the teaching strategies and skills they learn about during their teacher preparation programs. Furthermore, in cooperative learning individual differences between the participants do not generally cause negative outcome due to the collective power of learning that team work brings forward (Sonnenwald, & Li, 2003). Among other positive attributes, cooperative learning can enhance critical thinking and questioning techniques by creating a real-life environment for teacher candidates to experience what they might face in real classrooms (Brown, Sivabalan, McKenzie, & Booth, 2001; Klimovienė, Urbonienė, & Barzdžiukienė, 2006; Felder & Brent, 2007; Macpherson, 2007).

Experiential Learning

Similar to cooperative learning, experiential learning also tries to provide learners with opportunities to learn through experiencing. Experiential learning is based on the Experiential Learning Theory or ELT which defines learning as “the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience” (Kolb 1984, p. 41). In teacher preparation experiential learning can be used to aid teacher candidates to take charge of their own learning and improve their teaching skills through hands-on activities and engaging in real-life or mock scenarios such as microteaching and group teaching. By experiential learning teacher candidates can also notice issues that they might not have noticed otherwise. For instance, if teacher candidates have not been a language learner themselves they might not be able to fully understand the difficulties English learners may have in class. However, by experiencing teaching classes with English learners TCs notice the difficulties firsthand and can make a conscious effort to use teaching strategies that can help ELs (Van Lier, 1996, 2004; Kohonen, 2001, 2003). Additionally, experiential learning prepares teacher candidates by having them experience multiple teaching and learning situations and critically reflect on their experiences which is a key characteristic of successful teachers.

Critical Reflection

Critical reflection has been referred to as the goal in teacher preparation because of the significance of its role in teacher candidates’ careers as well as students’ learning outcome (Schön, 1983, 1987; Richards, & Lockhart. 1996; Howard, 2003). Teacher preparation programs

are mostly short-term, whereas teaching is a profession that needs constant development and enhancement of teaching skills (Adler, 1991; Brookfield, 1995; Lowenstein, & Brill, 2010). By encouraging teacher candidates to reflect on their own teaching as well as the students' learning they can become aware of their strengths and weaknesses and the impact they have on their students' learning. This awareness then gives way to TCs' autonomy to examine their classrooms and their decision-making processes (Zeichner, & Liston, 1996; Loughran, 1996; Lowenstein & Brill, 2010). By using critical reflection teacher candidates can revise their pedagogical processes to improve their teaching skills and reach the needs of all students in their classrooms particularly those students who might need further assistance such as English learners (Howard, 2003; McEntee, Appleby, Dowd, Grant, Hole, & Silva, 2003; Lowenstein & Brill, 2010).

Even though the frameworks, strategies, and concepts explained above have been suggested to be beneficial in teaching and learning, they do not seem to be adequate for preparing teacher candidates for their future roles to reach the constantly changing student population and their dynamic needs. Various research studies have attempted to measure effective teaching and students' achievement gains. One of the most prominent studies in this area has been the MET (The Measures of Effective Teaching) Project launched by the Bill & Melinda Gates Foundation in 2009. The purpose of this extensive on-going research is to identify and develop approaches that enhance teachers' effectiveness. Initial findings from this research released in 2010 highlighted the importance of having high quality and alternative teacher preparation/ professional development and evaluation programs in order to increase teachers' effectiveness and student achievements (Bill and Melinda Gates Foundation, 2010). Thus, improving current teacher preparation methods as well as developing alternative methods of

teacher preparation are required to meet the needs of the increasing population of diverse students in order to cultivate teaching skills that are needed to respond to the rapidly changing demands of the new generation of students in the 21st century.

The Need for Alternative Methods

Various methods of teacher training have been used in the field of education. Calandra and Puvirajah (2014) describe four spaces that have been used for teacher training purposes in different areas. The first space is the traditional method of teaching which consists of the teacher lecturing about a particular topic while the students listen and take notes. The second space then becomes microteaching and/or role-play as a method of practicing the teaching methods that the teacher candidates have learned during their training. Moreover, service learning is considered as the third space which provides the teacher candidates with real environments and real students.

During service learning or practicum teacher candidates go to local communities and schools in order to assist the main teachers in the classrooms and gain experience in working with students in real situations (Boyle-Baise, 2002; He, & Prater, 2014). Practicums have been used for teacher preparation programs in different fields. There have been many positive outcomes via this method of teacher training; however some pre-service teachers have reported that this method has not effectively prepared them for the professional roles in their careers (Gregory et al., 2011). One of the reasons for the lack of helpfulness for practicums might be that teacher candidates might be placed in classrooms that do not have a diverse group of students. For example, not all classrooms have students with special needs or English learners at different levels of proficiency or different backgrounds which may limit the exposure of teacher

candidates to such circumstances and not provide them with a chance to practice their teaching strategies or classroom management skills pertaining to those students (Muir, Allen, Rayner, & Cleland, 2013). Therefore, there seems to be a missing piece between the teacher candidates' knowledge gained from attending teaching methodology classes and how they can apply the techniques in real environments which requires us to think about another space for TCs to practice their teaching skills.

Ultimately, the last and fourth space is the use of Multi-User Virtual Environments in teacher training. MUVES have been studied in different fields to learn about their effectiveness as well as advantages and disadvantages as learning environments. This fourth space is not introduced as a substitute for actual classrooms; it is considered to be a safe learning environment in which pre-service and in-service teachers can rehearse and practice their teaching skills before they start their teaching careers with real-life students. Many research studies have been conducted on the use of this fourth space for educational purposes and teacher training goals. However, there is a gap in research in the field of Teaching English to Speakers of Other Languages or TESOL in terms of the effectiveness of using a mixed-reality environment in preparing teacher candidates to reach the needs of the English learners in their classrooms.

Mixed-Reality Classroom Environments for Teacher Preparation

It has become a common practice to use virtual environments in order to prepare doctors for surgeries, and pilots for flights; however, it is less common to use it in the field of education. Virtual environments provide a dynamic platform for approaches to teaching and learning. Bolter and Grusin (2000) asserted that the age of the Internet and computer applications

have created and will continue to create a digital culture that will revolutionize education. Moreover, non-profit organizations such as the Digital Promise originated by the U.S. Congress in 2008 (Section 802 of the Higher Education Opportunity Act by Presidents Bush and Obama in 2011) have made it their mission to use technology to engage, motivate, and personalize learning for all learners and teachers in the education system. By using gamification, micro-credentialing, and digital badging practicing teachers and teacher candidates can learn more about various teaching skills and improve their competencies.

Gamification refers to the use of videogame like attributes and computer programming in real-world environments to make the users' experience more engaging and motivating (Kapp, 2012). Recently, gamification has found its way into the field of education, teaching and learning. In this type of technology virtual educational environments are created that can help both teachers and students (Khasianov, Shakhova, & Ganiev, 2016). In teacher training and professional development programs mixed-reality or virtual-reality environments have lately started being used to provide teachers and teacher candidates with additional practice under controlled circumstances. For instance, teacher candidates and practicing teachers can choose micro-credentials which are skills that they can show they possess by completing a task or a set of activities. Upon the approval of meeting the certain requirements for micro-credentials teachers or teacher candidates can earn digital badges that represent the successful completion of each task as a sign of recognition of their professional achievements (Schmidt-Crawford, Thompson, & Lindstrom, 2014; Fanfarelli, & McDaniel, 2015).

A virtual educational environment is a safe domain for incorporating unfulfillable practices in real life, in other words it “allows individuals to have repeated trials involving high stakes situations without risking the loss of valuable resources (e.g., money, time, and people)” (Dieker et al. 2014, p. 22). There are many advantages of using MUVES in education. MUVES can be a powerful teaching and learning environment in order to implement instructional objectives (Dede et al. 2006). Moreover, students are able to participate in richer communication and interactions with fewer time limitations and no physical restrictions in virtual learning environments. In addition, students can acquire and develop formal competences as well as improve their social and corporative skills (Loureiro & Bettencourt, 2011).

Using MUVES can also help to increase the confidence level of the users. Loureiro and Bettencourt (2011) in their study concluded that students feel more confident, more participative and more creative in virtual learning environments. Frost (2008) stated that the lack of self-confidence is one of the greatest barriers, which prevents individuals from achieving peak performance in their careers. Self-confidence is an indispensable element for success; it is also crucial for learners to obtain higher motivation in learning and to achieve academic goals. Stone and Glascott (1997) noted that students with higher levels of confidence are more likely to be fully engaged in their learning process. Tavani and Losh (2003) identified a significant difference in academic performance between students that had higher levels of self-confidence and lower levels of self-confidence. Dieker, Grillo, and Ramlakhan (2012) explored the effectiveness of using virtual and simulated environments for secondary science gifted students who were from low socioeconomic backgrounds in a science, technology, engineering, and mathematics (STEM) summer camp. The results depicted the potential impact of virtual reality

on enhancing the gifted students' self-confidence. Students self-reported being motivated and having higher self-confidence using a virtual learning environment, and students who self-reported having high levels of self-confidence made the largest learning gains after using this technology (Dieker et al., 2012).

As noted, the technology of Multi-User Virtual Environments or MUVES is just emerging in the field of teacher education. Therefore, the literature pertaining to teacher training in simulated environments is limited (Clarke, 2013). Fortunately, regardless of the limitations, there are still some studies that focus on teacher education and the use of virtual environment as well as an increasing number of studies concentrating on implications and applications of technology for teacher training in virtual environments. For example, Childress and Braswell (2006) explored the advantages of incorporating a virtual learning environment to build up interaction and collaboration in an online course. In addition, Compton, Davis, and Correia (2010) and Dickey (2011) respectively examined and investigated teachers' preconceptions, misconceptions, and perceptions in terms of the integration of virtual teaching and learning. Also, by focusing on teachers' perceptions but from a different perspective, Gamage, Tretiakov, and Crump (2011) furthermore investigated teachers' beliefs and perceptions on learning in MUVES, and measured differences in perceptions between teachers with and without the experience of teaching in MUVES. Similarly, by using MUVES for an online problem-based learning activity, Omale, Hung, Luetkehans, and Cooke-Plagwitz (2009) examined the idiosyncrasy and sustainability of MUVES regarding collaboration and interaction. These previous studies in teacher education possess a positive attitude toward the use of virtual environments; nevertheless, Merchant (2009, 2010) questioned the effectiveness of

transformation in teaching practices with the use of new technologies. He argued that the view of technological supremacy tends to downplay a socio-cultural perspective of mind that impels what young people actually do with technologies and how the role of new technologies are integrated in their social interaction and learning (Merchant, 2010). In spite of the existing arguments and disagreement about new technologies in teacher education programs, we cannot deny that they have not only brought great benefits and convenience to a wide range of applications in teacher training for many disciplines, but they are and they will be developing with a remarkably rapid pace.

Examples of MUVES for Teacher Preparation

There are a few well-known examples among these rapidly developing MUVES. SimSchool, SecondLife and TLE TeachLivE™ are among the examples that are explained in more detail in the following sections.

SimSchool

SimSchool Teacher Training Platform is a current technology in use to prepare teacher candidates. It is an Internet-based classroom simulation program which is inclined to provide a more thorough teacher training experience in simulated classrooms than in real classrooms. SimSchool allows users to create students so that users will have the opportunities to practice teaching to a group of diverse learners. Utilizations of SimSchool also include lesson planning, task creation, behavior management, student learning assessment, etc., which provide current and future educators with access to a safe platform to practice teaching with multiple repetitions in

limited times, give and receive rapid feedback, and be exposed to the implications of simulated teaching and learning environments (McPherson et al., 2011).

Second Life

Similar to SimSchool, Second Life is another immersive virtual environment, which allows its users to learn in this interactive environment (Klein, Freitas, Machado, da Silva Freitas, Graziola, & Schlemmer, 2014). Users can create their personalized avatars and go to various learning environments that have been previously created for them to explore. The users can either go through guided learning environments independently and learn from programmed avatars about different learning environments (such as museums, art galleries, historical events etc.) or be guided by another personalized avatar who can play the role of a teacher (Wilks & Jacka, 2013). Teacher or teacher candidates can also use features such as a virtual blackboard and classroom to practice their teaching skills on other personalized avatars (Klein et al., 2014). Both SimSchool and Second Life are more similar to video games with an extra learning/teaching aspect that are aimed to make learning and teaching more interactive and entertaining (Jacka & Ellis, 2010). However, the game attributes of these two MUVES are more prominent than the third example, TLE TeachLivE™.

TLE TeachLivE™

TLE TeachLivE™ is a mixed-reality classroom environment, which infuses technology and learning/teaching activities for teacher preparation purposes. The TLE TeachLivE™ classroom creates a safe environment for teacher candidates and practicing teachers to experience an immersive, real-time environment with avatar students (Andreasen, &

Haciomeroglu, 2009; Dieker et al., 2011; Dieker et al. 2013). TLE TeachLivE™ in the field of English learner education provides teacher candidates with the opportunity to put the teaching methodologies and classroom management skills that they have learned in class into practice using a simulated teaching environment where they can present new content, review previous work, or test a specific teaching strategy to native and non-native virtual English-speaking students. TLE TeachLivE™ is currently used to bridge the gap that exists in teacher preparation courses for teacher candidates from what they learn in class to when they start their practicum or internships in the field.

The employment of new technologies in addition to other teacher preparation strategies provides an opportunity for teacher candidates to understand the potential applications of new technologies in their future classrooms and take advantage of their merits to experience and practice in culturally, pedagogically, and formally diverse virtual environments. As McPherson et al. (2011) noted, by utilizing technological tools in simulated classrooms, teacher candidates can not only communicate and interact with students in culturally diverse areas, but they can also experience students' individual differences and learn about various teaching strategies that are not easy to observe in regular classrooms. Teacher candidates can benefit from the complex diversity of the simulated environment in the process of participating and engaging in teaching in virtual classrooms by becoming more aware of students' racial, cultural, and language needs, understanding more of students' individual differences, and planning and practicing more differentiated teaching approaches (Foley and McAllister, 2005). Therefore, providing teacher candidates with an opportunity to teach in a virtual simulated classroom can help them tremendously to practice the teaching strategies that they are learning in their classes and

examine how those methods would work with virtual students without putting real students at risk.

Even though the use of MUVES such as SimSchool, SecondLife and TLE TeachLivE™ has been previously studied from different perspectives, research in this field is still new and limited. Exploring the lived experiences of TCs and their thoughts and perceptions about the use of such technologies will not only help prepare the pre-service teachers better, but it will also help educators to know how they can incorporate these multi-user virtual environments in their classrooms to benefit their students more and provide them with more opportunities to practice before they start their jobs with real students. Therefore, this study aims to analyze the lived experiences and perceptions of teacher candidates with the EL TLE TeachLivE™ in order to develop an in-depth understanding about the use of a mixed-reality classroom environment as part of their teacher preparation.

CHAPTER THREE: RESEARCH METHODOLOGY

This study focuses on the lived experiences and perceptions of teacher candidates who had the opportunity to work with the TLE TeachLivE™ EL avatars. These teacher candidates were undergraduate students at a large research-intensive university in the Southeastern United States. A majority of the TCs had recently transferred from a two-year college to this four year university and were working toward their degrees in one of the following majors: Elementary, English Language Arts, Mathematics, Science, or Social Studies Education. More details about the course are discussed in the context of the study section.

Research Question

The following research question was explored during this study:

RQ: What are the teacher candidates' perceptions of using EL TLE TeachLivE™ in their teacher preparation program to prepare them to work with English learners in their future careers?

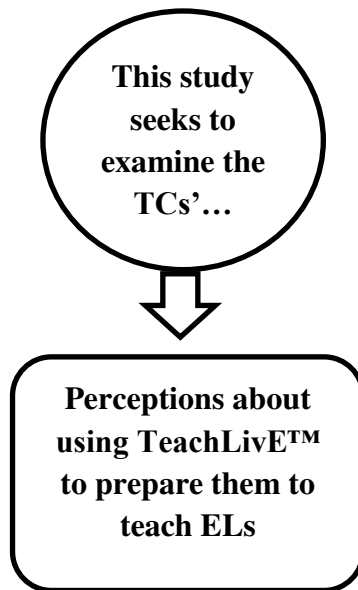


Figure 1. A Visual Conceptualization of the Research Question

Finding the answers to the above question and exploring the perceptions of the participants of this study was intended to provide an opportunity to examine more closely the descriptions of these TCs' experiences with this phenomenon and contribute to the body of literature in the field.

Context of the Study

The participants of this study were recruited from the TCs who were taking a specific 4000 level course in the fall 2015 semester. This course was a general methods course that aims to train teachers with general teaching strategies and various techniques to use in class as well as methods and strategies they can use to reach the needs of the ELs in their classrooms. All of the students who were taking this course attended a classroom procedure workshop which is a workshop designed to introduce the EL TLE TeachLivE™ to the teacher candidates and ease them into interacting with them more efficiently.

During this workshop teacher candidates met Edith, Edgar and Tasir who are the English learner avatars. The EL avatars were developed through long-term research and case studies (Nutta, Mokhtari, & Strebel, 2012). Through observing ELs in schools in Southeastern United States, interviewing and gathering oral and written data weekly over a span of one year, three cases were created who best represented three main levels of proficiency in English: beginning, intermediate, and advanced. The following details were taken from the cases which were described in Nutta, Strebel, Mokhtari, Mihai, and Crevecoeur-Bryant (2014).

The beginning level student is embodied as Edith. Edith recently moved to the US from Mexico and is gradually starting to learn Basic English. At this level of proficiency a beginning level student like Edith has limited vocabulary knowledge in English and can mainly comprehend simple yes/no questions or provide one word answers. Most of the interaction at this level is about what is happening at this moment, here and now. For instance, present simple tense is the most frequently-used form of verb tense for interaction. Conversations usually lead to short or non-verbal responses.

One level higher in language proficiency would be generally considered as intermediate (although there can be multiple layers of beginning, intermediate and advanced level students learning a new language). Edgar is the case that most represents this level. Edgar came to the US mainland from Puerto Rico about eight months ago. Currently, Edgar can communicate in English using more complex grammar structures than Edith; however he still struggles with many verb tenses such as the perfect tenses. Thus, his responses go beyond the simple one word answers and may contain various examples of past and future tenses and new vocabulary. Edgar is in the process of learning the details of a new language and therefore occasionally makes

grammar errors or does not understand multiple words that are used by his teacher or classmates. This issue might be problematic for him in his academic courses because he does not have the vast vocabulary knowledge and background information that other native speakers might have.

The last case is the advanced EL named Tasir. Tasir has been living in the United States for a few years. She was in the third grade when she moved to America from Egypt with her family and she is now in the seventh grade. For someone who meets Tasir for the first time, he or she might not notice any trace of a foreign accent or lack of proficiency in English. She sounds like a native speaker and even uses slang and terms that are usually used by her native-speaking peers such as “like.” However, academic language is the area that she needs to spend more time and effort on in order to catch up with her native-speaking classmates.

As we can see each of these cases represents general traits and characteristics that are normally seen in an English Learner at each level of proficiency. In addition to these three avatars, there are two other avatars in the EL version of TLE TeachLivE™ who are native speakers of English named Sean and Ed. With the use of the EL TLE TeachLivE™ these cases were brought to life and piloted in the fall of 2013. During the past two and a half years, teacher candidates in two main courses in the College of Education and Human Performance have been able to practice their teaching skills in front of the simulated classroom of five students. This teaching experience also has helped the teacher candidates to learn about how to interact with the avatars and how to move in class and use the simulation technology.

The EL TLE TeachLivE™ Classroom Procedure workshop is based on teaching a simple procedure and its steps to a class which includes non-native speaking (NNS) students or ELs. A detailed overview, observation, and description is provided in chapter four of the two workshops

taught as a part of the data collection for this study. The EL TLE TeachLivE™ Classroom Procedure Workshop was the first encounter of the TCs with the EL avatars. For the second encounter, the TCs were asked to prepare a classroom procedure of their choice in groups of 3-4 and teach its steps to the avatars. The research method and data collection details are explained in the following sections of this study.

Research Design

A transcendental phenomenological research approach was used for the purpose of the current qualitative study. Transcendental or psychological phenomenology is an approach in which the researcher focuses mainly on the experiences and thoughts of the participants in a study (Creswell, 2007). Therefore, the researcher separates his or her experiences from the data and focuses on what the participants have stated about the phenomenon that is being studied. In this study, I as the researcher (a) observed and took field notes of the Classroom Procedure workshops; (b) observed and took field notes of the group Direct-Teach Lessons (or DTLs) that the TCs taught to the avatars;(c) distributed and collected an initial questionnaire to the teacher candidates to collect data on demographics as well as their teaching experience in regard to ELs; (d) conducted 4 focus groups consisting of 4-5 TCs each to explore their perceptions about the use of EL TLE TeachLivE™ as a mixed-reality classroom environment for teacher preparation (n=19);(e) conducted follow-up interviews with one TC out of every focus group and one TC who was not present at the time of focus group (n=5) after they each individually participated in a 15-20 minute Direct-Teach Lesson of their choice in the virtual teaching environment; (e) transcribed, color-coded, and analyzed all the data gathered throughout the process.

Sampling

Creswell (2007) argued that it is crucial in phenomenological research that all the participants have had experience with the phenomenon under investigation. In the case of the current study, the phenomenon was a mixed-reality environment used for teacher preparation called the EL TLE TeachLivE™. Participants of this study were students who were taking a 4000 level course which is typically taken during the TCs' first semester in the program. There were three different layers of data collection for this research. In the first phase, convenience purposeful sampling was utilized to access the teacher candidates who were enrolled in two sections of the teacher training course mentioned above offered in the fall of 2015 (N≈60). For the second phase of the data collection these teacher candidates were divided into groups of three with one TC being randomly chosen to do a Direct-Teach Lesson or DTL (n=20). TCs who were chosen to teach the avatars in phase two were the participants who took part in focus groups and follow-up interviews which will be discussed in the following sections. The sampling method in this section was purposeful sampling because in this sampling method the goal is to reach participants who can provide in-depth information that is valuable for the purpose of the research (Creswell, 2007; Gall et al. 2007). In qualitative research the number of participants that is generally suggested by researchers differs significantly. Saturation (or the reoccurrence of the same information/themes over and over again in the data) is mainly what determines when it is reasonable to stop data collection during qualitative research. Creswell (2013) suggests 10 to 15 individuals for phenomenological research. Moreover, Guest, Bunce, and Johnson (2006) in their study found that out of the 36 main themes that had merged from their data, 34 were part of the first 6 interviews and 35 were achieved after the 12th interview. Therefore, according to the

suggestions any number of participants more than 12 could potentially be considered to reach saturation. Moreover, in this study 20 teacher candidates were randomly chosen to teach Direct-Teach Lessons to the EL TLE TeachLivE™ avatars and agreed to participate in this study. Thus, 20 participants were recruited for the second and third phases of this research. These participants were selected based on the following criteria:

- (a) TCs who had claimed their interest in being a part of this research (see Appendix C: Oral Consent)
- (b) TCs who did not have any prior experience with TLE TeachLivE™ or any virtual reality classrooms before this class
- (c) TCs who were selected among their group members to teach in the TLE TeachLivE™ lab for the group Direct-Teach Lesson (this condition is explained in more detail in the description of Phase II of the data collection)

Data Collection Procedures

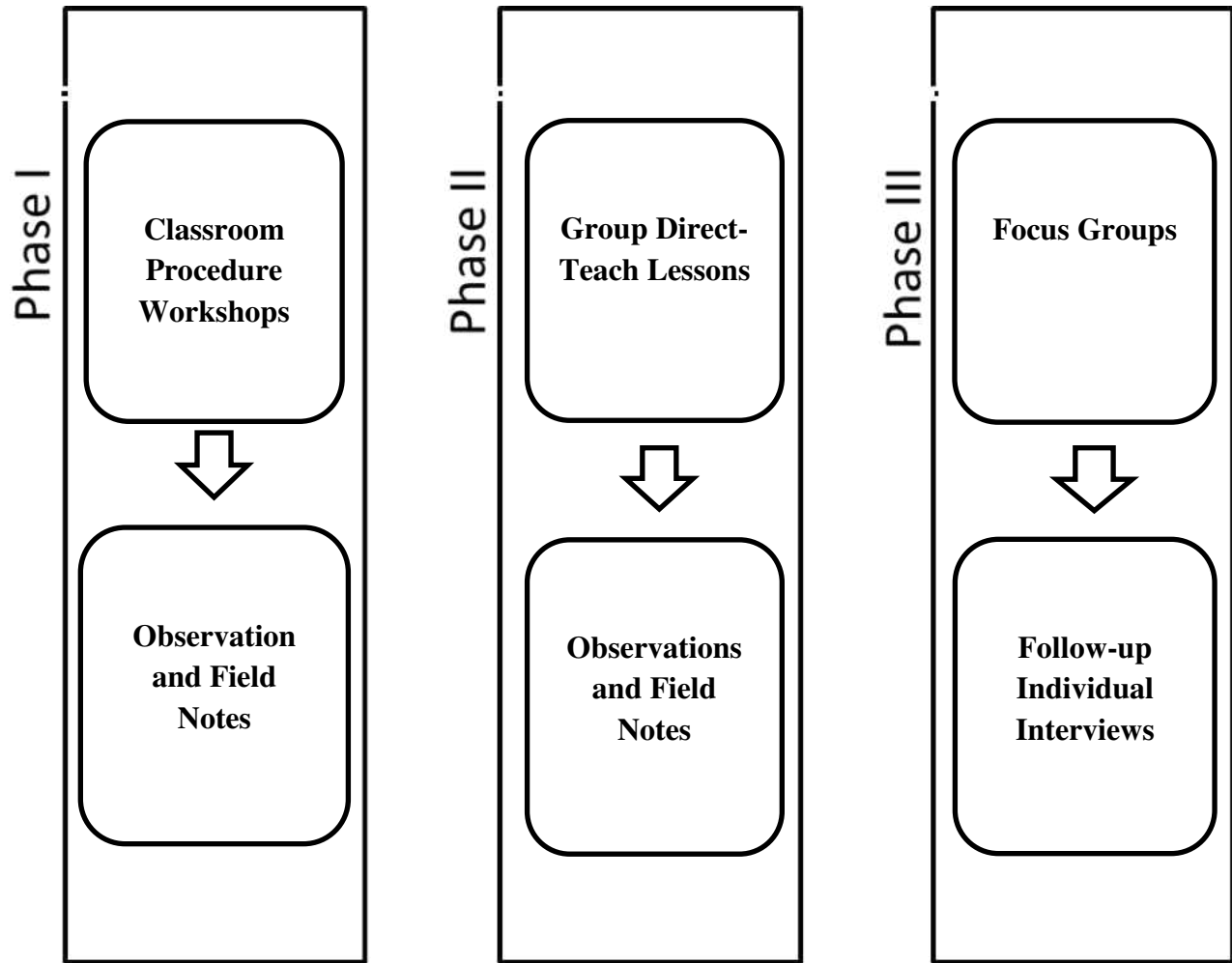


Figure 2. A Visual Model for the Data Collection Phases

After obtaining Institutional Review Board (IRB) approval, I as the researcher initiated the data collection. The participants were informed about the nature of the research, the confidentiality of the information they provided, as well as the contact information of the study investigator. The participants who took part in all the three phases of the data collection and

successfully completed the final interview received a minor compensation in the form of a gift card.

After being granted the IRB approval, the data collection procedure commenced. This study was found to be a minimal risks study by the IRB board deeming it not necessary to gather participant signatures for the informed consent process (Appendices A & B). Multiple copies of the Informed Consent Form (see Appendix D) were provided for the participants to review or keep. I went over all the sections of the Informed Consent Form with all the participants and informed them that they could opt out of the study at any time. I reviewed the informed consent with all participants and discussed with them their right to opt out of the study at any time. Also, I made sure that the study participants were aware that their identity would be kept confidential and I would only use their pseudonyms in the study. Data collection dates had been previously set with the permission and agreement of the gate keeper or the instructor of the two sections of the teacher training course. The schedule for data collection is presented in Table 1 on the following page.

Table 1 Description and Schedule for Data Collection

Class Number	Data Collection Phase	Description	Data Collection Date
Class 1	Phase I	Classroom Procedure Workshop	10/28/15
Class 1	Phase II	Direct-Teach Group Lesson	11/4/15
Class 1	Phase III	Focus Group and Follow-up Interviews	12/02/15
Class 2	Phase I	Classroom Procedure Workshop	11/9/15
Class 2	Phase II	Direct-Teach Group Lesson	11/16/15
Class 2	Phase III	Focus Group and Follow-up Interviews	12/07/15

Phase I

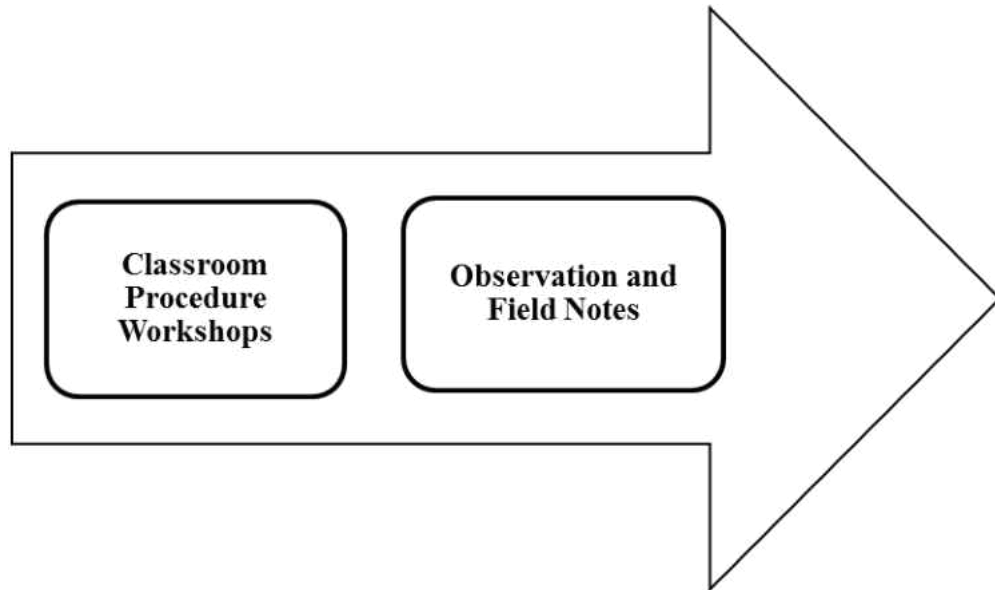


Figure 3. A Summary of Phase I of the Data Collection

Before conducting the EL TLE TeachLivE™ Classroom Procedure workshop, which will be explained in more detail in Chapter Four, I read an Oral Consent Script (see appendix C) describing the process of the research to the TCs. After reading the Oral Consent Script the TCs had the option of not participating in the study. All of the TCs verbally showed their consent allowing me to sit at the back of the classroom in order to observe and take field notes without interfering with the class activities and the workshop instruction.

Phase II

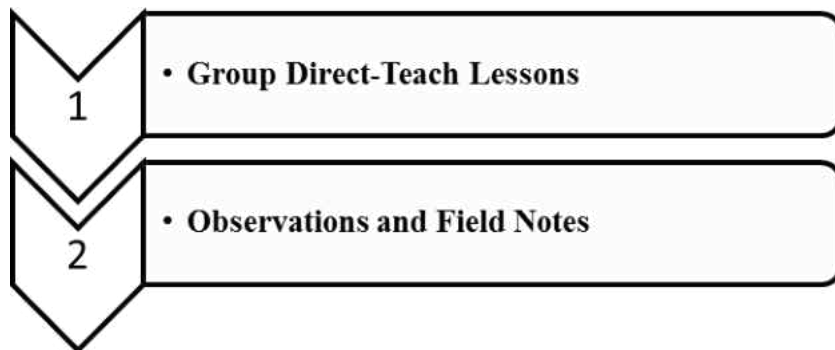


Figure 4. A Summary of Phase II of the Data Collection

Phase II of data collection required the TCs to choose a classroom procedure and create a short lesson plan based on it in groups of three. The TCs did this activity as part of one of their classroom assignments in the course. Starting from summer 2015 all TCs were required to attend classroom procedure Direct-Teach group sessions after the Classroom Procedure workshop. Each group consisted of three members, all of whom worked on a plan regarding a classroom procedure (the TCs could decide upon which classroom procedure they choose, which could have included fire-drill procedures, asking to go to the bathroom, lining up, asking to go to the nurse etc.). On the day of the DTL procedure all of the three members needed to be present. The instructor of the course then asked the TCs to pick a straw and the one who got the shortest straw was the person who was going to teach in front of the class. While the chosen group member taught the procedure to the avatars, other group member in addition to the TeachLivE™ lab coach (who was trained as a coach for observing and giving feedback to TCs) observed and took notes in order to give the TC feedback at the end of the 10 minute of the direct-teach lesson. Before students left the TeachLivE™ lab I explained to them that the focus group and follow-up

interviews will be conducted at a later date and expressed my appreciation to those who taught the EL TLE TeachLivE™ avatars and asked them to participate in the study by providing them with contact information in case they had any additional questions. These focus group and follow-up individual interviews laid the foundation of Phase III of this study.

Phase III



Figure 5. A Summary of Phase III of the Data Collection

After the completion of phase I and phase II, based on the TCs' interest in participating in the third phase, the 20 TCs who met the criteria that was explained in the sampling section were contacted. After going through the Informed Consent Form (see appendix D) with them, the TCs were divided in groups of five in order to conduct the focus groups.

Initial Demographics Questionnaire

An Initial Questionnaire (see Appendix E) was given to the participants. This initial questionnaire consisted of demographic questions and open-ended questions related to using mixed-reality environments for teacher preparation. The demographic questions asked about the participants' age, gender, nationality, major/year, as well as their names to match their responses for transcription purposes. In order to maintain participant confidentiality they also had the option to choose a pseudonym for themselves to be used instead of their real names in the transcripts. Additionally, the questionnaire included two open-ended questions which were the following:

1. Have you worked with English learners before? If yes, where and for how long?
2. Do you speak English as your first language? If not what is your first language?

These two questions and the rest of demographic questions were asked for the purpose of descriptive statistics of the participants' age, gender, major, year in the program, and nationality. Questions 1 and 2 sought to explore more about the participants by asking about their prior teaching experience with ELs and whether they speak English as their first language.

Focus Group and Individual Interviews

Four focus groups were conducted which involved 5 participants each. The interviews were semi-structured using open-ended questions to better understand the TCs' lived experiences

of working with the EL TLE TeachLivE™ avatars in a mixed-reality classroom. The length of each interview was approximately 60-90 minutes. In addition, after each focus group I asked one of the participants to stay for a 10-15 minute follow-up interview in order to go more in-depth about a few questions or ask additional questions that time did not allow for during the focus groups. This extra time also made it possible for the interviewee to elaborate on some of her or his answers and give more explanations that she or he did not expand upon previously.

Interview Questions

An interview protocol was established following the phenomenological research design steps in order to reduce bias in data collection (Creswell, 2007; Moustakas, 1994). Furthermore, some interview questions were used to build rapport between the researcher and participants. The interview questions were mainly based on the pre-service teachers' experiences as well as their perceptions about using a mixed-reality environment for teacher training before and after their experiences with teaching in the virtual classroom (see appendix F). The following interview questions were asked to study the participants' perceptions and experiences:

1. Please introduce yourself. What can you tell me about your past learning and teaching experiences?
2. What experiences have you had with video or virtual games that use tracking devices? How did those experiences help you in navigating TeachLivE™?
3. Have you had any experience with mixed-reality classrooms prior to having TeachLivE™ in your class?

4. What were your perceptions about the EL cases, Edith, Edgar, and Tasir before meeting them as avatars?
5. How do you compare the avatar students with real students? Please share your impression of what they might have in common or the differences you noticed?
6. How was your experience when you met the TeachLivE™ virtual classroom for the first time in class (during the Classroom Procedure workshop)?
7. Please describe your second experience with teaching a classroom procedure to the avatars in a group.
8. Please describe your experience with the individual direct-teach lesson that you taught to the avatars?
9. Could you explain if you had any aha-moments during your interaction with the avatars?
10. Which one of these three experiences do you remember the most and think was the most helpful?
11. Have your perceptions/beliefs about your teaching and reaching English learners changed after your experience with TeachLivE™? How?
12. What are your thoughts/perceptions about using a mixed-reality environment for teacher preparation to reach the needs of ELs?

In what ways do you think it should be used?
13. If you could change anything about your experience with TeachLivE™ what would it be and why?

14. Would you like to participate in more TeachLivE™ sessions to practice your teaching skills in the future? Why or why not?

Additional clarifying questions were also asked to give the participants the opportunity to expand on their responses as well as clarify if there were any answers that might have been not understood thoroughly. The interviews were audio- recorded and then transcribed. After all the data was gathered through phase I, II, and III, I proceeded with the analysis of the data.

Data Analysis

This study followed Moustakas's (1994) procedural steps for conducting phenomenological research. The phenomenon of interest of this study was the perceptions of teacher candidates after teaching in a virtual class setting particularly the EL TLE TeachLivE™. The first step before the initiation of data collection was to practice epoche or bracketing (Creswell, 2007; Moustakas, 1994). The researcher needs to describe her or his own experiences with the phenomenon and why it is important to study the phenomenon at hand in order to increase awareness about one's biases and preconceptions. The epoche needs to begin from the onset of the research and be continually revisited during the course of the study. In Chapter Four I will give a thorough explanation about my epoche and any prejudgments that might exist with the phenomenon that is the core of this study or the use of a mixed-reality environment in teacher training for reaching the needs of English learners.

The next step after the epoche or bracketing process is collecting data regarding the perceptions of the TCs who took part in the three phases of the TLE TeachLivE™ interaction

explained in the previous sections.

After collecting and safely storing the data from phase I, II, and III, I transcribed all the data and went through the data multiple times to find sentences and quotes that best described the experiences and perceptions of the participants about the phenomenon under examination. Thus, some themes emerged from the raw data. The experiences and perceptions of the TCs in this study are closely linked to one another similar to the case of noema and noesis. According to Moustakas (1994), the noema is the appearance or the perception of an object or phenomenon. An example that he provides is that of a flower on a table which can be seen (or perceived) as natural or synthetic by an observer. If a person gets closer to the flower he or she might find out that the flower is real or artificially made. However, any individual's knowledge of one object or phenomenon is linked closely to a person's past and present experiences and will therefore result in complex meaning in multiple layers known as the noetic. Therefore, for the purpose of this study I examined both the noema (individuals' perceptions) and the noetic (individuals' experiences) in order to gain a deeper understanding of the meaning and essences of the experience.

The next step after horizontalization or analyzing all the data equally was to make "clusters of meaning" based on the statements and themes that emerged from the data (Moustakas, 1994). Textual description was the following step to analyze the data. I then use the themes to write about the context of the participants' experiences which later led to finding common experiences or the "essence" of the phenomenon also known as the "essential, invariant structure" in order to help us to understand the phenomenon that is being studied better (Moustakas, 1994).

Pilot Study

As a small-scale version of the main study, two teacher candidates were recruited in the summer semester of 2015 to examine the interview questions that I had originally developed. The interviews were conducted one-on-one with the participants and took an average of 35 minutes. The pilot study had multiple benefits for this study. First, it showed that the interview time needed to be longer and even though there were originally 22 questions on the interview question list, the TCs only took a short time to answer all of them. Moreover, some of the interview questions were too pointed and were worded in a way that inferences could be made from them. For instance one of the questions was, “Do you think the avatars are a good representative of real students in real classrooms?” Interview questions in qualitative studies need to be broad and neutral in order to gain the most responses from the participants (Creswell, 2007). The use of the word *good* in this question is not only not neutral but also is directly inferring that we are assuming that the avatars are in fact a good representative. Moreover, questions starting with the auxiliary verb “do” generally lead to yes or no answers which are neither sufficient nor valuable for qualitative research purposes. Asking this type of question might only confuse the participant and only prompt her/him to answer positively when she/he could have a different opinion about the topic. The question was changed to “5) How do you compare the avatar students with real students? Please share your impression of what they might have in common or the differences you noticed.” This question constitutes a broader perspective on the topic and also does not include any positive or negative presumptions.

Furthermore, interview questions were deleted that were not relevant to the research questions and deviated from the main goal of the study. “What feedback did you provide for

your team member who went up to teach the avatars?” “Were you able to use the feedback you had received from the coaches and classmates during your group teaching experience?” “How prepared do you think you are now to teach English learners in your class?” “Has this feeling of preparedness changed at all during the use of this simulated environment?” These interview questions were asking about topics that are not the focus of the current study and would merely result in more data that cannot be used to answer the research questions. Thus, doing a pilot study helped me to examine the interview questions and learn about which questions needed to remain and which questions should have been edited or removed from the list.

Table 2 Pilot Study and Instrument Evaluation Details

Pilot Interviews	Data
Interview with 2 participants	8/6/15
Questionnaire/interview questions evaluations	10/13/15

In addition to piloting and testing the interview questions, it was necessary to examine the questionnaire as well. Before the data collection dates, I asked TCs in another section of the same course that is used as the main area for this study to read the questionnaire and identify any interview questions they did not understand and if they had any comments or suggestions to make the questions more comprehensible. These TCs were not be the same as those who were the subjects of this study and only aided in the evaluation and validation of the instrument as

well as checking for understanding so that any necessary changes could be made before the actual data collection procedures.

External Audit and Member-Checking

Patton (2002) emphasized the importance of the researchers using various strategies to ensure the accuracy of the data. One of these strategies is the use of member-checking. After the interviews were conducted, the data was transcribed and sent to the participants via email for them to read over and make sure that everything was correct. All the participants responded to the email and confirmed that the transcripts were accurate. Additionally, in order to ensure that the analysis of the data is on the right track and important information of the participants' experiences and perceptions was not missing, an external audit or peer reviewer was called for. I asked the peer reviewer, who was a faculty member specialized in quantitative and qualitative research methods, to read the analysis throughout the analysis process and at the end write her comments or suggestions using the following guidelines:

Table 3 Formal External Auditing Procedures

Steps
1. Read through the transcriptions
2. Read through the coding
3. Read through meaning units to themes
4. Make note of any theme that was not found in previous steps
5. Write your questions, comments, or suggestions

Trustworthiness

Validity and reliability are addressed differently in qualitative research than the way they are generally referred to in quantitative research. In qualitative research trustworthiness or rigor are the terms that are used to refer to the examination of validity and credibility of data (Shenton, 2004). Moustakas (1994) explained the importance of referring to personal experiences and knowledge in regards to the phenomenon at hand in order to avoid any doubts or influence of the researcher on the study. Husserl (1931) referred to this return to the essence in an attempt to understand the true meaning of a phenomenon as *epoche*. For the purpose of this study, in Chapter Four I will write about my experiences with the phenomenon (using TLE TeachLivE™ for preparing TCs for teaching ELs as well as my experience as an EL) in order to bracket myself out of the data and recognize any presumptions or biases that may exist prior to the beginning of the data collection or analysis (Husserl, 1931; Lauer, 1967; Moustakas, 1994).

As discussed previously, member checking was used after the data was stored and transcribed. I provided the participants with a copy of the transcriptions for them to check for accuracy. Prior to data collection a doctoral candidate with extensive knowledge and experience in qualitative research read the interview questions, corrected errors, and made suggestions for changes to be made in order to enhance the quality of the research. In addition, the aforementioned expert observed all the focus groups and interviews and provided helpful feedback and recommendations. An external auditor was also asked to analyze the data along with but separate from the researcher to make sure that the analysis was accurate. Using different data sources or triangulation was also part of the current study. The multiple data collection phases and analysis points included: observations, questionnaires, focus group and individual interviews which were discussed in more detail in the research design section.

CHAPTER FOUR: FINDINGS

Introduction

This chapter analyzes the data gathered and presents the findings of the present study investigating the perceptions of teacher candidates about using EL TLE TeachLivE™ in their teacher preparation program. The research question and research design discussed in Chapter Three will be reviewed in this chapter. The participants of the study as well as the target course and different levels in which this mixed-reality classroom environment was used for the purpose of this research will be explored in more detail. Lastly, the steps taken to analyze the data and findings will be discussed.

Research Question

This study utilized a qualitative approach to explore the perceptions of teacher candidates who were the participants of this study about using EL TLE TeachLivE™ as they were going through their teacher preparation program. To achieve this goal, the main research question that guided this investigation is the following:

What are teacher candidates' perceptions of using EL TLE TeachLivE™ to prepare them to work with English learners in their future careers?

Observations, focus groups, and interviews were the methods of data collection to find the answer to the research question as well as to explore what other topics might come up in the data. In the following sections, the data gathered through these methods will be described as well. However, before going through the data analysis I completed the reflective process called *bracketing*.

Epoche or Bracketing

One of the initial steps that a researcher needs to take in a phenomenological study is to separate individual experiences and perceptions from the topic. Moustakas (1994) refers to this process as *epoche*, also known as bracketing in qualitative research. When a researcher explains her or his autobiographical experiences with the phenomenon or related phenomena, she or he begins to directly see or “look beyond constructions, preconceptions, and to the essences of the experience being investigated” (Gearing, 2004, p. 143). Therefore, in the following sections I will discuss my experiences as an English learner, teacher, and educator as well as my experiences and perceptions about using a mixed-reality classroom environment in teacher preparation.

My Journey as an English Learner

My grandparents, aunts and uncles from my mother’s side all immigrated to the United States in 1975. Before the Iranian revolution in 1979 they had a great life back home and had the privilege and resources to travel to and live in different parts of the world to their hearts’ content while being respected as Iranian citizens and passport holders internationally. However, after the revolution the airports and roads were closed off for a few years and they started to develop their roots in the US. My mother was the only person in her family who decided to stay in Iran. She had strong reasons for her decision: she loved living in her own country, speaking her own language, and appreciating the happiness, love, and family she had worked hard for years to create for herself there. I grew up not seeing any of our close relatives and did not really know much about them or the lifestyle they were living.

When I was 11-12 years old my mother found out that the request for obtaining US permanent residency that my grandparents had filed for her over 10 years prior had finally gone through. In a matter of a few weeks my mother and her children under 21 years of age (which included me, one of my sisters and my brother) had to go to Turkey to the US embassy and get our entry Visas while my father and 3 of my other older siblings stayed in Iran. My mother, still being skeptical about living in another country, had told us that we would be only traveling for a few weeks and we would go back home before the new school year started. I even purchased my school books for the 7th grade just in case we returned home a few days late. However, little did I know that things would completely change after we set foot in the US territory.

Media brainwashing had had its effects on my grandparents, aunts, and uncles. As soon as we arrived they started to persuade my mother that her children would have no future if we returned home and the Land of Opportunity would be our only means for survival. I was too young to be able to make sense of what was happening around me and too oblivious to object. Ultimately, understandably my mother gave in to the arguments and agreed to register her children in American schools and stay in the US. I, on the other hand, was blindsided by the decision.

One day I was told by my aunt that they had enrolled me in a school that I was going to attend the next day. However, the plan they had for me was not as thoroughly thought-through as they had imagined. The first day that I went to school was September 11, 2002; exactly one year after the horrible tragedy that struck the United States by terrorists who were identified as Middle Easterners. I went to a school which consisted of 99% Americans in a state where very

few foreigners resided at that time. Not knowing any English other than a simple hi and bye was definitely not working in my favor either.

The first day of school was identical to a sad, dramatic movie scene. I was the only student with dark Middle Eastern features in the entire school and I could hardly understand where each of the classes was located and where I needed to go to for the next period. In Iran, students all stay in one class for each grade and teachers are the ones who go to different classrooms for each period. Additionally, up until the 6th grade there are no courses about the English language for students who attended public schools without any extra-curricular activities which happened to be the case for me. In 6th grade we had only learned the English alphabet and a few greeting phrases which made up all of my knowledge of the language that was being spoken all around me. It felt as if I was stuck in the world of aliens while in everyone's eyes I was the only weird, out-of-place alien. That day in school was entirely devoted to remembering the excruciating memories of the 9/11 tragedy; all the classes were taught by playing videos and showing pictures of this unfortunate, unfair attack. Needless to say, even though I did not understand the language I could feel the strange, hateful looks the entire day. I tried hard to hold myself together and not burst into tears in school until it was time to go home.

That night and the following morning I cried my eyes out and refused to go to school. My mother and aunt let me stay home that day but they convinced me to go back to school the next day saying that things would get better as time went by. Unfortunately, things only got worse. I did not understand a single word in my classes and the teachers did not do anything to help me learn the lessons or make me feel welcomed or included in class. Most of the time I was sitting

behind all of the other students at the back of the classroom so that other students would not see me or make fun of me. I would sit there quietly and stare at the clock until the bell rang. Of course, I despised every second of it.

I was a decent student back home in Iran. I was not studious nor spent much time doing homework but always managed to get straight As (or 20/20 based on Iran's grading scale). Seeing that I struggled so much with school here in the US, my aunt went to talk to the principal and learned that there was a Persian boy in the school as well who could potentially help me. He was older than I and was not in any of my classes. Therefore, the next day one of the school staff pointed him out and directed me to go and talk to him. I was relieved to learn that there was one person in that entire school who might understand my language and what I was going through. I went up to him and said "salam" or "hello" in Farsi. Much to my surprise, as if he had seen a ghost he turned completely pale; looked at me for a few seconds, looked around to make sure nobody was watching and started running away as fast as he could. I never saw him again and I remember being utterly confused and devastated by what had happened.

It was not until years later that I learned about immigrants' sense of identity, power, and positioning in their new society/culture (Norton-Pierce, 1995; Pavlenko, 2001, 2002) that I realized why that boy ran away and did not want any of his classmates to know where he was from or make them feel that he was different from them. Back then, my 12 year-old self could only feel hatred, confusion, isolation, and fear of the people who did not accept me and who put up a wall between me and themselves. I did not feel like a human and I definitely did not belong to that place. All I knew was that I never wanted to feel that way again in my life. I only went to

that school for a few days and stubbornly refused to go any longer. Eventually, my mother and aunt gave up and agreed that I should go back home to my country and continue my education there.

After returning to Iran, I did not talk about my experiences with any of my friends or classmates. I had no desire to learn the English language and only treated it as a course that I needed to pass in order to get to the next grade. The method that was used in schools for teaching languages such as English and Arabic was Grammar-translation, which was based on teaching grammar structures in the native language and translating texts from the first language (L1) to the second language (L2) or vice versa (Brown, 1987; Kim, 2008; Larsen-Freeman & Anderson, 2011; Celce-Murcia, 2014). Using this traditional method of teaching made the classes dry, boring, and disconnected from the social or communicative aspects of a language. I started working after school hours to earn some money and soon found out that learning English would help me get better jobs. Therefore, after a few years I finally decided to enroll in an EFL class after my regular high school hours.

Becoming a Teacher and Educator

The atmosphere of an EFL classroom was entirely different from what I was used to in English classes at school. Everyone was extremely friendly and they were all there because they wanted to learn. Moreover, teachers were there because they wanted us to learn as well and the teaching methods they used were completely distinct from the Grammar-Translation method used in schools. CLT or Communicative Language Teaching was the new method that was utilized in EFL classrooms at the time. In CLT interaction is the most important aspect of

language learning and teachers become facilitators for improving the students' proficiency level by the means of developing their social-cultural skills (Richards & Rodgers, 2001; Harmer, 2003; Daisy, 2012; Gang & Xiaochun, 2015). I soon learned about the international dimension of the English language and how it did not belong to a certain geographical location. I started appreciating learning a language that was considered the lingua franca of the world and would connect me with many people around the world.

It was around the same time that I was looking for a job again and saw an advertisement for English teachers in the language institute where I was taking EFL classes. I decided to apply and after many different procedures, exams, and interviews finally got the job and started teaching English and learning it at the same time. Before I started teaching I was determined to become an electronics engineer; however, when I set foot in my first class and started teaching I knew it was the right career path for me. I continued teaching EFL to different levels and age groups in a few institutes and universities for about 6 years until I graduated with my undergraduate degree in English language and literature. After receiving my B.A. degree I decided to move to the US again to pursue my master's and PhD degrees in TESOL hoping that I could help both ELs and teachers. Being an EL myself and having experienced first-hand what it feels like to be a foreigner without any knowledge of the second language, I felt responsible for improving my teaching skills and also helping to prepare other teachers. I viewed training good teachers who have learned and can use effective teaching skills for all the students specially ELs as a debt that I owed to my 12 year-old self and all the other immigrants who have come to a new country and need extra support to reach their full potentials similar to their native-speaking peers.

As part of my assistantship when I started my Ph.D. program I was assigned to work with the EL TLE TeachLivE™ and conducted workshops for a number of courses each semester. Soon, I began to see the effectiveness of using a mixed-reality classroom environment in teacher preparation and the fact that this type of teaching rehearsal did not involve real students. In this regard, I might be biased about using mixed-reality classroom environments and virtual avatars instead of real students for teacher candidates to practice their new teaching skills. I have personally been affected by the lack of knowledge and teaching techniques of teachers who did not know how to teach or include ELs in their classrooms and would not like to see real students be faced with the same issues before TCs have been professionally trained about what they can do to make their lessons more comprehensible for ELs.

By writing about my story and experiences, I, as the researcher, needed to set my own views and prejudices aside in order to be able to neutrally and fully investigate this study's participants' true experiences and perceptions without any influences of my own (Fischer, 2009). I made an effort to neutralize all of my research tools (such as questionnaire, interview questions, etc.) and get input from experts in the field to make sure that I was not including any elements in the research that may have been influenced by my prejudgments and/or personal opinions. After “bracketing” my own experiences and opinions I am able to view the data with an awareness of my own biases to be able to analyze the data more accurately (Creswell, 2007; Hamill & Sinclair, 2010).

Observations

The participants of this study were all teacher candidates who were taking a specific 4000 level course at the time of the data collection. This course is a general methods course that aims to train teachers with general teaching strategies and various techniques to use in class as well as methods and strategies they can use to reach the needs of the ELs in their classrooms. The Classroom Procedures Workshop is a workshop that is taught during this course to introduce EL TLE TeachLivE™ and the avatars to the students in order to decrease their anxiety level and prepare them for what to expect before they do their group direct-teach lessons in the TeachLivE™ lab as part of their course assignments. The workshop does not heavily rely on teaching a specific lesson or skill to the teacher candidates in detail and a simple, easy-to-follow classroom procedure was chosen to be used for this purpose.

I, as the researcher, observed two classes that included the Classroom Procedure workshop for the purpose of this study. The first workshop was conducted on October, 28th, 2015 and the second one on November, 16th, 2015. Both of the workshops were held in the same classroom the layout of which can be seen on the next page. Moreover, the description of the observations follows Figure 1 using the observation and field notes that were taken during the workshops.

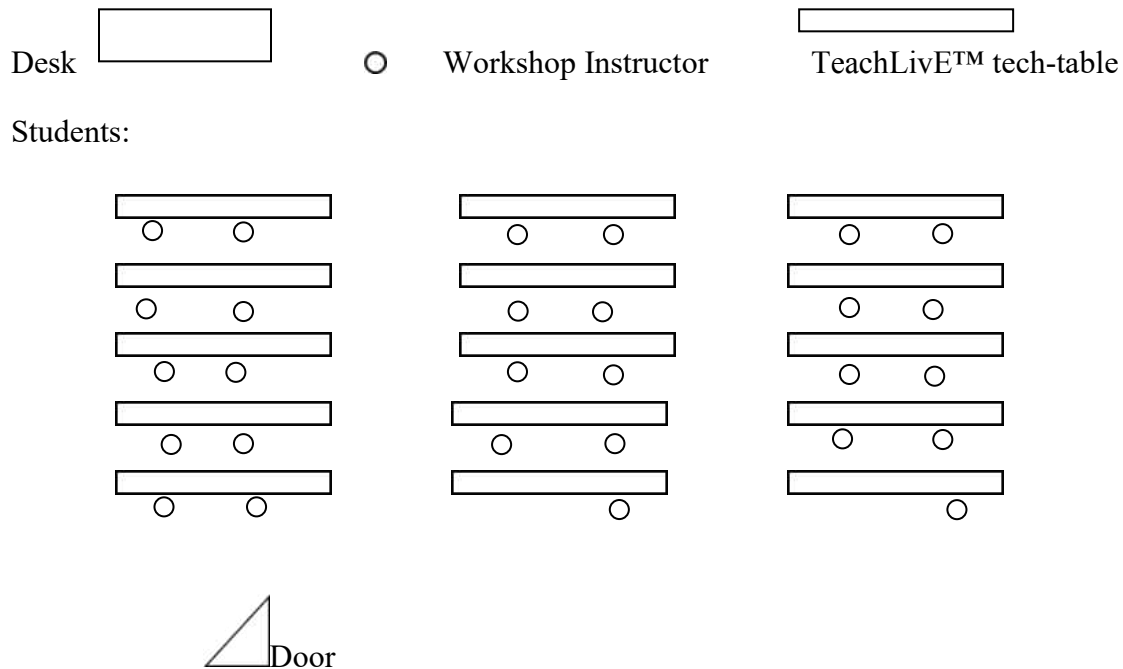


Figure 6. Classroom Layout

Classroom Procedure workshop

The instructor of the course started the class by greeting the students and expressing her enthusiasm about the exciting session they were going to have. Then, she introduced the workshop instructor who is a doctoral student in TESOL to the students. Next, the workshop instructor (further referred to as WI) began the Classroom Procedure Workshop using a PowerPoint (PP) presentation. WI stated that usually in classrooms we teach our students about classroom procedures that are used throughout the school year. On the first PP slide there was a list of general steps that teachers take when they teach a classroom procedure:

Table 4 General Guidelines for Classroom Procedures

CLASSROOM PROCEDURES

1) Explain what the procedure is and its steps aloud.

2) Physically model it in front of students.

3) Post the steps on the wall.

4) Practice the steps with students.

5) Use the procedure consistently.

Afterwards, on the next slide WI showed an example of a classroom procedure: “What to do when you take your seat in class.” There were different steps which included:

Table 5 Example of a Classroom Procedure

WHAT TO DO WHEN YOU TAKE YOUR SEAT IN CLASS:

- 1) Take a seat quietly at your table.**
 - 2) Locate the upper left hand corner of the whiteboard for seatwork assignment details.**
 - 3) Copy the seatwork assignment description on your notebook paper.**
 - 4) Work quietly by yourself on the seatwork until the bell rings.**
-

Students in class had previously been introduced to the three cases of English learners at three different levels of proficiency, (Edith: beginning level, Edgar: intermediate, Tasir: Advanced (a more detailed description was given in Chapter Three). After going through the steps, WI asked the students if they thought Edith would be able to understand these instructions to which students responded, “no.” Subsequently, WI confirmed and explained that the language might be too difficult for English learners and that they needed to simplify the instructions. The next slide was an EL-simplified version of the same classroom procedure:

Table 6 EL-Simplified Version of the Example

EL-SIMPLIFIED VERSION

1) Sit at your table. Be quiet.

2) Look at the top of the whiteboard. Read the seatwork assignment.

3) Copy the seatwork assignment.

4) Do the seatwork. Work alone.

Moreover, WI explained that they could also use pictures to demonstrate the procedures and make the steps clearer by using visual aids. The next four slides consisted of pictures of a student sitting quietly, looking at the board, copying the assignment, and doing the seatwork assignment. At this point of the workshop, WI informed the TCs that they have some guests in their class today and directed everyone's attention to the TeachLivE™ cart that was set up on the right side of the classroom. Five avatars could be seen including the three EL avatars (Edith, Edgar, Tasir) sitting in the back and the two native English-speaking avatars (Sean and Ed) sitting at the front of the class. The avatars said hi to everyone and Sean began talking about how excited he was to meet the teacher candidates. WI greeted and talked to each of the avatars individually and introduced them to the class.

After all of the avatars were introduced, WI turned to the teacher candidates and said: “let’s see what happens if we ask our English learners questions that are above their level of proficiency!” Then she turned to Edith and asked: “Edith, is it OK to work with a partner when you’re completing your seatwork?” Edith just stared and did not respond at all. Her facial expressions showed that she did not understand the question. After that WI asked Edgar: “Edgar, in your own words, tell us what the procedures are for taking your seat in class.” Edgar looked very baffled and after a few seconds of hesitation he eventually uttered: “...excuse me, too fast!” Even though WI repeated the question again, he was still not able to answer. The next question was for Tasir, “Tasir, why is it important for you to follow the rules for taking your seat before class begins?” Although Tasir is an advanced level student this question was confusing to her so after a few seconds went by she said: “Why is what important? I don’t know!” while shrugging her shoulders.

WI then explained to the students that these questions were above Edith, Edgar, and Tasir’s proficiency level and said: “let’s ask some different questions this time!” She showed one picture out of the pictures that demonstrated each step of the seatwork procedure along with the written version of the steps to Edith and asked very slowly, “Edith what number is this picture?...is it number one?... is it number two?...three?...four?” to which Edith responded: “hmmm...three?” WI encouraged Edith and said, “Yes, Good job Edith! Very good!” Then she turned to Edgar and asked, “Edgar, what is the last step?” while pointing to the written steps she had in her hands. Edgar answered, “hmm... do the work, alone? Not together?” The final question was for Tasir, “What would you tell a new student to do when she takes her seat in class?” Tasir replied, “I tell her that when she enters the class she should take her seat and be

quiet. Then, she should look at the board and write down the seatwork and do it alone without talking to anyone else.”

After the questions, WI asked everyone to give all the avatars a round of applause for their great answers. After the workshop was over, WI asked the TCs to come up and talk to the avatars individually, two TCs volunteered to come to the front of the class. They asked the avatars questions such as “what is your favorite subject?” and “what did you do over the weekend?” This time the native-speaking, or NS avatars, Sean and Ed, also participated and answered the questions one by one. The class ended by the TCs asking questions about TeachLivE™ and their Direct-Teach Lessons (DTL) that they needed to do as part of their course assignments and as a follow up to their experience with this mixed-reality classroom environment.

Direct-Teach Lessons

A few weeks after the Classroom Procedure Workshop was conducted in each of the two sections of the course that were part of this study, the TCs were scheduled to do their group direct teach lessons or DTLs. The DTLs took place in the TLE TeachLivE™ lab and the room next to it which provided a larger space to accommodate the groups. The room consisted of a large conference table where TCs could sit around as well as a TLE TeachLivE™ cart that was positioned in front of the room. A whiteboard was provided for the TCs to use where they could pin their posters or pictures they had to go along with their lessons.

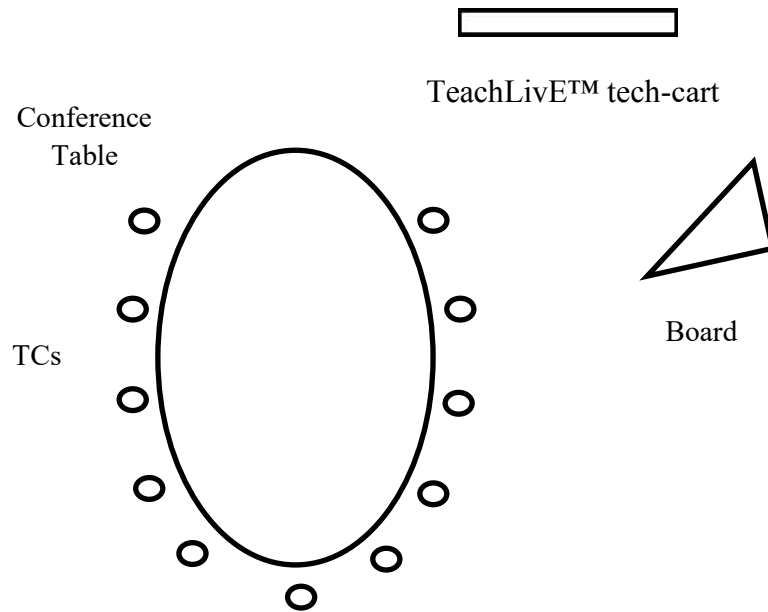


Figure 7. Direct-Teach Lessons' Teaching Space

Teacher candidates were divided into groups of three or four and three-hour blocks were scheduled to use EL TLE TeachLivE™ for each class. Each class included about 30-32 students who were then divided into three larger groups of 10-12 who would go in for their appointed hour block to teach as well as observe their peers (each hour block contained 3-4 groups for a total of 6-hour blocks). Each group had a specific number and all the TCs received a copy of the schedule with their names, the title of the classroom procedure they had previously agreed upon in their groups (which included: passing in papers, visitor in the classroom, needing a pencil, coming to attention, responding to fire drill, participating in class discussion etc.), the time block they needed to be in the lab as well as the order in which they needed to present their lessons to the EL TLE TeachLivE™ avatars. Before the sessions began the TCs knew who the selected

person to teach in their groups was, based on the random selection procedure explained in Chapter Three.

For the purpose of this observation I sat in the back of the room so that I could observe all the activities and reactions that were taking place during the DTL sessions. The TLE TeachLivE™ cart was set and the TCs came in, sat down around the conference table and began preparing the materials they needed for their DTLs. Each group followed the order they had on their schedule to go to the front of the room and teach their lessons for about 10 minutes. Even though one person out of each group was chosen to teach the lesson other group members could help with board materials, holding up visuals, or demonstrating the steps of the procedure. Fire drills, taking a test, handing in homework, standing in line were among some of the classroom procedures that the TCs had selected for their DTLs. After each group went through the steps of their chosen classroom procedure, they would ask a few comprehension questions to make sure all the students, and specifically the ELs in the class, understood what was taught to them and had no lingering questions.

Additionally, there was a coach in the EL TLE TeachLivE™ lab who observed all the groups, took notes of the way they taught the lesson and gave them feedback both during and after their DTLs. When the TCs seemed to be struggling with a particular part of their lessons, the coach would say “pause classroom” and give them some immediate feedback about what could be the source of the problem they were having with their lesson. For instance, in one of the lessons as the teacher candidate was explaining the fire drill rules and steps she turned to Edith and asked her “Edith, do we stand in a line outside of the classroom when a fire drill happens?”

Edith could not respond to this question and looked very confused. The TC then repeated the same question again without changing any of the wording or rephrasing the question. At this point the coach paused the classroom and explained to the TC as well as other groups present in the room that when they find themselves in a situation where they have a beginner level English learner such as Edith, in order to make the question more comprehensible they can rephrase the question by making it more simple and direct. The coach also explained that the TCs can use visuals to point to and the board to draw or write on to make their question clearer. The coach depicted her suggestion by pointing to a picture that the TC had as part of her procedure steps and asked Edith, “Edith, is this a line?” This type of simple yes/no question when accompanied by the aid of visuals helped Edith to understand the question and respond to it correctly. In another example, the TC asked Tasir, “Tasir, I have a big question for you, could you put your thinking cap on?” Tasir did not understand the question and after a few seconds said “I didn’t bring a hat today, I’m sorry.” Although Tasir’s answer made the TCs laugh, the TC who was teaching the lesson did not address Tasir’s response and jumped into her next question right away. After the DTL was done in her feedback the coach brought up this instance and talked about the use of idioms and common phrases in a language. The coach explained that even though Tasir is an advanced level EL she does not know all the idioms and phrases in English and as teachers we need to be aware of the words and idioms we might use while teaching. She further commented that it is not that the TCs should not use idioms but if they do it is good to give the definition of the words or idioms that might be difficult for the ELs in the class so that everyone in class can follow the lesson.

After each group was done with their DTLs the coach would ask other TCs present in the room to share any feedback they had about the group's performance. TCs were encouraged to take notes while they were observing other groups' lessons and discussed their thoughts and suggestions with their peers. Then, the coach would share her feedback with the group and talk about the positive aspects of their lessons as well as some parts that they could improve upon by giving them recommendations on what they could do to make their lesson more effective. Some of these suggestions included but were not limited to: slowing down their speech, using visuals, adjusting their comprehension questions based on each students' level of proficiency in English, pointing, gesturing, rephrasing, simplifying and getting rid of unnecessary words in their explanations such as "can you tell me?" or "how can you tell me?" among others.

The next section will describe the focus groups and individual interview findings.

Focus Groups

Participants

Through phenomenological research, in particular transcendental phenomenological research, we seek to understand the lived experiences of the participants. By using focus groups and interviews I attempted to learn more about the participants' lived experiences and perceptions about the phenomenon under investigation. There were 20 participants in this study. The majority of the participants were female (n=18) and only two participants were male (n=2). All but three of the participants were juniors and all had none to limited teaching experience mostly consisting of service-learning and observations. Except for two TCs the rest of the participants spoke English as their first and only language. Four focus groups were conducted

with three groups consisting of five participants and one focus group consisting of four participants due to one of the participants' being absent during the date the focus group was done. These participants shared their experiences and perceptions about using EL TLE TeachLivE™, the mixed-reality classroom environment, which was used during their teacher preparation program. Before the initiation of the focus groups I asked the participants to fill out a short demographics questionnaire (see Appendix E). The following table contains the demographic characteristics of the participants who were part of the four focus groups in this study:

Table 7 Demographic Characteristics of All Participants

No.	Participant Pseudonyms	Age	Nationality	Gender	Major/Year	English First Language	Experience Teaching Els
1	Susan	28	Caucasian	Female	Elementary Education/Junior	Yes	Yes (limited)
2	Elisa	24	Dutch	Female	Science Education/Senior	No	Yes(limited)
3	Nikki	20	Latin	Female	English Language Arts/Sophomore	Yes	Yes (limited)
4	Cookie	22	Caucasian	Female	Elementary Education/Junior	Yes	Yes (Limited)
5	Roxy	21	Romanian	Female	English Language Arts Education/Junior	No	No
6	Matthew	21	Caucasian	Male	Social Sciences Education/Junior	Yes	Yes (Limited)
7	Kyla	22	African American	Female	Studio Track	Yes	No
8	Sebastian	22	Caucasian	Male	Elementary Education/Junior	Yes	No

No.	Participant Pseudonyms	Age	Nationality	Gender	Major/Year	English First Language	Experience Teaching Els
9	Brittany	21	Caucasian	Female	Elementary Education/Junior	Yes	Yes (Limited)
10	Sprite	22	Italian	Female	Elementary Education/Junior	Yes	Yes (Limited)
11	Kel	23	Italian	Female	Elementary Education/Junior	Yes	No
12	Ri	32	Caucasian	Female	Elementary Education/Junior	Yes	Yes (Limited)
13	Jen	21	Caucasian	Female	Elementary Education/Junior	Yes	No
14	Bri	22	African American	Female	Elementary Education/Junior	Yes	No
15	Mel	21	Hispanic	Female	Elementary Education/Junior	Yes	Yes
16	Mary	24	Black	Female	Psychology/Senior	Yes	Yes (Limited)

No.	Participant Pseudonymes	Age	Nationality	Gender	Major/Year	English First Language	Experience Teaching Els
17	Elaine	21	Puerto Rican	Female	Elementary Education/Junior	Yes	No
18	Lana	20	Caucasian	Female	Elementary Education/Junior	Yes	Yes (Limited)
19	Alexis	22	Caucasian	Female	Social Science Education/Junior	Yes	No
20	Dgreen	21	Lucien	Female	Elementary Education/ Junior	Yes	Yes (Limited)

Individual Follow-up Interviews

Participants

After each focus group was conducted I asked one participant to stay for a short follow-up interview. The individual follow-up interviews lasted for about 10-15 minutes and contained questions that were based on the answers the participant had provided during the focus groups. The types of questions asked gave the participants the opportunity to expand on their responses

and clarify if there were any parts that they needed to make clearer or give specific example of. Additionally, as part of the initial questionnaire (Appendix E) the participants had the option of choosing fictitious pseudonyms to be used in the transcripts and data analysis in order to keep their identity confidential. Table 8 shows the pseudonyms that were chosen by the participants followed by Table 9 which depicts some general demographic information about the interviewees:

Table 8 Interview Participant Pseudonyms

Interview	Participants (Pseudonyms)
1	Susan
2	Elisa
3	Nikki
4	Cookie
5	Dgreen

Table 9 Interview Participant Demographics

Interview Participants	Age	Ethnicity	Gender	Education
Susan	28	Caucasian	Female	Elementary Education/Junior
Nikki	20	Latin	Female	English Language Arts/Sophomore
Cookie	22	Caucasian	Female	Elementary Education/Junior
Elisa	24	Dutch	Female	Science Education/Senior

Participant Bio-Sketches

The following are short bio-sketches of the participants who participated in the individual follow-up interview section of this study:

Susan

Susan is 28 years old. She speaks English as her first and only language. She is a junior majoring in Elementary Education. Her teaching experience mostly consists of volunteer hours. She is currently working at a local college in a math class as a tutor. Her experience teaching

English learners is limited to the 15 hours of service learning that she was completing as part of her ESOL course.

Nikki

Nikki is 20 years old. She speaks English as her first and only language. She is a sophomore majoring in English Language Arts Education. Service learning and Junior Achievement have been the main resource of her teaching experience. During her service learning she has worked with three English learners directly in a high school setting. She has enjoyed her teaching experiences so far and looks forward to teaching in front of a class again.

Cookie

Cookie is 22 years old. She speaks English as her first and only language. She is a junior majoring in Elementary Education. She described her teaching experience as always helping her classmates with their homework and exams during middle and high school. She has also done observations and hands-on experiences while attending a two year college before she transferred to her current university.

Elisa

Elisa is a 24 year-old senior majoring in Science Education. She is originally from the Netherlands. English is not her native language and she speaks four languages. She has been an English learner herself and has worked with ESOL students during her service learning and Junior Achievement. She adds up her teaching experience hours to about 60 hours.

Dgreen

Dgreen is a 21 year-old student from Saint Lucia. She speaks English and French. She is a junior majoring in Elementary Education. She described her teaching experience as starting to teach at her local church. Her family wanted her to pursue medicine but she decided to switch her major to education because she realized that she would be a better teacher.

Findings

The research question for this study asked, “What are teacher candidates’ perceptions of using EL TLE TeachLivE™ to prepare them to work with English learners in their future careers?” In order to explore this research question it was important to learn more about the lived experiences of the participants because in phenomenological research the participants’ perceptions of their lived experiences is what creates the structure of the phenomenon (Giorgi, 1985; Husserl, 1962). In this sense the lived experiences and perceptions are not only not separate but they are intertwined; the meaning the participants made from their experiences with EL TLE TeachLivE™ led to their perceptions about the use of such technology in teacher preparation programs. After reviewing the transcripts multiple times and comparing notes with the external auditor who analyzed the data separately, three main themes emerged: TCs’ general perceptions about the avatars and EL TLE TeachLivE™ as a mixed-reality classroom environment, TCs’ perceptions of the current use of the EL TLE TeachLivE™ in their teacher preparation program, and TCs’ perceptions about the future use of EL TLE TeachLivE™ in their teacher preparation program. In the following section I will go over each of these main recurring themes and the consequent sub-themes that emerged from the data.

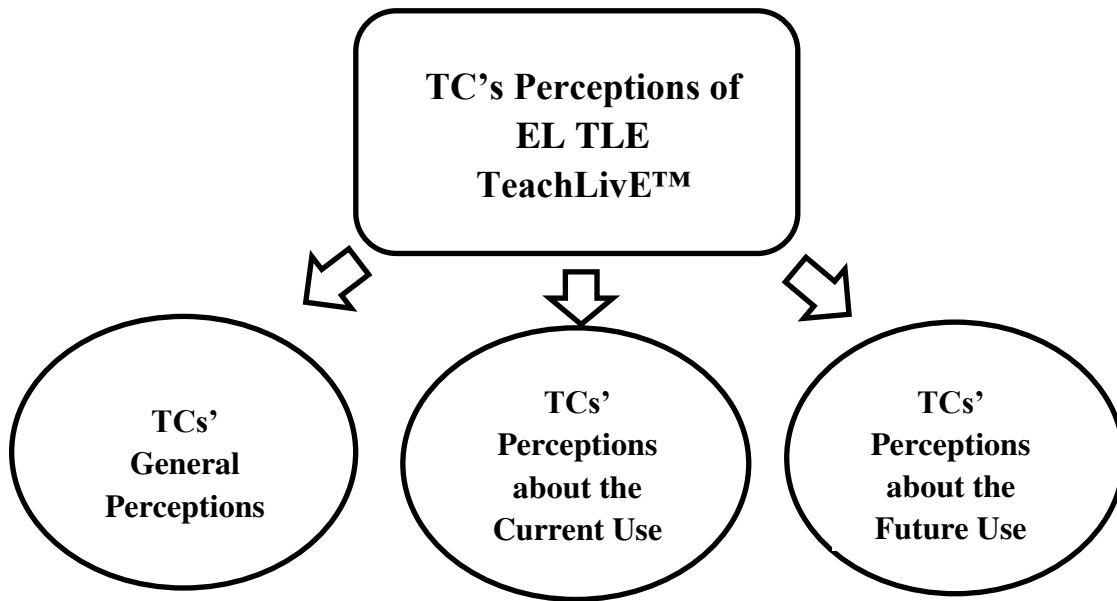


Figure 8. Three Main Categories

Supporting Data

Teacher Candidates' General Perceptions

As discussed in Chapter One and Chapter Three *perception* is defined as how a phenomenon is thought about, seen, and understood through the eyes of those who experience it. After doing a thematic analysis of the focus groups and interviews, one of the main themes that emerged was about the general perceptions that the participants held about EL TLE TeachLivE™. The participants had many shared positive and negative aspects of their experience with this mixed-reality classroom environment that I will expand upon in the following section.

Video Game Dissimilarities

One of the most prevalent concerns when it comes to the idea of using virtual reality (VR) in fields outside entertainment is the idea that its appearance and usage might not be similar to those in a real environment. In a generation that is accustomed to playing various types of video games, this assumption does in fact seem plausible. However, the most recurring theme that emerged from the data in this study was that the participants did not think that EL TLE TeachLivE™ was similar to video games. Out of all the 20 participants none of them stated that they felt like there were any resemblances between what they experienced with EL TLE TeachLivE™ and video games. One of the participants, Alexis, stated that “I play video game but it’s not like this...” and expressed her astonishment after she had her first experience with this mixed-reality classroom environment:

I thought it was gonna be like animation, more cartoony, to me they looked more realistic than I thought, I thought it would be way more like animated... I don’t know how to explain that but even though it was like a cartoon it still looked more human to me, I thought it was gonna be like Jimmy Neutron I don’t know like a cartoon with a person like that... I didn’t think it was gonna be like someone that can look like a human, like creepy like that [laughs].

Other participants also spoke about the differences between EL TLE TeachLivE™ and video games. Sebastian mentioned that “I don’t think it really related that much like playing video games or computer games or being like really technical-savvy” and continued “it’s just all mentally. You’re just standing like beginning the class and then it’s all talking.” Roxy agreed

with Sebastian and stated that the interactions that occur in video games are different from what happens with EL TLE TeachLivE™:

They [avatars] actually interact with you based on what you're saying whereas in a video game even if you... you're reacting to whatever the game gives you so if you can't turn into an area or like somewhere that's not on the map you'd have to find a different route whereas when you talk to the avatars they guide you and you can guide them into different things.

Another participant, Elisa, brought up Sims which is a virtual reality game that was discussed in Chapter Two. However, when it came to the comparison between the two environments she said "I mean if you played Sims but it's not as real... I've only played that on my phone it's not like a classroom...the only thing is getting used to the actual visual of it but I mean you get passed that real quick." Similarly, Dgreen was another participant who had experience with Sims and talked about the dissimilarities and the fact that the EL TLE TeachLivE™ environment is significantly more real and the avatars are more realistic:

The only experience I would say is Sims but that's not really...I could imagine how they would be based on the Sims games that I always play and I was like hmm they're way more interactive, I really like them better [laughs] I wish the game was like that. I'm obsessive with that game, when classes are done I'm like 24 hours Sims mode and then afterwards I kill them off and I'm done [laughs]. Yeah, so I kind of imagined them like that and when they were more interactive I was like yes, bring that to Sims [laughs]. But they are way more well-behaved than an actual classroom, it was awesome.

In her response Roxy also confirmed the natural interactions that take place in EL TLE TeachLivE™ and said that “They [avatars] are alive in a sense or something like that, they talk to you. It’s not pre-destined the interaction. I mean other than the graphics they don’t seem like games.”

Moreover, the only shared feature that the participants noticed between video games and EL TLE TeachLivE™ was that they both used motion sensing and tracking devices. Some participants talked about using the same “equipment” in their video games such as Kinect Xbox but followed that with describing how that experience was the only familiar factor when it came to EL TLE TeachLivE™. For instance, Nikki mentioned that having been used to tracking sensors in video games aided her in becoming more comfortable with the EL TLE TeachLivE™ technology:

I mean the extent of mine is like using the Kinect like Xbox and just stand there. That’s my extent of like video-tracking devices but I just felt like because of that... like I play a lot of those games like with my niece and nephews because of that I was more comfortable standing in front of the camera and not being like oh someone is watching me. I felt like more comfortable standing there and like kind of in my head getting that it was a simulation and being able to like go for it and be like alright, these are simulations and they’re not judging you, I can just go and do what I gotta do. So that helped a lot, just having that experience of using the Kinect and all of that.

Overall the participants discussed the distinct qualities of the EL TLE TeachLivE™ extensively and explained that it only took a few seconds or minutes for them to feel that they

were teaching an actual classroom and not virtual avatars. Ri was one participant among others who validated this claim by saying “before they speak it feels kind of strange standing in front of a TV but then once you’re interacting then it’s fine... Maybe just a couple of sentences” and continued, “It emulates properly the emotions that you’ll go through so that was similar to a real classroom. To go up in front of them and public speaking you know. It simulates a classroom really well.” Brittany also commented about how she thought the VR environment was similar to real life rather than a video game, “I kind of from the very beginning ‘cause we walked in and they were like hi, hi, like they respond right back. There wasn’t like an awkward pause or anything.”

Avatar Believability and Real-life Features

The realness of the avatars, their behaviors, and features were part of another major theme that was repeated multiple times throughout the data. Elaine compared interacting with the EL TLE TeachLive™ avatars to Skype-ing and said:

They could see us and communicate ‘cause like even if you’re Skype-ing just one person you usually have issues so it’s five people at the same time, they can all communicate at the same time, or one at the time so just how well the program worked kind of threw everybody off I think.

The majority of the participants noted that they felt like they were teaching real students. Jen remarked ‘I didn’t really feel the difference because I felt like I was speaking to students so and you could see that they were there and you were visualized in the classroom so you didn’t feel like you weren’t in front of a room. Mel confirmed Jen’s remark by saying “Cause you see

that the students going like this” while putting her hand on the table and leaning her head on her hands, looking around the classroom and moving her head to mimic the avatars’ gestures.

Additionally, some of the participants noted that the avatars reminded them of actual students and real behavior that they have seen in regular classrooms. For example Mel described that “there is always that one student that’s very talkative like Sean is very talkative so you always have them, like the quiet one, the shy one so it’s really like the real thing.” Dgreen made a similar statement in a separate interview:

They have in common Sean and his attitude [laughs]. There is this little boy his name is Wyatt in my class. He always loves attention, Sean reminded me of him 100% [laughs]. The rest of the kids like I said Edgar there is a kid that I identified him with so I put him there and then Edith was the same but with Tasir and the other child. Oh my Gosh he was so sweet, he was so respectful and I was like I know someone like that. I was someone like that so I was like yeah it was so cool to see.

One of the main reasons that the participants thought that the avatars were believable was how the avatars would comment on what they could “see” in the classroom and bring up current events such as local celebrations, locations, and news to converse with the TCs. In one of the focus groups Elisa enthusiastically talked about one of the avatars commenting on the shirt that she was wearing that day while the rest of the participants recalled the conversation that had taken place even weeks after they had the workshop in their classroom. Another theme that frequently came up was the natural behavior that the participants saw among the avatars that made their experiences very unique, real, and memorable. Elaine commented that “we are at the

back of the room like one girl in our class was like making a face and Sean called her out, he was like: “Why is she making a face at me?” It was supper funny so I think it was really cool.” Other participants also discussed other common behaviors they saw with the EL TLE TeachLivE™ that would be seen in real classrooms such as the avatars talking to one another, trying to help each other when needed, having group discussions, writing, pointing etc.

Furthermore, these natural behaviors and interactions not only make the classroom environment of the EL TLE TeachLivE™ more realistic, they also help ease the TCs in their experience and make them feel that they can have a connection with the avatars and treat them as real students in their classrooms. Roxy depicted this point well in her reflection about two of the avatars named Sean and Ed:

Yeah he’s the most real student when I first talked to him we were talking about Halloween Horror Nights and I’m like oh ok... so I think it’s good that he’s the first and he’s the one who engages with you more because you feel more comfortable with him which I guess is unfortunate because you want to talk with him the whole time but he does help you I guess relax more and get to the comfort level and see oh they actually are real students so he really does help. I don’t know anything about Ed, I haven’t really talked to him, the one on the left, I haven’t really talked to him much. I think he’s just a quiet student I guess...

Even though the topic of believability of the avatars was repeated many times in the data some of the participants commented that the way students behaved in the EL TLE TeachLivE™ was different from what they would experience in real classrooms. “Too good,” “Too well-

mannered,” and “too perfect” were some of the adjectives used to describe how some participants thought of the avatars’ behaviors. Lana expressed her opinion as:

They behave a lot better than children usually do, they sit and they don’t like talk to each other unless they are told they are allowed to talk and the ELs are just, they don’t really interact with anyone else, like you see Ed and Sean talking to each other but the other ones don’t speak at all and I feel like ELs in a real classroom they do have other friends, they don’t sit by themselves the entire time.

Personification of the EL Cases

The English learner cases (Edith, Edgar, and Tasir) explained in Chapter Three were the basis of the EL avatars in the EL TLE TeachLivE™. The participants in this study had previously read about the cases of these ELs in their online module and used them as examples in a few of the courses in their teacher preparation program. In the book *Educating English learners: What every classroom teacher needs to know* by Nutta et al. (2014) the authors use the EL cases in various narratives and scenarios to paint a picture of different situations where ELs and their teachers can find themselves and what teachers can do to best accommodate the ELs in their classrooms. Each of the EL cases comes from a diverse background, age group, and grade level that can best serve the purpose of each chapter presented in the book. When asked about the perceptions of the TCs about the EL avatars one of the most recurring responses was in regard to the age difference between the EL avatars and the EL cases in the book. Susan’s comment was an example among other similar comments about this topic, “Well because the ages are different

in your book; Edgar is in 10th grade, so like in this video he's like in this little kids' class so it is not the same."

The appearances of the EL avatars were also another topic that came up in the data. However, some of the comments were merely based on misconceptions and stereotypes about particular races and how they are generally perceived to look. For instance, Tasir was brought up frequently when asked about the EL avatars that she did not look authentic to what they had read about in the books because as an avatar Tasir has fair complexion whereas the TCs thought that all the Egyptians have dark features and complexion. For example, Elaine made a comment about Tasir saying that, "Tasir threw me off, she doesn't look like anything I would have imagined. She had like blonde hair, was it?" Ri mentioned, "She [Tasir] just looked Caucasian and she didn't to me look ethnic." Other participants such as Susan and Lana made similar remarks by saying that they thought Tasir would have "dark hair" or "black straight hair and like creamy skin."

The level of proficiency of the avatars was another factor that had caught the participants' attention. Some of the participants felt that the level of proficiency of the avatars was higher than they had expected while others felt that their level of proficiency was lower than they had imagined. Susan discussed her perception by saying:

I thought some of the questions that Tasir was asked she should've been able to answer. Like I don't know for sure but I feel like they were...with reading about her she is almost as the same level as the other students you know and then when asked some question she wasn't able to answer them. Because they said that it comes like when reading about her

it's more problems with like her writing and her you know what I mean? like things like that and we weren't doing any kind of lesson that we had to write. We were asking a question about the procedure we taught, you know?

On the other hand, some of the other participants had contradictory experiences about the EL avatars' level of proficiency. For instance, Nikki in her response said:

I mean I wasn't worried about how they looked but the one thing that I found that made it difficult for me personally was that what Tasir what level she was at as what was described in the book and our first interaction with her was at a much higher level than when we went in for our own teaching it seemed like I kind of ... There were people who phrased the questions like almost exactly like in our original meeting of them and then like she didn't understand it at all. So that was I feel like in that sense having those preconceptions of them kind of made it more difficult cause Edgar was a lower level I think so too [other TCs confirm] so I think having those preconceptions of them kind of made it a little bit more difficult when you actually went in to teach with them.

Some of the concerns about the avatars' appearance and levels of proficiency can be explained by the fact that in most mixed-reality environments there is the possibility of human errors or inconsistencies in the operation and performance of the avatars. Therefore, depending on the day of the interaction of the TCs with the avatars there might have been slight changes in their behavior, level of proficiency, and how they responded in different situation. However, just like the different experiences of reading a book and watching a movie made based on the book there can be as many interpretations of the characters as there are readers of the original book.

Therefore, this trait of the EL TLE TeachLivE™ can be considered as a positive quality since it allows the users to read about the characters, get to know them in multiple scenarios, and put what they have learned in the book and the strategies they have learned in their classrooms into practice when they meet them in person without having fixed expectations. Sprite's quote depicts this point:

Umm I guess it was kind of like reading about them it was different than seeing them in person. Like reading about them it was kind of like you still had the unknown of how it would actually happen in real life with you and students and then this kind of helped a little bit cause it allows you to talk on their level and see how they would react if they were asked a question so it helped.

Fear of the Unknown

The positive connotation of the word “unknown” that was used by Sprite in the last section was not exactly what some of the other participants had in mind when describing their experience with the EL TLE TeachLivE™. *Uncanny Valley* is a term that is used to describe feelings of disgust, annoyance, and unease due to near-identical similarities between humans and animated characters or robots (Mori, 1970; Mewes & Heloir, 2009; Laja Uggah, & Manaf, 2015). EL TLE TeachLivE™ consists of five animated avatars that play the role of students in a mixed-reality classroom; consequently the concept of uncanny valley can also be relevant to how some users might feel about experiencing this type of virtual reality in their teacher preparation programs. Lana was a participant who expressed her concerns about her desire to take part in this type of mixed-reality environments:

Just like most of the characters that are like Disney characters or like known characters I don't like [pauses] they just freak me out, so I got really scared [laughs] but once they started like well I realized that well I think there is like people looking at you and they are answering for them so it's not the same as, it's a person with character I think so ...I even get goosebumps just thinking about them [laughs nervously] I don't know I think like well Tasir in particular like the way that she looks at you is so scary.

Even though the majority of the participants did not feel the same as Lana about the EL TLE TeachLivE™ avatars, after Lana brought up her fear and dislike of the avatars a few other participants also voiced their thoughts about using computer-simulated environments. These participants' comments included their desire to "to see a person's real face" or to be able to see a person's eyes; "to be able to connect with them on some level" which they thought was not fully possible through the medium of working with virtual avatars on a computer or TV screen.

Avatar Movement Restrictions

Although most of the participants in the focus groups as well as in the individual interviews talked about the real-life features of the EL TLE TeachLivE™ they did not ignore the technical glitches and physical limitations of the avatars. Sprite noted that despite the fact that she perceived the avatars as emotionally realistic she did not think of them as physically true to life:

I think emotionally they were like real students but physically they did have the limitations. It would have been easier to teach these procedures if they could actually you

know physically talk all together, like stand up... so that was the only limitation but I feel like emotionally on point as real students.

Some of the physical limitations that the participants had noticed in their interactions with the avatars included: not being able to stand up (except for Sean), not being able to respond in unison, not being able to gesture more than a limited range of movements such as raising their hands, walk around the classroom or change their seats, to name a few. Mary for instance stayed after the interview to tell me that she thought the fact that the ESOL students were sitting in the back and the two native-speaking students in the front of the classroom was not how she would like to have the seating arrangement in her own classroom. She said that by moving students' chairs around and having them work in different groups and new peers to do tasks during the lesson as a teacher she can increase the English learners' chances of learning and making new friends.

Lack of facial expressions was also another subject that was repeated during the interviews. The participants suggested that not being able to read the students' facial expressions hinders their ability to help them or know if they are struggling with any part of the lesson that is being taught to them. Elaine compared teaching a real classroom and teaching avatars as:

I feel like it's easier with actual students to recognize if they understand you, if they know what you said or not, it's kind of easier you can gauge their response; like you can see their face if they are confused and you see [gestures] oh! I understand it, so it's a lot easier. I think in some ways it's similar cause I asked a question that I would ask Edgar to a student in real life and made it easier like asked him, "Do you know what this is?" Had

no idea so “which would you choose this one or this one?” And then he was like that one!
So it was similar so that’s kind of the same.

Since the objective of the Direct-Teach Lessons that the TCs had to do with the EL TLE TeachLivE™ was about classroom procedures (described in Chapter Three), many participants discussed that they could incorporate more into their lessons the way that they would in regular classrooms if they were not faced with physical limitations of the avatars. Nikki, Jen, Ri, Cookie, and Brittany were among participants who talked about how they could have added to their lesson to enhance student learning by using kinesthetic responses such as asking students to “get up from their seats,” “raise their pencils,” “reply in unison,” or “clap” to demonstrate procedures and “have the practice.”

There is no doubt that with the advancements of the technology every year, EL TLE TeachLivE™ will also improve and the limitations will decrease. Nevertheless, for the time being these limitations can be brought up during the workshops that are conducted to familiarize the TCs with the EL TLE TeachLivE™ avatars. Matthew supported the same notion by stating that:

I think just knowing the limitations cause I would have changed mine to just when I raise my hand I want you to raise your hand and be quiet you know and I don’t know if they could all raise their hand at the same time which probably they can’t but you know just knowing the limitations would help while we’re writing our procedure. You know before like just knowing the limitations and being introduced them before we write our procedure before we’re expected to stand up before them.

Suspension of Disbelief

First coined by Samuel Taylor Coleridge in 1817 *Suspension of disbelief* is referred to as “poetic faith” and is defined as one’s willingness to believe something that is not real. The concept of suspension of disbelief has been used in a variety of areas such as literature, drama, fiction, theater, and cinema (Holland, 2003). However, Virtual Reality brought an entire new meaning to this concept (Newquist, 1991; Klimmt, & Hartmann, 2005). In a virtual or mixed-reality environment the users immerse themselves in the virtual world and through the use of both hardware and software creations they are able to experience a virtual world as a real one. Natural body movements can be incorporated in these virtual or mixed-reality environments in order to make the users’ experience more realistic (Park, Calvert, Brantingham, & Brantingham, 2008; Slattery, 2008; Banks, & Bowman, 2016).

The findings of this research showed that the majority of the participants enjoyed the suspension of disbelief that was an element of the EL TLE TeachLivE™ and it kept them interested throughout their interaction with the avatars. Another topic that was brought up was that even though the participants were curious about the technical aspects of the technology they did think that it was a positive asset that they did not fully know the details of what was “behind the curtains.” For instance, Mary talked about how not knowing the details made her concentrate more on her teaching strategies and how to focus on the task at hand:

I think it’s kind of funny how they keep the reality away from us, it’s kind of like Santa Claus like who’s really behind this but they don’t wanna tell us. It’s almost like I feel like a little kid [laughs, other TCs confirm.] As an adult you kind of wanna know, you’re like

this can't be real but you know as in a position it's a good way to keep that distance so that you can remember that this is what you need to do. It kind of leaves like something unexpected. but it keeps it to where like you know we need to be aware of what we're doing as opposed to taking it as joke because we know that there is some form of reality and human behind the cartoon.

On the other hand, there were a few participants who did not enjoy the “surprise factor” of the implementation of the EL TLE TeachLivE™. Matthew and Elisa mentioned in their responses that initially they thought the mixed-reality environment was “silly” and “not optimal.” Despite the initial lack of interest, both of these participants also expressed that if they were given more elaborate explanation before they first were exposed to the EL TLE TeachLivE™ they would have a better experience and know more about what they needed to do. Matthew's answer summed this point up:

Yeah and it not being explained well, not being explained why are we're doing it. Like we understood like Edith, Edgar, Tasir obviously but it's ... I don't know it just felt like silly to me standing in front of a board you know and just the way they reacted first time I talked to them I didn't really get it but this time we knew like when Edith put her head down there was a reason you know... like we knew when Edgar like leaned like way back he is like not interested you know like we knew more about them...and it just might be it's my second time now you know so I had a first experience so when they came in I got up right away to go ask a question because part of my procedure I didn't think they'd

be able to do it cause it was clapping so I was like they probably don't know how to clap so I wanted to ask that.

Furthermore, the participants said that after their first experience with this mixed-reality environment they felt more comfortable and were able to immerse themselves more. Thus, explaining why the suspension of disbelief is not a one-time experience and can continue or improve as the users have more experience with the virtual reality environment and avatars.

Figure 9 summarizes the most recurring themes that emerged from the data regarding the TCs' general perceptions about the EL TLE TeachLivE™. In the following segment I will go over the themes about the current use of this mixed-reality environment.

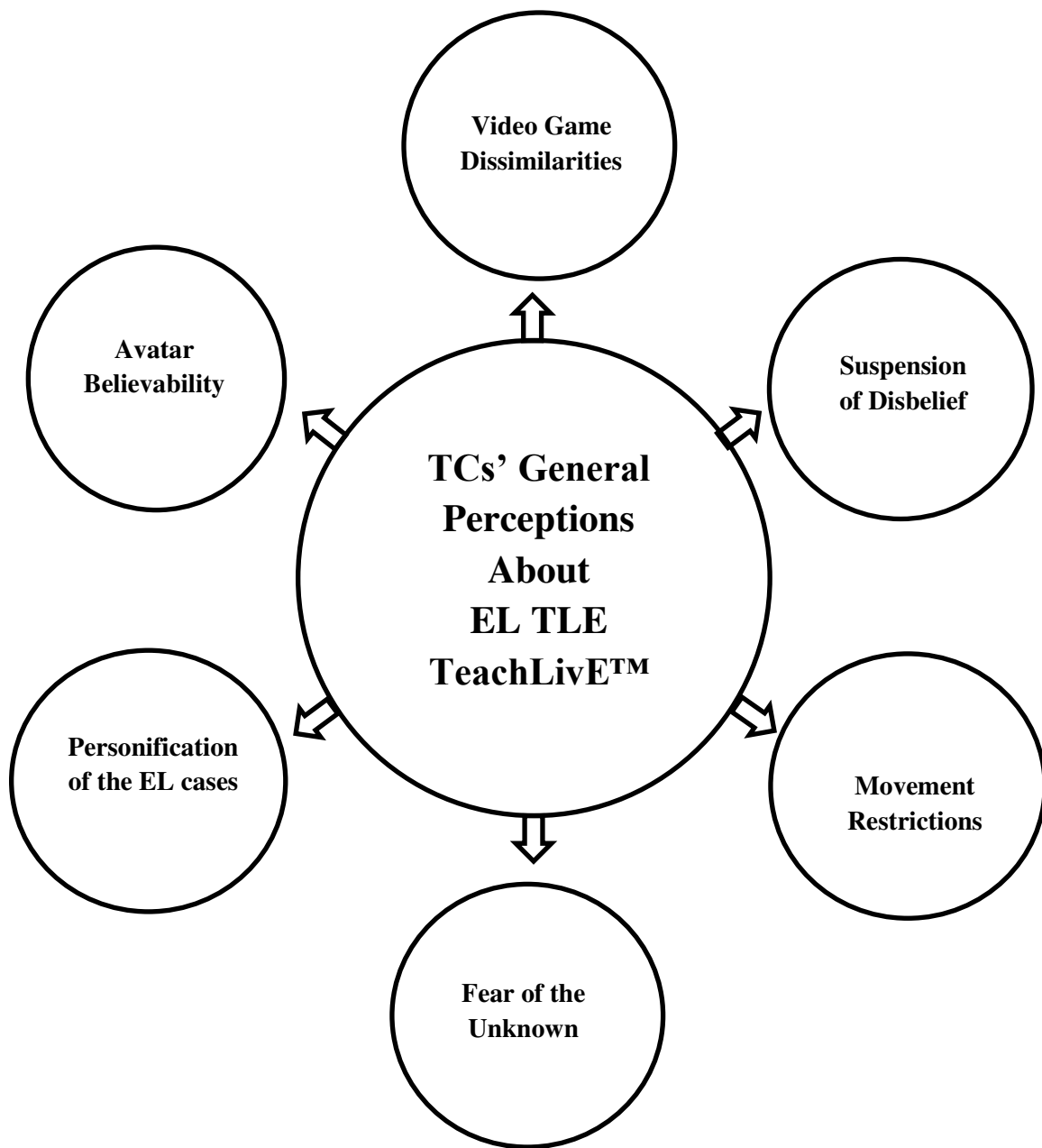


Figure 9. Teacher Candidates' General Perceptions

Teacher Candidates' Perceptions about the Current Use

Importance of Prerequisites

As described in Chapter One and Chapter Three the participants of this study were teacher candidates who were taking a general methods and classroom management course at the time of the data collection. This course is usually taken at the same time or after another course which is about theories and practices of teaching ESOL students in schools (further referred to as the ESOL strategies course). Even though students are encouraged to take this ESOL strategies course at the same time or before this course that the participants of this study were recruited from, not all of them had previously taken it. Some of the participants were taking both of these courses simultaneously while a few others had not taken the ESOL strategies course yet and were planning to take it later in their teacher preparation programs. During the ESOL strategies course teacher candidates read extensively about each of the EL cases (Edith, Edgar, and Tasir) that represent beginning, intermediate, and advanced levels of proficiency in English (refer to Chapter Three for more details about the cases). The TCs in this course also learn about the extent of proficiency in the English language that the ELs have in terms of their speaking, reading, listening, and writing. As part of their class and course assignments the teacher candidates in this course learn to ask leveled-questions that ELs with different levels of proficiency can comprehend and respond to. Moreover, they experience a workshop with the EL TLE TeachLivE™ titled “Leveled-Questions Workshop” in this ESOL strategies course.

The Leveled-Questions Workshop is a workshop designed to help teacher candidates with their understanding of ELs' different levels of proficiency and what teachers can do to make their lessons more understandable to English learners in their classes. The workshop instructor

usually starts the workshop by talking in another language that the TCs do not know. This activity is for the purpose of putting the TCs in the ELs' shoes so that they can see how difficult it can be for them to stay focused and learn in a classroom where they do not know the language that is used for instruction. The workshop instructor or WI then slows down the pace of speech and uses various EL teaching strategies to teach the TCs a few words in the foreign language that was being spoken (depending on who teaches the workshop this language can be different but Farsi/Persian or Chinese were two examples from previous semesters that were used for this activity). After the foreign language section, TCs share how they felt and what helped them to understand and learn about the lesson. This activity is an effective bridge to the next portion of the Leveled-Questions Workshop that leads to the TCs' first experience with the EL TLE TeachLivE™.

The teacher candidates have previously read the textbook chapter pertaining to leveled-questions prior to the workshop. Thus, the workshop instructor touches upon the TCs' prior knowledge and reviews what they know about different types of questions that they can ask to beginning, intermediate, and advanced learners. The TCs are then put into small groups and asked to write questions for each level of proficiency based on a few pictures provided by the workshop instructor. After the TCs are done with their questions they get to ask their questions to Edith, Edgar, and Tasir's avatars through the EL TLE TeachLivE™. This element of the workshop comes as a surprise to the TCs because they are not informed about having the EL TLE TeachLivE™ in their class on the day of the workshop. However, most TCs express their enthusiasm about this learning opportunity after the workshop.

The background information provided above was needed in order to understand one of the recurring themes that surfaced from the data. Many of the participants of this research mentioned that they thought having taken the ESOL strategies course helped them immensely with their experience with the EL TLE TeachLivE™ in the course that was the target of this study. For example, Mary talked about what they had learned during the ESOL strategies course (referred to as TESOL course in her response) that made her second experience with EL TLE TeachLivE™ more effective:

We knew where they were from, we knew how long they'd been in the US which was good. It was kind of like reading the book before seeing the movie so taking that class before was really good which not everyone may take that TESOL class before taking this class...

Susan also discussed the importance of having learned about the leveled-questions before their direct-teach lessons so that they could ask the EL avatars questions that were appropriate for their level of proficiency to make sure that they understood the steps:

Well because in this class we didn't really go over like leveled-questions like if you had taken TSL 4080 so you would have known that so I think that helped for people who hadn't taken that class before.

Elisa also expressed her concerns that if the TCs had not taken the prerequisite course (ESOL strategies course) they would not have had enough information to benefit from their experience with the EL TLE TeachLivE™ as they would have otherwise:

I mean it was very thorough if you look at the website and if you have that book for [ESOL Strategies class] I mean you have the whole background story and how they like progress through the year and it's very clear. So maybe for this class for someone who hasn't taken [ESOL Strategies class] it's very vague but I mean we have to take it anyways so at some point you will see it... I don't know I think it was pretty thorough.

These concerns appeared to be valid since those participants who had not taken the ESOL strategies course or had taken the online version which did not have the Leveled-Questions Workshop seemed to be lacking adequate information about the EL cases. For instance, Alexis had not taken the ESOL strategies course and talked about not knowing enough about the EL cases and assuming they were all Spanish speakers who had recently moved to the US. Nikki also had not taken the course and said that having taken that course could have helped her to be more prepared with her direct teach lesson with the EL TLE TeachLivE™.

In addition, the participants noted that the foreign language section that was part of the Leveled-Questions Workshop in the ESOL strategies course was a beneficial activity for them to understand the ELs' point of view and experiences. Some participants shared that they used the strategies introduced in the foreign language section when they were planning their own direct-teach lessons. Roxy mentioned strategies such as “gesturing” and “repetition” that were used to

teach during the foreign language activity and the surprise aspect of the EL TLE TeachLivE™ experience in the ESOL Strategies course:

I think you taught like a lesson in... cause you started off the lesson speaking a different language Farsi or Persian and then you started using different aspects that we could use like gesturing, repetition... and then you took a break and then you brought them in so I mean I was stoked about it.

Overall, all the participants agreed that taking the ESOL strategies course before or at the same time as the general teaching methodology and classroom management course would give them a more optimal experience with this mixed-reality classroom environment.

Advantages over Role-Playing

In most of the teacher preparation courses role-playing is used as a method to practice the teaching methodologies and classroom management techniques that teacher candidates learn through their programs. This method can be effective since it is convenient when there is not a real classroom with actual students to teach. Moreover, due to time and location constraints the instructors of teacher preparation programs cannot have all the teacher candidates practice what they are learning in real classrooms. Thus, doing role-plays provides a good opportunity for teacher candidates to practice their teaching skills in front of their peers as their pretend students so that the course instructor as well as their peers can provide them with feedback on what was done well and what needs to be improved. However, the EL TLE TeachLivE™ creates an alternative space for TCs to have more experience and practice their teaching skills. Susan's

perception about the EL TLE TeachLivE™ was one of the quotes that directly addressed this point:

Yeah, I think it's a really good experience, um instead of like role playing it's like a live experience and then I think that from doing it that like Sean and Ed were in the front, they talk a lot and the ELs... they are just in the back and they don't really, you don't have that interaction with them unless you call on their name.

Alexis also talked about this topic and claimed that working with EL TLE TeachLivE™ allows TCs to have more realistic experiences similar to the experiences they could have in real-life classrooms with actual students:

Umm because it really does, it's the way to get a firsthand look of what you might how to deal with, instead of talking to your teacher and saying what you would say, you're actually getting someone that is answering you back and actually can't speak English, instead of it like being your teacher pretending or like your friend pretending...it's just a real life kind of experience...

Teaching in Front of Peers

Even though the participants in this study discussed the positive aspects of teaching EL TLE TeachLivE™ they had mixed-feelings about teaching in front of their peers to the EL TLE TeachLivE™ avatars. Some participants referred to their experience as “nerve-racking,” “uncomfortable,” and “stressful” whereas others thought that although they felt nervous teaching

in front of their peers they found it to be beneficial in preparing them to teach real students in their careers. Ri's answer depicted this stance:

But you'd probably get more out of it kind of doing it in front of people even though you feel uncomfortable and you kind of don't want to put yourself in that situation but it's probably best to do it that way cause you're gonna have to teach in front of people coming to your classroom all the time and you know like principal and whoever...

Brittany also talked about the unexpected situations that can occur when teaching the EL TLE TeachLivE™ avatars in front of peers by saying, "You don't know what the students are gonna do back to you or throw you for a loop in front of everyone." However, she agreed with other participants that teaching in front of peers and at the same time being able to observe other groups when it is their turn to teach is helpful, "But we also got to see mistakes that other people made and try and fix it when it was our turn."

Additionally, the majority of the participants mentioned that they thought teaching in front of their peers prepared them for teaching in real classrooms because it simulated the nervousness and feelings that they would experience when teaching a real class for the first time. Kel also noted that the fact that their direct-teach lesson was not graded made the experience less stressful:

The fact that it wasn't graded kind of helped the stress as well [other TCs confirm] so kind of what did on [reflection] paper was the grade not what we were saying so that

helped the stress a lot but like a lot of the stuff I planned I didn't do because of my nerves

...

Group Teaching and Random Selection

In Chapter Three the process of dividing the TCs into groups as well the random selection of the TC who was chosen to teach in each group were described. The purpose of the random selection was that all the TCs would be prepared and have adequate practice in order to maximize their learning outcomes. However, some of the participants did not find the random selection favorable. Ri talked about the “added anxiety” that the random selection caused and that she found it unnecessary:

I would like to know that I was going to be the teacher cause it was just like an added anxiety. We're already nervous and then it's like am I gonna get picked? Am I not? All the way up to the morning of and it's like it's not necessary. Just if you're gonna teach then they know you're gonna teach. I know that's the idea that everybody thinks they're gonna teach but it just adds anxiety you know and then it's hard to get out of that, they're like there and then you know...

Even though similar sentiments as the one above were repeated by other participants throughout the data, most of them admitted that they would not have prepared if they knew who was going to teach beforehand. Additionally, some of the participants said that they thought the random selection gave them the opportunity to all plan and prepare for their lesson as a group

and were ready to teach when it was their turn. For example, Susan declared: “I liked it, I mean everyone in your group was supposed to plan to do it so it wasn’t like we weren’t ready to do it.”

Moreover, some participants said that they wanted to be chosen to teach but because of time constraint could not and wanted the instructor of the course to give them a chance by asking who would like to teach first. For instance, Elaine was one of the participants who wanted to have the DTL experience but could not because she was not chosen in the random selection process:

I understand her wanting like everybody to be prepared so to think like everybody can go but I still feel like at the last second she could be like ok if you really wanna go, you may go. So like everybody was prepared to go but the one person who actually wanted to go gets to do it.

Importance of Feedback

As mentioned previously during the direct-teach lessons there was a coach who observed and gave the TCs feedback both during and after their teaching experience with EL TLE TeachLive™. The perceptions of the TCs about the feedback they received as well as how the coach approached them and gave feedback to them were very positive. Matthew’s comment summed up many other participants’ perceptions well:

I really liked the coach, it really went well you know... like the first time our teacher was helping us but it wasn’t like this time whoever it was she was very knowledgeable and she was really good at explaining what she meant you know... it wasn’t like “Oh you

can't say an idiom" she was like think about it, an idiom like you know "the thinking cap" she really explained that well like "getting called on." She really did a very good job of explaining everything so...

Nikki also mentioned that the feedback that was provided by the coach during the direct teach lessons was useful because the TCs could notice their mistakes or what they could improve upon at the moment otherwise they "would probably forget like I forgot what I asked like Edgar or Tasir." Moreover, Mary talked about the benefits of giving the TCs the chance to redo parts of their lessons that did not work well as they were teaching:

When I did my presentation I'm not sure if she did this for all but like she gave me the opportunity to do it while teaching so it wasn't like after the fact, it was during the TeachLivE™ and she was like you know this is your opportunity to correct it so it gave me the chance to do it at the time.

Furthermore, the participants discussed that they also saw advantages when it came to receiving feedback after their direct teach lessons. Mel for example explained her reason as to why she thought the feedback post her teaching was useful as "cause those things like those comments are the things that you'll keep in mind of the future so [everyone confirms] like that feedback helped a lot."

Generally, the participants thought that the coach was "knowledgeable," "helpful," and "well-informed." They also described the feedback provided as "detailed" and a "system of reinforcement" because the coach could pause or freeze the program to give the TCs hints or tips

as well as repeat the strategies that worked or did not work so that the TCs could tailor their lessons, work on them, and make them better in the future.

Teaching Strategies and Aha Moments

Through their experience with the EL TLE TeachLivE™ the participants claimed that they had various aha moments and they used different strategies that they had learned in their teacher preparation program to teach the EL avatars. In multiple sections of the focus groups and interviews the participants talked about the strategies they utilized to make their lessons more comprehensible. Most participants pointed to the fact that as native speakers of English they spoke “too fast” or their questions were “too wordy,” “too long” or “too advanced.” Sebastian’s response explained his experience with asking a question to Edith that was too wordy and higher than her level of proficiency. After replacing the original question with one that was shorter and easier to understand while using simpler vocabulary and form taking into account the guidance of the coach Edith was able to answer the question:

It was like, I think I was asking like the number of words in the question, it was 12 or something and she was like just cut it down to 6 or 7 words instead of saying like “is that a water bottle?” yes or no like say “this is a water bottle, right?” and then that’s how I asked her, I said a statement that was correct and then she was like ... she basically agreed you know so that’s how I reworded it, I was like “step 1 is to stop, right?” she was like she looked at the board, looked at me and said like yes, I was like alright, cool.

In addition to making the statements or questions shorter and simpler, the participants realized that using visuals and gestures made a significant difference in the ELs' comprehension of the lesson. Kel mentioned "pointing" and "body language" as strategies that helped her with her lesson while Brittany talked about "rewording" her question and "gesturing" lifting a pencil to ask Edith "do you raise your pencil?" to which she could respond positively showing that she could understand the question. Cookie also talked about the usefulness of "using pictures" and "matching" as strategies that worked for her lesson. She had prepared pictures that showed each step of her procedure and asked the EL avatars to match each step with its corresponding photo which were successful techniques for the ELs.

Besides pointing and gesturing, "using leveled-questions," "repetition," and "color-coding" the key words, "using synonyms," "rephrasing," "modeling," and "simplifying" the language were among other strategies that helped the TCs in their experience with teaching the EL avatars. To mention a few examples of the participants' responses, Dgreen noted that "I learned that asking them more simple questions was good to bring it down a little bit and actually help them interact more." Roxy claimed that "making leveled-questions," "repeating," and "simplifying" them helped her. Moreover, Elaine talked about how color-coding the key words make her lesson more comprehensible to ELs saying that "they had the key words so they knew what is really important for them to get from the lesson." Dgreen, Roxy, Elaine as well as the other participants except for one participant (Elisa) were all native speakers of English. However, even as a non-native English speaker and an English learner herself Elisa explained that there are times that she forgets how difficult learning English was for her and how easy it is to not pay attention to the ELs and ignore their needs while teaching. In her response Elisa talked

about using idioms such as “being called on, “or “putting thinking cap on,” and “unnecessary words” that would confuse the ELs in her class and how she had forgotten the fact that those were the issues that she had faced in the past as an EL herself:

Certain things like the way some of the questions I asked were phrased like “Can you do this?” or “Can you tell me,” the whole “can you” part had to be removed and the coach said that it would confuse the students... and I didn’t realize that cause it feels so normal now and it’s sad because I was an English learner and you would think that that experience would be more enlightening but certain aspects of it I just forgot that it was that hard so it’s something to keep in mind. That’s what I remember.

The participants also found that when faced with situations when the ELs did not understand them they would get more nervous and ask more questions which would eventually make it even more confusing and difficult for the ELs to follow. For instance, when Nikki was teaching she asked a question to Edith that she could not respond to. What happened after that was a series of questions that were asked quickly without giving any time for Edith to respond to them in hopes of giving her enough options to choose from. However, this strategy was not helpful in this case because it led to Edith becoming more overwhelmed and more confused. Nikki described her aha moment as:

I think a big aha-moment for me was when I messed up my question with Edith I asked her something like above her level, I said something like do you go to the basketball courts or the parking lot? Something like that and I think my big aha-moment moment was like afterwards when the coach was like alright stop, you’re asking this like barrage

of questions, you're confusing them more and then my aha-moment was like you need to be calm, composed and make sure like if you don't know what to ask, take a second to think about it like it's ok, take a second, think about a properly leveled-question and then ask that so that was like my big aha-moment that it's ok to make a mistake and then take a second to fix that.

Nikki's experience as well as other experiences that the participants discussed during the focus groups and interviews showed that there was more than meets the eye when it comes to teaching classes including English learners. After their experience with the EL TLE TeachLivE™, the participants realized that “patience” and not “feeling frustrated” were necessary and important parts of teaching that they needed to learn about and practice. Kel directly talked about this topic:

It helps with your patience too, like I would say in the beginning I would in my service learning I kind of get frustrated in my head but you can't show it to the students so like if you went to the workshops and practiced that would help with that so like you're not going for the kids' neck [gestures holding her hands around someone's neck and laughs]

Overall, the focus groups and interviews brought up so many aspects of the EL TLE TeachLivE™ experience that the participants had learned from. All of the participants shared anecdotes and examples of what they had experienced that were too many to include in this section of the data analysis. The participants shared that the strategies that they had learned during their teacher preparation program “were brought to life” and having “first-hand experience” with them made them “stick” so that they know better what to do if similar

situations occur in their own teaching careers. Ri's quote is a good summary of how through her experience with the EL TLE TeachLivE™ she could see how the strategies they were learning during their teacher preparation program could come to life:

I feel like all the things we learned like Show and Tell strategies, visuals, modeling, repetition...so it's nice to see it all in play that it obviously works... one thing that I wanna make sure I'm more careful about is like they always say use simple language but for an English speaker and an English learner simple could be two different things like you know, just something like I thought that was a simple enough question you know, do you write your name first?, but that word first confused her so just to inspect the language that I use more carefully maybe study a little bit more of how to keep it really simple for them based on their level especially for lower levels.

Figure 10 summarized the most recurring themes that emerged from the data regarding the TCs' perceptions about the current use of the EL TLE TeachLivE™. In the following section I will describe the themes of the TCs' perceptions about the future use of this mixed-reality environment.

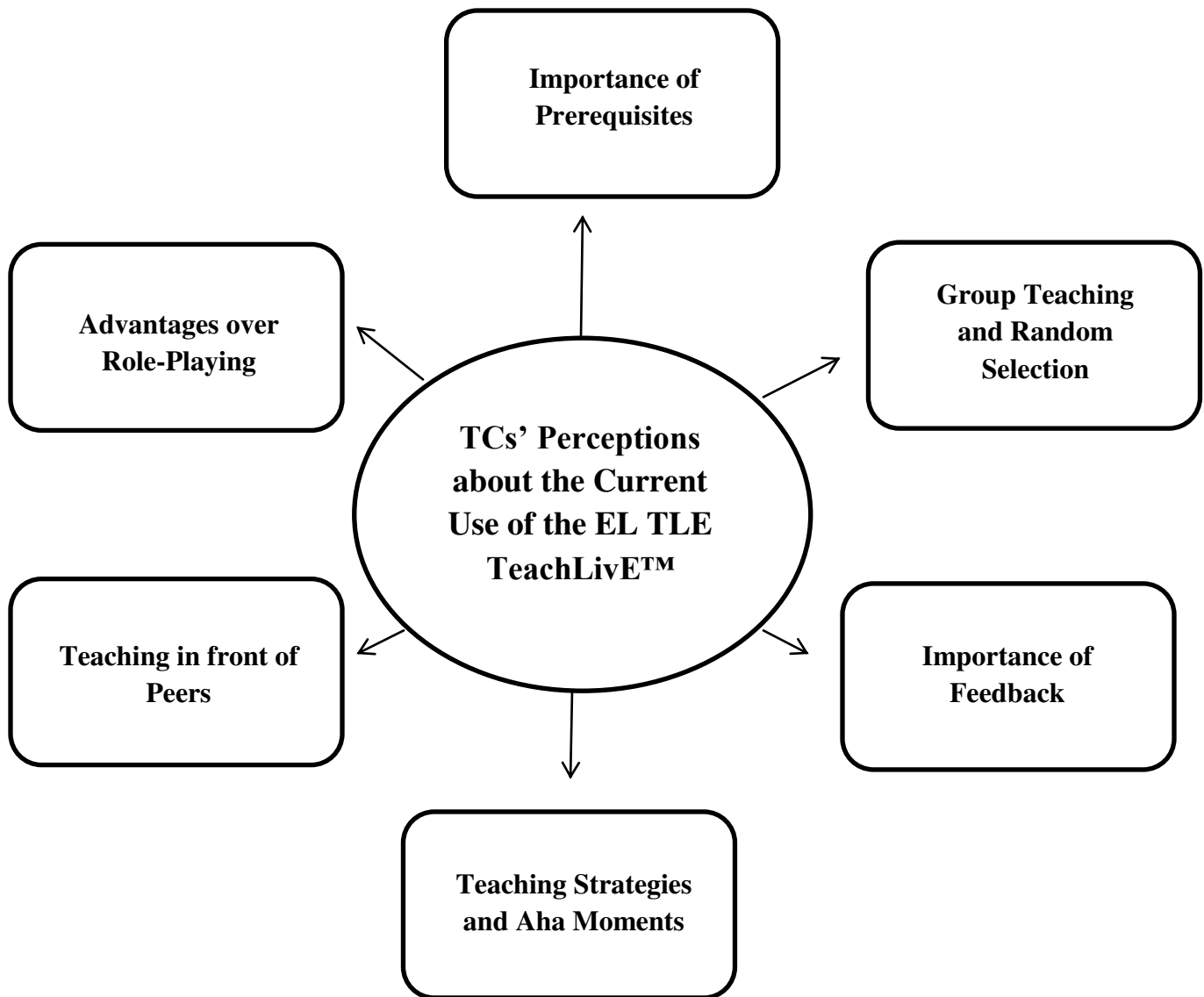


Figure 10. Teacher Candidates' Perceptions about the Current Use

Teacher Candidates' Perceptions about the Future Use

Changes in the Implementation

The participants of this study had multiple suggestions about the changes that can be made to the way the EL TLE TeachLivE™ is implemented in their teacher preparation programs in the future. Changes in the avatars' behavior level was one of the most recurring themes that the majority of the participants discussed during the focus groups and interviews. The participants frequently commented that the EL TLE TeachLivE™ avatars behaved “too well” or “too perfect” which they thought was not a good depiction of a real classroom. For the purpose of the Classroom Procedure Workshop and the Direct-Teach Lessons the level of behavior of the avatars was set to 1 which according to the chart provided by the TLE TeachLivE™ website is defined as “mild misbehavior -> distraction, fidgeting, inattention at low frequency.” Table 10 provides a description of the different behavior levels.

Table 10 TLE TeachLivE™ Avatar Behavior Levels

TLE TeachLivE™ Avatar Behavior Levels: 0-----1-----2-----3-----4-----5

0 = no classroom misbehavior

1 = mild misbehavior -> distraction, fidgeting, inattention at low frequency

2 = mild/moderate misbehavior -> distraction, fidgeting, inattention, mild resistance at low frequency

3 = moderate misbehavior -> distraction, fidgeting, inattention, resistance at medium frequency

4 = moderate / intense misbehavior -> distraction, fidgeting, inattention, resistance, bullying behavior at medium frequency

5 = intense misbehavior -> distraction, fidgeting, inattention, resistance, bullying behavior at high frequency including personal attacks towards teacher and students

The participants expressed their interest and desire to change the behavior level in order to be able to practice their teaching skills as well as their classroom management techniques with the avatars in order to be more prepared when they start teaching their own classes with real students. Nikki described the behavior level of the current EL TLE TeachLivE™ avatars as “they were the class that you dream of” and Susan was another participant among others that talked about the changes that need to be made regarding the avatars’ level of behavior:

Not other than what we had said just like the behavioral things because there was no real interruptions. Like Edgar should be more defiant to what you want because that’s the way he is described in the book, you know? But other than that I feel like it was pretty well-done. I just feel the behavioral thing needs to be adjusted because there is behavioral issues in a real classroom.

As discussed in the *Avatar Movement Restrictions* section there are some limitations to the physical activities that the TLE TeachLivE™ avatars can perform. The participants brought up this topic a number of times throughout the data and requested a complete list of the movement limitations and activities that need to be avoided before their direct-teach lessons in order to have a more clear idea of what they can or cannot incorporate in their lessons. Moreover, in one of the Classroom Procedure Workshops a technical issue occurred which resulted in having to cut the connection with the EL TLE TeachLivE™ and finish the workshop earlier than planned originally. Some of the participants noted that due to the technical glitch they had during their session they did not get to fully experience this mixed-reality environment and demanded a backup plan or an alternative session in order to have the full experience.

Additionally, some participants expressed their interest in teaching reading and writing to the EL TLE TeachLivE™ avatars. Currently, during the Leveled-Questions Workshop, Classroom Procedure Workshop, and the Direct-Teach Lessons that are incorporated into two of the main courses offered in the teacher preparation program which was the target population of this study, speaking and listening are generally the main skills that the TCs can work on as part of their EL TLE TeachLivE™. Kel was one of the participants that discussed this topic:

Well the English learner I was working with couldn't read very well but we didn't really hear them read so it's kind of like guessing she's kind of beginner, this is probably how this one reads... cause they didn't read to us they just spoke back to us, it might be cool to hear them read and write...

Another recommendation that the participants had was in regard to having the EL TLE TeachLivE™ experience across the board in all sections of the courses that are currently using this technology. Some of the participants mentioned that online sections of the ESOL strategy course do not have the Leveled-Questions Workshop, or Direct-Teach Lessons and therefore the TCs miss the opportunity to work with the EL avatars. Susan suggested that online classes can have one mandatory meeting to allow the TCs to interact with the EL avatars and practice their teaching with them. Furthermore, Lana recommended another route to make sure that everyone taking the ESOL Strategies and the General Methods and Classroom Management Courses could benefit from interacting with the EL TLE TeachLivE™ regardless of the type of class they have enrolled in such as online, mixed-mode, or face-to-face courses:

Like we could use webcams to be able to, well I think the computers at the library have it to even if your home computer didn't have one so people have the access to it so that they have a Skype interview with these kids.

Elementary vs Secondary Classrooms

In addition to the changes suggested above, the differences between teaching elementary and secondary students was frequently discussed between those TCs who were planning to teach either of these groups. Even though TLE TeachLivE™ has a high school version that is used in some sessions, the EL version only currently uses the middle school avatars. The participants who were planning to teach secondary schools talked about not their experience with this mixed-reality environment as not realistic as what they would experience with older students and expressed their concern about not being able to use some of the strategies with secondary school students. For instance, Alexis said that although she enjoyed her experience with the EL TLE TeachLivE™, she did not find it as helpful in her career because “I’m not an elementary school teachers so these procedures to me like I would never have to teach my students.” Sebastian noted that he would use “classroom discussions” as opposed to “classroom procedures” for his secondary level students and Nikki talked about the unrealistic aspects of teaching the middle school or elementary versions of the EL TLE TeachLivE™:

I feel like the students like I was doing the secondary level cause I wanna be a high school teacher the only thing that I was like secondary school students wouldn't be this active in the classroom cause the couple of times I've been in the secondary classrooms they don't wanna raise their hands and answer anything. So it was exciting for me to go

in and like have them raise their hand and all that but like I was just like this isn't real [laughs] like on an elementary level this is expected like when I worked in an elementary school like every question like everyone raise their hand and they were so excited compared to like when I was in a high school and no one wanted to answer.

Thus, those participants who were planning to teach at secondary level argued that having two options of elementary and secondary level for the EL TLE TeachLivE™ could be an effective way to help all TCs experience more realistic scenarios and enable them to practice the skills and strategies that they will in fact use in their future careers.

Gradual Practice

The final and one of the most important themes that emerged from the data was the importance of gradual practice with the EL TLE TeachLivE™ to prepare teacher candidates for their future careers. Most of the participants mentioned that they would like to participate in the EL TLE TeachLivE™ as an observer in the beginning in order to learn more about this mixed-reality environment as well as gain perspective about the strategies and techniques that other teachers or teacher candidates use to teach the avatars especially the EL avatars Edith, Edgar, and Tasir. Sprite was one of the participants among others who expressed that she would like to start with observations and then work her way up to individual sessions with the avatars herself: “I'd like to watch like people practicing more than doing it myself but maybe towards the end of my school I'd like to do it like teaching.” Sebastian also noted that he can learn a lot from observing and taking notes of the mistakes made by other teachers or TCs to be able to analyze

why certain strategies work or did not work with the ELs and what could be done to improve the lesson.

The order in which the participants wanted to incorporate the gradual process was varied. However, most of the participants agreed that in the beginning of their course work they would prefer to have observations and then do group teaching similar to the classroom procedure direct-teach lessons in which they both observe and teach as a group. Group settings can be a good source of experience for TCs for the fact that they provide opportunities for TCs to work together to develop a lesson and brainstorm about different activities and strategies that they can use. Moreover, by observing other groups they can gain insight about other types of teaching and lessons. For instance, Nikki expressed her thoughts about group teaching as “like being able to be in that group session and listen to other people’s coaching you not only learn from that but then you’re also like oh ok so everybody has problems, I need to not be so hard on myself.” After gaining more experience, the majority of the participants discussed their interest to have individual sessions to work with the EL TLE TeachLivE™ one-on-one.

When asked if the TCs would volunteer to do individual sessions most of them responded that not having “free time,” “being busy,” or having many “obligations” would keep them from volunteering to do additional sessions with the EL TLE TeachLivE™ outside of their major course requirements. Some participants asserted that they can most benefit from this this mixed-reality experience when it is implemented into their core courses at different levels. Brittany’s quote shows the reasoning behind this stance:

It's always good to have options to do it if you can but so many people are busy that I think when it's incorporated it's good for those people. Like me I work, like all of us we probably are working too and have so many obligations that we don't have the time to come in on a random day to practice but when it's in my coursework I'm forced to do it and it's really helpful so I'm glad we're forced to do it.

Another suggestion that multiple participants had was to provide EL TLE TeachLivE™ as a separate course that TCs can take for credit. By taking this course not only can the teacher candidates gain more experience teaching, they can also learn about different teaching strategies and classroom management techniques. Cookie stated that this type of course can also reduce the anxiety of those who participate in it:

One thing definitely would be if there was like a separate class in itself so you can go through each level and have that experience and be able to like have a lesson and experience each level. One-on-one and have like a teacher or coach or something so it's not like the teacher is anxious or have anxiety more like tutoring.

Other participants also had ideas to incorporate into the separate EL TLE TeachLivE™ course. Nikki expressed her thoughts about using this technology as a “great teaching tool” to practice and receive feedback about the lessons:

I'd like to test out lesson plans on them. I feel like that would be such a great teaching tool like if you're just learning how to do lesson plans and like set up a lesson like being able to go in and do that and then get feedback on your lesson and how they how the

students' interactions with you will be like, I feel like that'd be the best tool to see like where you're at with your skills of lesson planning.

Moreover, Sebastian voiced his view that having lesson "goals" and "objectives" can help TCs with how they plan each lesson for every session that they get to work with the virtual EL avatars during this separate course. Mel was also another participant who suggested having different lesson plans for each level of proficiency (beginning, intermediate, and advanced) as well as different skills such as speaking, listening, reading and writing to work on with the EL avatars. Also, Sprite was an advocate of using different teaching scenarios and changing the behavior level of the avatars in order to practice classroom management skills.

Overall, almost all the participants (19 out of 20) agreed with the gradual practice with the EL TLE TeachLivE™ in their teacher preparation programs. Some teacher candidates explained that the use of this mixed-reality classroom environment can "go beyond teaching" and can be used in various areas such as "leadership," "public speaking," and "project presentations" to name a few. In the words of Mary one of the most important lessons experiencing the EL TLE TeachLivE™ provides is that it enables the TCs to see the bigger picture and truly witness what the ELs in their future classrooms might be struggling with and what they can do as future teachers to help these students. Being adequately prepared, doing extensive research, learning about second language learning and its processes, carefully planning lessons, using different teaching strategies and classroom management skills, reflection on one's teaching, as well as being patient and understanding of the ELs' needs are among the core

principles that EL TLE TeachLivE™ strives to infuse in teacher candidates' teacher preparation programs:

I think that [EL TLE TeachLivE™ experience] made me think having an ESOL student in my classroom would make me have to do a lot more research and implement way more things into my lesson plan that I would have normally done. Because you have to be able to teach what you're teaching and have them understand in a completely different way than your lesson plan is really getting to the other students. So you're gonna have to have two lesson plans in one and that requires a lot more work, a lot more patience, and a lot more research as far as what else you can implement for them to understand.

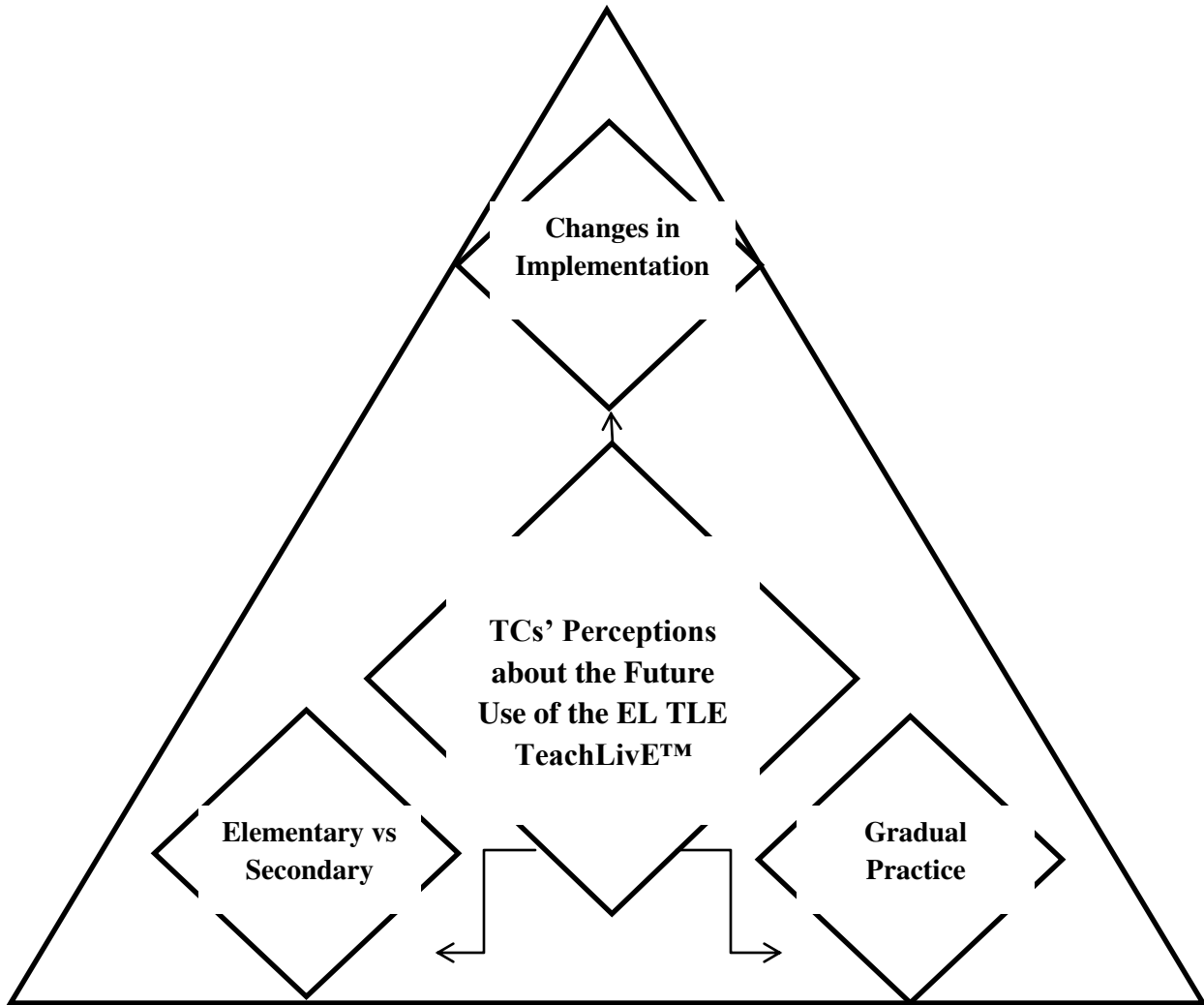


Figure 11. Teacher Candidates' Perceptions about the Future Use

Chapter Summary

Chapter Four presented the findings of the research about the perceptions of teacher candidates about using EL TLE TeachLivE™ to prepare them to work with English learners and the meanings they made of their experience working with this mixed-reality classroom environment. In this study, I observed and took field notes during the Classroom Procedure Workshops as well as the Direct-Teach Lessons. Four focus groups and five interviews were conducted. The statements the teacher candidates made about their experience with EL TLE TeachLivE™ were analyzed in order to find the answer to the research question. After going over the data multiple times and comparing notes with the external auditor who analyzed the data separately, three main categories emerged: TCs' general perceptions about the avatars and EL TLE TeachLivE™ as a mixed-reality classroom environment, TCs' perceptions of the current use of the EL TLE TeachLivE™ in their teacher preparation program, and TCs' perceptions about the future use of EL TLE TeachLivE™ in their teacher preparation program.

The *Teacher Candidates' General Perceptions of EL TLE TeachLivE™* consisted of the following sub-themes: (a) Video game dissimilarities, (b) Avatar believability and real-life features, (c) Personification of the EL cases, (d) Fear of the unknown, (e) Avatar movement restrictions, and (f) Suspension of disbelief. The *Teacher Candidates' Perceptions about the Current Use of EL TLE TeachLivE™* included: (a) Importance of prerequisites, (b) Advantages over role-playing, (c) Teaching in front of peers, (d) Group teaching and random selection, (e) Importance of feedback, and (f) Teaching strategies and aha moments.

Finally, the *Teacher Candidates' Perceptions about the future Use of EL TLE TeachLivE™* consisted of: (a) Changes in the implementation, (b) Elementary vs secondary classrooms, and (c) Gradual practice.

Figure 12 provides a summary the most recurring themes that emerged from the data regarding the TCs' general perceptions about the EL TLE TeachLivE™, perceptions about the current use of the EL TLE TeachLivE™, as well as their perceptions about the future use of this mixed-reality environment.

Chapter Five will discuss the findings of the study and how this research positions itself within the fields of education and Teaching English to Speakers of Other Languages (TESOL) literature.

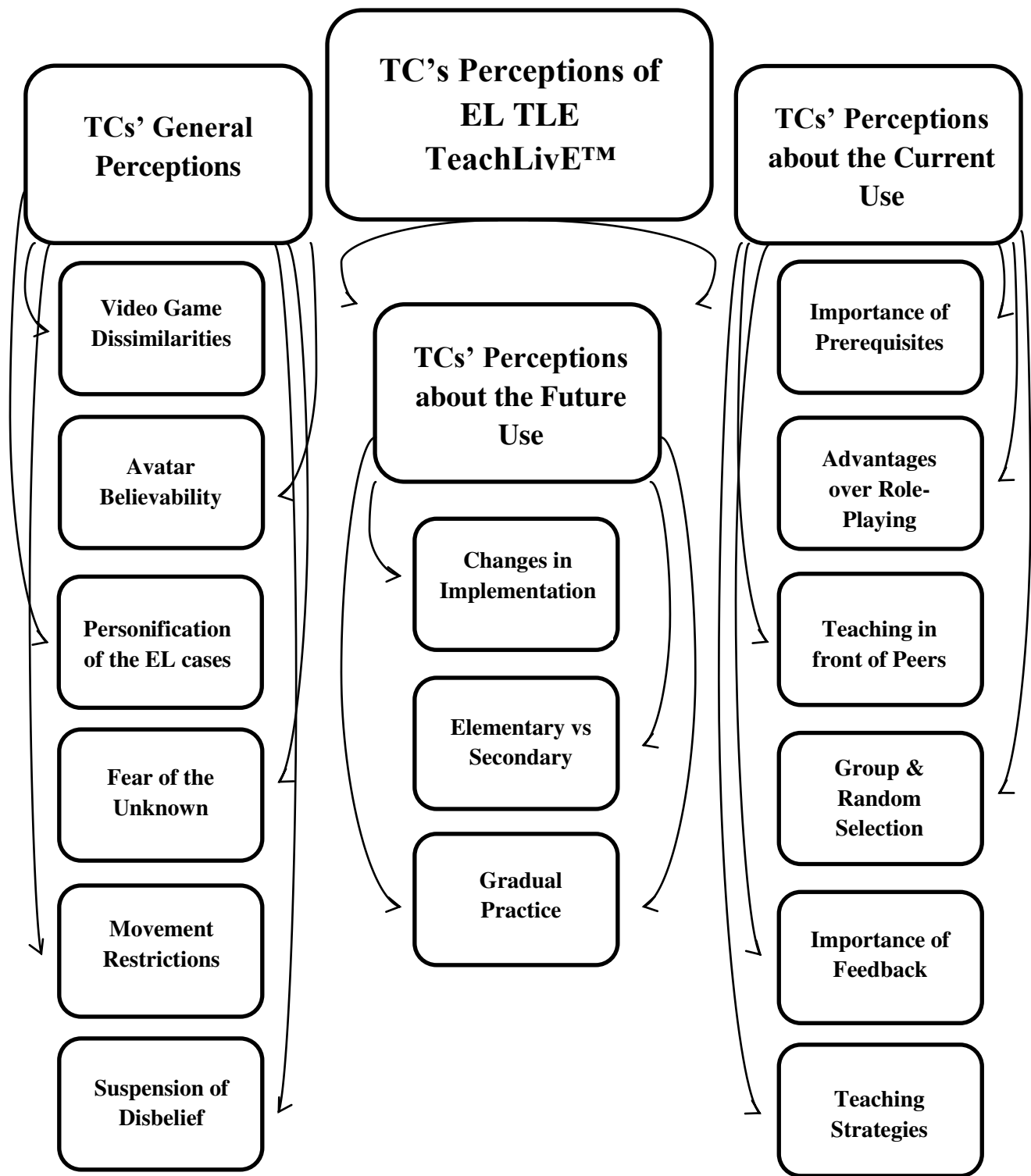


Figure 12. Summary of the Most Recurring Themes

CHAPTER FIVE: DISCUSSION

Introduction

The focus of this chapter is to give an overview of the present study, the methods, and discussion of the most significant findings. The findings presented in Chapter Four will be reviewed in order to examine how the findings of this research compare or contradict to the existing body of literature presented in Chapter Two. Moreover, more information about how this study positions itself in the current body of research as well as its limitations and implications for the fields of Education and Teaching English to Speakers of Other Languages (TESOL) will be provided. Lastly, suggestions for future research will be made.

Methods and Findings

The present qualitative study utilized a transcendental phenomenological research approach to acquire the perceptions of the participants about EL TLE TeachLivE™ in their teacher preparation program and for their future teaching careers. As explained in Chapters One and Three, the operationalized definition of perception was the way an individual views, understands, or refers to a phenomenon (Creswell, 2007; Moustakas, 1994; Patton, 2002). The phenomenon under investigation for this research was the EL TLE TeachLivE™, which is a mixed-reality classroom environment with avatars as students. According to Husserl (1962) one's perceptions about a particular phenomenon are closely linked to one's experiences of it; therefore through a phenomenological lens the perceptions of lived experiences and interactions of the participants of this study with the EL TLE TeachLivE™ were explored in order to find out what their perceptions were about this phenomenon.

The main research question for the purpose of this study was, What are the teacher candidates' perceptions of using EL TLE TeachLivE™ in their teacher preparation program to prepare them to work with English learners in their future careers? The qualitative research tools used were identified as observations, demographic questionnaires, focus groups, and individual interviews. In this study, I (a) separated my own experiences and perceptions by practicing epoche or bracketing in order to avoid prejudgments and biases, (b) observed and took field notes of the Classroom Procedure Workshops (Phase I of data collection), (b) observed and took field notes of the group Direct-Teach Lessons (or DTLs) that the TCs taught to the avatars, (c) collected an initial questionnaire containing demographic questions about the teacher candidates as well as questions regarding their teaching experience with English learners (Phase II of data collection), (d) conducted four focus groups consisting of 5 TCs each (one participant was absent in one of the focus groups with whom an additional individual interview was done at a later date) to explore their perceptions about the use of EL TLE TeachLivE™ as a mixed-reality classroom environment for teacher preparation (n=19), (e) conducted individual follow-up interviews with one TC out of every focus group and one TC who was not present at the time of focus group (n=5) (Phase III of data collection), and (f) transcribed, color-coded, and analyzed all the data gathered throughout the process.

The research protocols outlined by Moustakas (1994) and Creswell (2007) were used to analyze the data by (a) transcribing the data (see Appendices G through O), (b) reviewing the data multiple times, (c) color-coding the most significant statements, (d) making “clusters of meaning” from the statements (see Appendix P for a sample of data analysis), (e) using emergent themes to write thorough descriptions of the most common perceptions and experiences in order

to get to the “essence” of the phenomenon, (f) using member checking, (g) using the help of an external auditor to make sure that the data analysis was done correctly.

Discussion of Findings

This study was guided by the main research question, What are the teacher candidates’ perceptions of using EL TLE TeachLivE™ in their teacher preparation program to prepare them to work with English learners in their future careers? Through the data analysis explained above the findings were classified in three main categories:

- (1) TCs’ general perceptions about the avatars and EL TLE TeachLivE™ as a mixed-reality classroom environment,
- (2) TCs’ perceptions of the current use of the EL TLE TeachLivE™ in their teacher preparation program, and
- (3) TCs’ perceptions about the future use of EL TLE TeachLivE™ in teacher preparation programs.

The first category included the following sub-categories:

(a) Video game dissimilarities, (b) Avatar believability and real-life features, (c) Personification of the EL cases, (d) Fear of the unknown, (e) Avatar movement restrictions, and (f) Suspension of disbelief.

The second category consisted of:

(a) Importance of prerequisites, (b) Advantages over role-playing, (c) Teaching in front of peers, (d) Group teaching and random selection, (e) Importance of feedback, and (f) Teaching strategies and aha moments.

Lastly, the third category incorporated:

(a) Changes in the implementation, (b) Elementary vs secondary classrooms, and (c) Gradual practice.

In the first category, *TCs' general perceptions about the EL TLE TeachLivE™*, even though most of the participants played video games in their free time they stated that they did not feel like their experience with the EL TLE TeachLivE™ was similar to video games. The participants said that they were impressed by how well-done the program was and how realistic the avatars behaved. They also mentioned that it only took a few seconds to minutes for them to get passed the visual aspect of the program and feel like they were teaching a real classroom. A few of the participants had experiences with using Sims; however they claimed that EL TLE TeachLivE™ is significantly more realistic and interactive.

The participants also discussed the believability and real-life features of the avatars. Some participants compared their experience with the EL TLE TeachLivE™ avatars to Skype-ing with real students. Moreover, some participants talked about how some of the EL TLE TeachLivE™ avatars reminded them of real students that they have met in their own classes or while observing other teachers' classes because of their realistic behavior and responses. The participants brought up multiple examples of their interaction with the avatars when the EL TLE TeachLivE™ avatars “saw” or “commented” on what they were wearing or what was happening in class which they found fascinating while adding a more realistic touch to their experience.

On the other hand, some participants commented that the EL TLE TeachLivE™ avatars were “too good,” “too well-mannered,” and “too perfect.” They stated that real students in real classrooms do not always behave so perfectly and in other words claimed that their experience with the EL TLE TeachLivE™ was too good to be true. Upon finding out that the avatar level behavior can be adapted, they expressed that they would like to practice teaching at different levels.

Additionally, having read about the English learner cases (Edith, Edgar, and Tasir) in another course, some of the participants had noticed the age difference between the EL avatars and the EL cases in their textbook. Although the TLE TeachLivE™ program has both middle school and high school versions, currently in the EL version only the middle school format is used. Moreover, in the textbook the EL cases are described as being originally from Mexico (Edith), Puerto Rico (Edgar), and Egypt (Tasir). Some of the participants argued that Tasir did not look authentic because they thought that based on their preconceptions Egyptians had dark

features whereas Tasir has fair complexion. The level of proficiency of the EL avatars was another topic that was brought up; some participants thought that the EL avatars had a higher level of proficiency in English than they had expected, whereas some others thought the opposite.

Uncanny Valley or the feelings of disgust, annoyance, and unease due to near-identical similarities between humans and animated characters or robots was another topic that came up in the data. Not being able to “see a person’s real face” or their eyes “to be able to connect with them on some level” were some of the comments made by the participants who preferred to work with real students instead of the EL TLE TeachLivE™ avatars.

Similarly, the movement restrictions of the avatars were noticed by the participants. Some participants claimed that the physical limitations of the avatars made their Direct-Teach Lessons less interactive because they could not ask the avatars to do what they would ask real students to do if they were teaching their lessons in a real classroom environment. Some of these movement limitations included, not being able to stand up (except for Sean), respond in unison, gesture more than a limited range of movements such as raise their hand, walk around the classroom or change their seating arrangements, and lack of facial expressions.

The majority of the participants stated that they enjoyed the element of suspension of disbelief of the EL TLE TeachLivE™ and it kept them interested during their interactions with the avatars. Even though some of the participants were curious about the technical aspects of the technology they thought that it was a positive factor that they did not fully know the details of what was “behind the curtains” because they could put their teaching strategies and skills into

practice as if they were teaching a real class. On the contrary, there were a few participants who did not like the “surprise factor” by saying that they initially thought the mixed-reality environment was “silly” and “not optimal.” However, in their second and third experience they felt more comfortable and were able to immerse themselves more because they had more information and knew what to do when it was their turn to interact with the avatars. Thus, providing an explanation as one reason why the suspension of disbelief is not a one-time experience and can continue or improve as the users have more experience with the virtual reality environment and avatars.

In the second category, *TCs’ perceptions about the current use of the EL TLE TeachLivE™*, teacher candidates discussed the importance of taking the correct course prerequisites in order to avoid confusion and have a better understanding of the ESOL strategies, the EL cases, and the EL avatars. Some of the strategies covered in the ESOL strategies course that the participants referred to were “leveled-questions,” “repetition,” “gesturing,” “visual aids,” and “simplification” as a few of the strategies that they had learned which helped them with their Direct-Teach Lessons that they might not have known how to incorporate if they had not taken the ESOL strategies course prior or at the same time as taking this general methods class.

Furthermore, the participants explained the advantages of using the EL TLE TeachLivE™ instead of doing role-plays to practice their teaching and classroom management skills. They described their experience with the EL TLE TeachLivE™ avatars as more realistic than when their peers pretend to be students and said that they benefited from the natural interactions and real-life responses they received from the EL avatars.

Even though the participants preferred working with the EL TLE TeachLivE™ avatars more than microteaching with their peers, they claimed that they found their experience with teaching the avatars in front of their peers “nerve-racking,” “uncomfortable,” and “stressful.” However, most of the participants said that the feeling of nervousness and excitement was similar to the feelings they have experienced when going to a class for the first time, hence making their experience more real to life. Moreover, they regarded the fact that they could observe their peers beneficial because they could learn from the strategies they used as well as the mistakes they made.

Group teaching and random selection were other topics that the participants discussed. Even though some of the participants stated that they did not like the random selection aspect of the experience, they admitted that they would not have prepared if they knew who was going to teach beforehand. Additionally, some of the participants said that they thought the random selection gave them the opportunity to all plan and prepare for their lesson as a group and learn more from each other, thus maximizing their learning outcome.

When asked about the participants’ perceptions about the feedback they received by the coach both during and after their DTLs they all responded very positively. They commented that the coach was “knowledgeable,” “helpful,” and “well-informed.” They also described the feedback provided as “detailed” and a “system of reinforcement” because the coach could pause or freeze the program to give them hints or tips as well as repeat the strategies that worked or did not work so that they could improve their lessons or take those suggestions into consideration for future teaching experiences.

One of the most important findings of this research was about the fact that the EL TLE TeachLivE™ experience helped the participants to notice the strengths and weaknesses of their teaching. For instance, most of the participants said that through this experience they noticed that as native speakers of English they spoke “too fast” or their questions were “too wordy,” “too long,” or “too advanced.” On multiple occasions the participants talked about the various aha moments they had during their interaction with the EL avatars and recalled the different strategies such as “using leveled-questions,” “repetition,” “color-coding the key words,” “using synonyms,” “rephrasing,” “modeling,” and “simplifying” they used to bridge the gap that they noticed between their teaching and what the English learners needed to understand the lesson. Moreover, the participants mentioned that through their experience with EL TLE TeachLivE™ they realized that “patience” and not “feeling frustrated” were necessary and important parts of teaching that they needed to learn about and practice in order to become better teachers.

In the third category, *TCs’ perceptions about the future use of the EL TLE TeachLivE™*, the participants brought forth recommendations about the changes that can be made to the way the EL TLE TeachLivE™ is implemented in their teacher preparation programs in the future. The participants expressed that the flexibility to change the behavior level of the avatars can help their experience to be more realistic as well as grant them the opportunity to practice different teaching skills and classroom management skills.

Decreasing the avatar movement restrictions and having a complete list of the movement limitations and activities that need to be avoided were among other suggestions for improvement that the participants made. Moreover, the participants requested that in addition to speaking and

listening they would like to work on reading and writing skills with the EL TLE TeachLivE™ avatars as well.

Some of the participants mentioned that having taken the online sections of the courses that used EL TLE TeachLivE™ they were not able to use this mixed-reality classroom environment and demanded that all sections regardless of whether they are online, mixed-mode, or face-to-face courses, should use this technology. They suggested adding an online version to those courses that do not meet on campus.

The difference between the teaching styles and approaches for elementary and secondary schools were also one of the concerns of the participants. The participants who were planning to teach secondary schools claimed that their experience with the EL TLE TeachLivE™ was not as realistic and helpful because they could not practice the strategies and techniques they would use with the secondary level students.

Finally, the gradual implementation and practice with the EL TLE TeachLivE™ was one of the most important topics that the participants suggested. Most of the participants mentioned that they would like to start working with this mixed-reality environment as an observer, and then once they feel more prepared work with them in groups and individually. The participants' perceptions about volunteering for additional sessions were that even though they enjoyed and learned from their experience, due to time constraints they would more likely not participate if the EL TLE TeachLivE™ is not incorporated into one of their main courses. However, they asserted that if there is a separate course offered for credit hours focusing on the EL TLE TeachLivE™ they would take that class in order to gain more experience teaching and practicing

their skills. Additionally, some of the participants perceived the EL TLE TeachLivE™ as a great tool that has substantial potential and can enable them to see the big picture and truly understand the ELs' struggles and the importance of their role as future teachers to help the English learners in their classes.

The following section will discuss these findings further by explaining how they fit in with the literature reviewed in Chapter Two.

Corroboration and Contradiction with Earlier Findings

There is limited research in regard to the use of Multi-User Virtual Environments in the field of teacher education (Clarke, 2013). However, due to the increasing number of English learners in mainstream classrooms and lack of adequate teacher preparation for teachers to reach the needs of ELs, the importance of research in this field is undeniable. The findings of this study both corroborated and contradicted previous research about the use of mixed-reality environments in teacher preparation.

The findings of the present study support the findings in previous research that suggest that all English learners regardless of their level of proficiency require assistance. The difference between communicative language skills (BICS or Basic Interpersonal Communicative Skills) and academic language skills (CALP or Cognitive Academic Language Proficiency) becomes apparent when even advanced ELs who have lived in an English speaking country for a longer period of time may still need help with academic skills (Cummins, 1984; Nutta et al., 2014). The participants in this study referred to their EL TLE TeachLivE™ experiences with the advanced

English learner avatar (Tasir) multiple times about “using idioms” or “technical words” that they were using that Tasir did not comprehend and they needed to use other strategies such as simplification or using synonyms to explain the terms to her.

Some components of the Sheltered Instruction Observation Protocol (SIOP) model (Echevarria, Vogt, and Short, 2000) were in accordance with the findings of this study. The participants had to adjust their speech to the level of the EL TLE TeachLivE™ avatars in order for them to be able to understand and respond to their instruction. Thus, by providing tangible discourse, giving clear instruction, and using leveled questions the teacher candidates were able to find a balance between exposing the learners to language that they can follow and at the same time be challenged enough to learn.

Zone of Proximal Development and scaffolding were two other concepts that could be seen in the data. The participants of this study engaged in microteaching activities with the EL TLE TeachLivE™ while a coach and their peers were giving them feedback. By going through the interaction with the EL avatars and the aid teacher candidates received from the coach and their peers the teacher candidates were not only able to scaffold and help the EL avatars but they were also being provided with scaffolding themselves so that they could learn instructional strategies to help the English learners. Through their interaction with the EL TLE TeachLivE™ avatars the TCs were able to practice their use of demonstrations, visual aids, body language and gestures to teach the procedures to the EL avatars and help them in understanding the lesson.

The findings in the present study seemed to corroborate findings about observations and group teaching described in Chapter Two. According to the previous studies teacher candidates

can benefit immensely from observing their peers and other teachers (Jenkins & Veal, 2002; Jenkins et al., 2005; Anderson, Barksdale, & Hite, 2005; Jenkins, 2014). Moreover, the teacher candidates who were the participants of this study claimed that even though teaching in groups and in front of their peers made them nervous, they found them helpful in gaining knowledge and experience, practicing their teaching skills, and observing their peers teach.

Vygotsky's principle of The More Knowledgeable Other or MKO also rang true in EL TLE TeachLivE™. During the Direct-Teach Lessons teacher candidates were observed by a coach who acted as the MKO and paused the program to give the TCs feedback either simultaneously as they were teaching or after their lesson was done or both. The participants of this study found this simultaneous and evaluative feedback helpful because it helped them to learn more about their strengths and weaknesses as well as what they could do to improve their teaching skills, which is in accordance with the findings of multiple research studies covered in the literature review.

Furthermore, the experience of teaching the EL TLE TeachLivE™ avatars can be categorized as both cooperative and experiential learning for the participants in this research. As cooperative learning, teacher candidates came together in groups to work toward their shared goal of teaching the EL avatars. Also, as experiential learning, the TCs got to learn through experiencing and taking responsibility for their own learning while noticing issues that they might not have noticed if they had not engaged in a teaching activity with the EL TLE TeachLivE™ avatars. Moreover, through working in groups, making lesson plans, and experiencing teaching the EL avatars, the participants were able to critically reflect on their

experience and talk about their perceptions about the EL TLE TeachLivE™ in their teacher preparation program. According to studies such as Howard (2003) and Lowenstein, & Brill (2010) critical reflection has been considered as the goal of teacher education due to the fact that it can provide autonomy for teacher candidates in their journey of learning about the art of teaching.

This study is also consistent with Dieker et al. (2014) which stated that using the EL TLE TeachLivE™ provided a safe environment for teacher candidates to practice without putting real students or valuable resources at risk. The participants of this study claimed that they saw great benefit in being able to use the EL TLE TeachLivE™ multiple times knowing that they are not hurting any real students or interfering with their learning.

While there were many research studies that the findings of this study supported, some findings were partially contradictory. For instance, in their study in 2011 Loureiro and Bettencourt concluded that learners felt more confident after engaging in virtual learning environments. However, the participants of the present study stated that they had higher levels of confidence before they interacted with the EL TLE TeachLivE™ avatars. During their interaction with the EL avatars the native English speaking participants said that they noticed that their speech was “too fast” or their questions were “too wordy,” “too long,” or “too advanced” which resulted in the EL avatars’ not being able to comprehend what they were saying and asking for clarifications. This lack of comprehension then made the participants less confident. However, upon the realization that the participants needed to use other teaching strategies they had learned in their ESOL strategies course as well as the general methods and

classroom management course they were taking such as “pointing,” “gesturing,” “using leveled-questions,” “repetition,” “color-coding the key words,” “using synonyms,” “rephrasing,” “modeling,” and “simplifying” they became more aware of what they needed to do to save their teaching experience. For some participants this realization and correct use of the ESOL strategies happened more quickly, which resulted in them gaining back their confidence either partially or fully. However, some other participants stated that they needed additional practice with the EL TLE TeachLivE™ avatars to learn why, when, and how they needed to use the strategies to make sure that the ELs are following and comprehending the lesson.

Additionally, Merchant (2010) questioned the effectiveness of teaching practices using new technologies by arguing that new technologies can get in the way of social and real-life interactions and learning. The findings of this study were both in corroboration and contradiction with the Merchant’s (2010) findings. Even though most of the participants expressed that they enjoyed and gained from their experience with the EL TLE TeachLivE™, some of the participants said they would not want the EL TLE TeachLivE™ to substitute for their service learning or practicum experiences. Hence, I explained to the participants that mixed-reality classroom environments such as EL TLE TeachLivE™ are not and most likely will not be used as a substitution to real time and practice with real students. The main goal of these mixed-reality environments in fact is to prepare teacher candidates to reach the needs of real students.

As discussed in Chapter Two and Chapter Four role-playing also is not and should not be considered as a substitute for real-life class teaching and observations because of its socio-cultural aspects. Internships, observations, service learning, and practicums in real schools

should always remain as a main part of teacher preparation to make sure that teacher candidates are ready and qualified before they join the workforce. Similar to the fact that pilots do not receive their pilot license and start flying real planes right after having their initial flight simulation practice, teachers cannot and should not merely rely on the practice they have during their simulated classroom teachings. Moreover, it is an important step for educators and teacher trainers who use this technology to remind teacher candidates that the environments such as the EL TLE TeachLivE™ are only a safe environment for them to practice and do not substitute or exactly replicate what they would encounter in real classrooms. Teaching is an unpredictable profession and even in similar circumstances two classrooms or two students are not the same. Therefore, teacher candidates cannot be completely and fully prepared for every situation they might face throughout their careers. The purpose of teacher preparation programs is to give teacher candidates the basic tools and enough practice for them to be able to make just decisions and teach to the best of their abilities using their skills, experiences, and strategies they learned in their teacher preparation program. Thus, using mixed-reality classroom environments should be considered as one more tool to add to teacher candidates' experiences and giving them more opportunities to practice in order to master their craft. Similarly, for practicing and in-service teachers this novice medium can be utilized so that they can hone in on one or more particular skills they would like to have more practice with. Having the mindset of "brain as a muscle" these practicing teachers can work out their teaching skills in such controlled and at the same time reality-like environments to further improve their profession. Additionally, having experts observe and give feedback to teacher candidates or practicing teachers working in the EL TLE

TeachLivE™ environment can provide them with more resources and guidance, which are essential ingredients for making progress and becoming better teachers.

Implications

This study introduces the use of Multi-User Virtual Environments or mixed-reality environments such as EL TLE TeachLivE™ as a scaffold for teacher candidates to learn about the needs of their students, especially English learners and learn within their Zone of Proximal Development about how they can use various teaching strategies and techniques to help ELs. Through the interaction with the avatars, the guidance of the coach, observations, and constructive feedback of the coach and peers, teacher candidates can enhance their understanding of the art of teaching and improve their teaching skills.

Furthermore, the present study identifies some of the strengths and weaknesses of the EL TLE TeachLivE™. The movement restrictions of the avatars as well as lack of adequate facial expressions were among the visual aspects of this mixed-reality environment that need to be improved. In addition, in order to maintain consistency across all sessions in a mixed-reality environment all humans in the loop need to be equally professionally trained and informed about the levels of proficiency of the ELs as well as their personalities and characteristics to make sure that teacher candidates or other users have the same realistic experience when using this facility multiple times. By incorporating the EL TLE TeachLivE™ into more courses in teacher preparation programs both in the undergraduate and graduate level we can give the TCs more opportunities to practice their teaching strategies using different objectives and lesson plans as well as experiencing different levels of behaviors and age groups.

Study Limitations

As with all research, there are some limitations to this study as well. The first limitation is the recruitment of the participants. Convenience purposeful sampling was used to recruit the participants who were teacher candidates enrolled in two sections of a course in the fall of 2015.

Even though the goal of the convenience purposeful sampling method is to reach participants who can provide in-depth information that is valuable for the purpose of the research, this sampling method can be biased and might not be a good representative of the entire population of other teacher candidates taking other sections of this course. Moreover, all the participants were recruited from two sections of a course that were taught by the same instructor and followed the same schedule. The reason for this selection was to minimize differences between the course materials as well as other different factors that might have influenced the data. However, EL TLE TeachLivE™ is an optional component that instructors can choose to incorporate into their courses. Therefore, not all the other sections of this course had the chance to experience EL TLE TeachLivE™, the Classroom Procedure Workshop, or the Direct-Teach Lessons which were the focus of this study.

Another potential limitation of this study is that other factors such as anxiety of working with this mixed-reality technology (fear of the unknown) or lack of social connection with the avatars can be problematic when it comes to individual experiences with Multi-User Virtual Environments. In some of the cases teacher candidates might not perform well or have a successful lesson because of issues that do not represent their teaching skills and consequently may lead them to having a negative experience with the EL TLE TeachLivE™. On the other hand, some teacher candidates might enjoy the game-like attributes of this virtual environment

and the surprise factor (suspension of disbelief) so much that they do not merely focus on practicing their teaching strategies and just have a positive experience interacting with the avatars.

Additionally, another limitation of this study is my involvement with the EL TLE TeachLivE™. As part of my doctoral assistantship I had been working with EL TLE TeachLivE™, scheduling sessions, working with other instructors, teaching workshops, and coaching individual and group sessions since approximately three years prior to the onset of the data collection for this research. Thus, as the researcher I could not fully separate myself from being involved in other aspects of the use of EL TLE TeachLivE™. Furthermore, a few participants had previously taken my class or were in a class that I had taught a workshop in and were somehow familiar with me. Therefore, this familiarity and my presence might have had some influences on their responses and caused some bias in their feedback.

Future Research

As one of the preliminary qualitative studies done on the use of EL TLE TeachLivE™ as a mixed-reality environment in preparing teacher candidates for reaching English learners' needs in their mainstream classrooms, this study can establish a foundation for future research in the field. By getting closer to the teacher candidates and hearing about their experiences and perceptions about a MUVE such as the EL TLE TeachLivE™, teacher educators can learn more about what helps pre-service teachers with their teaching practices and what they need to work on before they go to teach real classrooms with actual students.

This study only included those participants who were randomly chosen to teach the Direct-Teach Lesson among their group members. Future research can be done by focusing only on teacher candidates who observe EL TLE TeachLivE™ sessions to investigate their lived experiences and learning outcomes. Additionally, participants can be invited to do individual lessons with the EL TLE TeachLivE™ avatars. These individual sessions can be longer and more detailed to see whether there are any changes in the experiences and perceptions of the participants. The coaches' point of view, lived experiences, and perceptions can also be studied.

This research framework can also be used to explore the in-service teachers' experiences and perceptions about EL TLE TeachLivE™ or other forms of mixed-reality environments currently being used in the field of teacher education. Good qualitative exploration of this phenomenon will help future quantitative researchers to focus on more specific aspects of MUVes in teacher preparation and how pre-service or in-service teachers can use them for practicing the strategies they learn in their classrooms on a larger scale. For instance, a number of teaching strategies are normally introduced to teacher candidates during their training such as using leveled-questions for ELs or nonverbal cues such as visual aids and gestures that can be extensively studied to determine which methods are conducted more successfully by the TCs and therefore might result in better comprehension of the avatars or the real ELs in classrooms.

Additionally, as the participants in this study suggested, expanding the use of EL TLE TeachLivE™ and incorporating it in other courses such as graduate courses (e.g., MA TESOL courses) or developing a separate course that provides multiple opportunities for teacher candidates or practicing teachers to use this mixed-reality classroom environment can be other

sources to further research the impact and effectiveness of the EL TLE TeachLivE™. Micro-credentialing and digital badging can also be developed to study the participation of teacher candidates and practicing teachers and their progression through their teacher preparation or professional development programs.

Conclusion

This study contributes to the field of education and TESOL by providing educators and researchers with a better understanding of the teacher candidates' perceptions and how we can use MUVES such as the EL TLE TeachLivE™ in teacher preparation programs. As the number of English learners is constantly increasing every year in countries where English is spoken as the first language such as the United States, novice teachers need to learn more about different methods and strategies they can use to not only help the native speakers (NSs) but also their non-native speaking (NNS) students in their mainstream classrooms (Nutta et al., 2012). Learning about the lived experiences and perceptions of pre-service teachers about TLE TeachLivE™ and the processes in which this mixed-reality classroom environment is utilized during their learning experience can enrich the teacher training planning for future generations of teachers and give them a better opportunity to practice what they learn in their courses.

APPENDIX A: ORIGINAL IRB APPROVAL LETTER



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: UCF Institutional Review Board #1
FWA00000351, IRB00001138

To: Nooshan Ashtari

Date: September 30, 2015

Dear Researcher:

On 09/30/2015, the IRB approved the following human participant research until 09/29/2016 inclusive:

Type of Review: UCF Initial Review Submission Form
Project Title: Using a Mixed-Reality Classroom Environment Including English Learners: The Perceptions and Experiences of Teacher Candidates
Investigator: Nooshan Ashtari
IRB Number: SBE-15-11612
Funding Agency:
Grant Title:
Research ID: N/A

The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30 days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

If continuing review approval is not granted before the expiration date of 09/29/2016, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in IRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

All data, including signed consent forms if applicable, must be retained and secured per protocol for a minimum of five years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained and secured per protocol. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Joanne Muratori

Signature applied by Joanne Muratori on 09/30/2013 12:32:49 PM EDT

IRS manager

APPENDIX B: IRB ADDENDUM APPROVAL



University of Central Florida Institutional Review Board
 Office of Research & Commercialization
 12201 Research Parkway, Suite 501
 Orlando, Florida 32826-3246
 Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: UCF Institutional Review Board #1
 FWA00000351, IRB00001138

To: Nooshan Ashtari

Date: November 09, 2015

Dear Researcher:

On 11/09/2015, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Modification Type: The Addendum/ Modification request which changed the study design to focus groups and interviews and the study is not Exempt and not Expedited review. NOTE: There is no longer an expiration date for the IRB approval – it is open-ended. The study title has been changed from: Using a Mixed-Reality Classroom Environment Including English Learners: The Perceptions and Experiences of Teacher Candidates TO Using a Mixed-Reality Classroom Environment Including English Learners: The Perceptions of Teacher Candidates.

Project Title: Using a Mixed-Reality Classroom Environment Including English Learners: The Perceptions of Teacher Candidates

Investigator: Nooshan Ashtari
IRB Number: SBE-15-11612
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. **When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.**

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 11/09/2015 02:00:53 PM EST

IRB Manager

APPENDIX C: ORAL CONSENT SCRIPT

Dear Teacher Candidates,

My name is Nooshan Ashtari and I am currently pursuing my PhD degree in Education/TESOL at UCF. I am undertaking research that will be used in my dissertation for which I would like to extend my invitation to you as the participants. You are invited to participate in a research study called *Using a Mixed-Reality Classroom Environment Including English Learners: Perceptions and Experiences of Teacher Candidates*. This study will investigate the use of a mixed-reality classroom environment including English learners (EL TLE TeachLivE™) in order to develop an in-depth understanding of teacher candidates' individual experiences and perceptions about the use of such simulated classroom environments as part of their teacher preparation. To participate in this study, you must meet the following criteria: a) be at least 18 years old, and b) currently enrolled in EDG 4410.

Data will be collected in three sections for this study. In section 1 you will be introduced to the EL TLE TeachLivE™ and will be asked to fill out a short initial questionnaire and participate in a class discussion shortly after the session. The classroom discussion will be audio-recorded and transcribed without any identification of individual speakers participating in the discussion. The workshop and classroom discussion are regular parts of this course. Students who choose not to be audio-recorded may decline to participate in the discussion other than listening. There are no grades assigned to this discussion and it is simply a class activity. Once the recordings are transcribed they will be deleted.

Section 2 is also a required part of this course, you will be working in groups of 3 or 4 to prepare and teach a short lesson to the EL TLE TeachLivE™ avatars. As part of this course's

assignments you are required to write a reflection paper based on your experience which will be used for this research. If you choose to be part of this research, your instructor will blank out your names on the reflection papers and will share them with me. Therefore, you will remain anonymous throughout the data collection process. Section 1 and 2 are going to be examining practices that are already part of your course. Your permission would only allow me to collect data and use your responses, comments, and reflection papers without any identification of the individuals.

In section 3, you can choose to be interviewed about your experience afterwards. This session will be entirely voluntary and is not a required part of your course. You do not need to make a decision regarding this section now and more information will be provided to you after your group direct-teach lesson.

If you have any additional questions concerning this research or your participation in it, please feel free to ask. If you agree to participate in this study please indicate your consent by checking the box on the initial questionnaire that is going to be handed out to you now.

APPENDIX D: INFORMED CONSENT FORM



Using a Mixed-Reality Classroom Environment Including English Learners: The Perceptions of Teacher Candidates

Informed Consent Form

Principal Investigator: Nooshan Ashtari
Doctoral Student and Graduate Teaching Assistant
PhD in Education, TESOL Track
University of Central Florida

Faculty Advisor: Joyce Nutta, PhD
Professor & Coordinator
World Languages Education & TESOL PhD Track
College of Education and Human Performance
University of Central Florida

Investigational Site(s): School of Teaching, Learning and Leadership
College of Education and Human Performance
University of Central Florida

Introduction: Researchers at the University of Central Florida (UCF) study many topics. To do this we need the help of people who agree to take part in a research study. You are being invited to take part in a research study called *Using a Mixed-Reality Classroom Environment Including English Learners: The Perceptions of Teacher Candidates* which will investigate teacher candidates' perceptions about using a mixed-reality classroom environment (EL TLE TeachLivE™) at UCF. You have been asked to take part in this research study because you are a teacher candidate enrolled in EDG 4410 which will include the use of a mixed-reality classroom (TLE TeachLivE™). You must be 18 years of age or older to be included in the research study. The person conducting this research is Nooshan Ashtari, Doctoral Student and Graduate

Teaching Assistant in the PhD Program in Education/TESOL at UCF. She is undertaking this research that will be used in her dissertation.

What you should know about this research study:

- Someone will explain this research study to you.
- A research study is something you volunteer for.
- Whether or not you take part is up to you.
- You should take part in this study only because you want to.
- You can choose not to take part in the research study.
- You can agree to take part now and later change your mind.
- Whatever you decide it will not be held against you.
- Feel free to ask all the questions you want before you decide.

Purpose of the research study:

The purpose of this study is to:

- a) Identify and analyze teacher candidates' perceptions about using this technology to prepare them to work with English learners in their future careers.

What you will be asked to do in the study:

As a participant, you will be part of a focus group to discuss your perceptions about using mixed-reality classroom environments such as the TLE TeachLive™ as part of your teacher preparation (approx. 30-40 minutes). After the focus group you may volunteer to be part of a short follow-up interview which will take about 15 minutes.

Location:

The focus groups and interviews will be conducted in in the Teaching Academy (TA) in TA 221 , on the University of Central Florida's main campus in Orlando, FL.

Time required:

The focus group will take approximately 30-40 minutes and individual follow-up interviews will take about 15 minutes.

Audio or video taping:

The interview will be audio-taped in order to be transcribed later and analyzed for the purpose of this research. If you are not willing to be audiotaped, you will not be able to be part of the study. This topic can be discussed with the researcher. The tapes will be kept in a locked, safe place and will be erased or destroyed after transcriptions have been made and the study has come to an end.

Risks:

There are no reasonably foreseeable risks or discomforts involved in taking part in this study.

Benefits:

Normally, practice time in the TLE TeachLivE™ lab is charged, however by participating in this study you will be getting the chance for additional practice with TLE TeachLivE™ free of charge.

Compensation or payment:

This session will be provided at *no cost* for you and if you choose to do the follow-up interview you will receive a gift card at the end of the interview.

IRB contact about your rights in the study or to report a complaint:

Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB.

For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901. You may also talk to them for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You want to get information or provide input about this research.

Study contact for questions about the study or to report a problem:

If you have any questions, concerns, or complaints please contact the principal investigator, Nooshan Ashtari by email at nooshan.ashtari@ucf.edu .

Statement of Confidentiality:

Your participation in this research is confidential. Data will be stored and secured in the office ED122J at the College of Education and Human Performance Building on the University of Central Florida main campus, in a password-protected file. Only the Principal Researchers will have access to the whole set of data, which will be destroyed one year after the completion of the study. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared. Only the researchers listed above will have access to any identifying information provided by participants. The only exception to this would be if the participants preferred to be identified by their own names when data results are presented and/or discussed in articles or presentations.

Voluntary Participation:

Your decision to participate in this research is voluntary. Your participation and/or refusal to participate will not affect your position in the course. In case you accept to participate, you can withdraw at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise.

APPENDIX E: INITIAL QUESTIONNAIRE

Dear Teacher Candidate,

Thank you very much for taking the time to complete this questionnaire. Please respond to the following questions:

Pseudonym:

Age:

Gender: Male: Female:

Major/year:

Nationality:

1. Have you worked with English learners before? If yes, where and for how long?

2. Do you speak English as your first language? If not what is your first language?

APPENDIX F: INTERVIEW PROTOCOL

Data	Main interview questions	Prompts and elicitations
<p>Semi-structured interviews to get information that is true to the interviewees' (teacher candidates') experiences</p>	<ol style="list-style-type: none"> 1. Please introduce yourself. What can you tell me about your past learning and teaching experiences? 2. What experiences have you had with video or virtual games that use tracking devices? How did those experiences help you in navigating TeachLivE™? 3. Have you had any experience with mixed-reality classrooms prior to having TeachLivE™ in your class? 	<p>Can you give any examples?</p>

Data	Main interview questions	Prompts and elicitations
	<p>4. What were your perceptions about the EL cases, Edith, Edgar, and Tasir before meeting them as avatars?</p> <p>5. How do you compare the avatar students with real students? Please share your impression of what they might have in common or the differences you noticed?</p> <p>6. How was your experience when you met the TeachLivE™ virtual classroom for the first time in class (during the Classroom Procedure workshop)?</p>	<p>Could you elaborate on that?</p> <p>Can you describe one instance?</p>

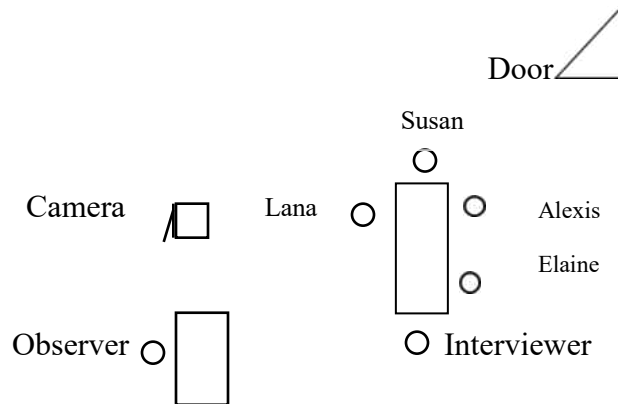
Data	Main interview questions	Prompts and elicitations
	<p>7. Please describe your second experience with teaching a classroom procedure to the avatars in a group.</p> <p>8. Please describe your experience with the individual direct-teach lesson that you taught to the avatars?</p> <p>9. Could you explain if you had any aha-moments during your interaction with the avatars?</p> <p>10. Which one of these three experiences do you remember the most and think was the most helpful?</p>	

Data	Main interview questions	Prompts and elicitations
	<p>11. Have your perceptions/beliefs about your teaching and reaching English learners changed after your experience with TeachLivE™? How?</p> <p>12. What are your thoughts/perceptions about using a mixed-reality environment for teacher preparation to reach the needs of ELs?</p> <p>In what ways do you think it should be used?</p>	<p>What else?</p>

Data	Main interview questions	Prompts and elicitations
	<p>13. If you could change anything about your experience with TeachLivE™ what would it be and why?</p> <p>14. Would you like to participate in more TeachLivE™ sessions to practice your teaching skills in the future? Why or why not?</p>	<p>Could you provide some more details?</p>

APPENDIX G: FOCUS GROUP 1

Focus Group 1



Participants: Alexis, Elaine, Lana, Susan

Follow-up Individual Interview: Susan

[The interviewer (further referred to in the transcripts as I) greets the TCs and offers them refreshments which are placed on the table in front of them. Then, I goes over the Informed Consent Form with the participants and gives them more information about the study. After making sure that the participants do not have any questions in regards to the study, I gives everyone the Participant Information Form to fill out which includes general demographic questions as well as the option to choose a pseudonym for themselves to be used in the research in lieu of their real names. The names provided below are the pseudonyms chosen by the participants.]

I: Thank you for being here today. Could you please introduce yourself. What can you tell me about your past learning and teaching experiences?

Alexis: I'm [real name]. I'm 22, I'm social science education major, and what else do you want?

I: your teaching experience?

Alexis: other than the observations and stuff no, I wanna do substitute teaching but I don't have time to do it.

I: Ok, great and is this the first class that you are taking that deals with English language learners?

Alexis: No, I had to take an ED, a classroom management class before this, I had to do 15 hours of service learning with ESOL students or I had to do 5 hours with ESOL students, 5 hours with EL students or yeah ELL I think...

I: Was it TSL 4080?

Alexis: No, it was at Valencia, it was like EDG something, it was a beginning class before like you get into a major, you needed to have that class done, I didn't teach anything, I just watched.

I: Ok, thanks.

Susan: I'll go, I'm [real name]. Elementary Education major, my teaching experience probably just the volunteer hours that I've done and I work at Valencia as a SL in a Math class kind of tutoring I guess.

I: Have you had any teaching experience with English learners?

Susan: umm... right now I'm in ESOL so I had to do 15 hours.

I: Alright, thank you.

Lana: I'm [real name]. I'm Elementary Education, I have like coached and taught gymnastics in schools for like 4 years. And right now the area I work has a lot of like Vietnamese children so I'm with a lot of English learners at work and I've worked with ESOL students in my observation classes.

I: Thank you, and you?

Elaine: I'm [real name]. I'm Elementary Education major. Umm I've done the same TESOL hours in our class and I work at a YMCA the before and after school program so I also work with kids there.

I: Do they have any English learners?

Elaine: Couple of them are. During the summer we had one little girl who only spoke almost just Spanish so that was really hard trying to get her, I was like me" Come, we're going here now, go" [laughs] and she was like "what?!" [while pretending to look around being confused], so that was really fun [laughs].

I: Ok, thank you so much, next question is what experiences have you had with video or virtual games that use tracking devices? And if you did have any experience how did those experiences help you in navigating TeachLivE™?

Everyone shook their head and said no.

Alexis: I play video game but it's not like this.

Lana: It kind of reminded me of Xbox Kinect like the dance game but other than that no.

Alexis: Yeah, I kind of thought of that but that didn't really...

Elaine: It's more like Skype but like with fake people,

Alexis: Well, it was Skype.

Elaine: It was just like regular, well I'm just Skyping but like with 5 different kids.

Susan: Like teaching a class online [laughs].

I: alright so no experience that was significant in regards to this experience, right? Ok, thanks so the next question is have you had any experience with mixed-reality classrooms prior to having TeachLivE™ in your class?

Everyone says no.

I: What were your perceptions about the EL cases, Edith, Edgar, and Tasir before meeting them as avatars? When did you read about them? How much you knew about them? What were your thoughts about them?

Susan: ummm, well I have like TESOL 4080 right now, so I've been reading about them and so I just, I felt like on the interaction with them Edith was really extreme, I haven't had contact with anyone who like I have extreme cases in classes that I go to but they are not like that shy or that or like they still want to participate or try to do things even though they don't speak English.

[other participants nod, confirming Susan's statement.]

I: extreme with Edith? What about Edgar and Tasir?

Susan: um, I didn't feel like it was as extreme, cause I feel like it was easier to interact with them.

Lana: I felt like I knew them before I went into like the TeachLivE experience, just from reading about them so much, and yeah with Edith it was like [points to Susan] she didn't do anything and I was surprised, well I knew that Tasir would be, it would be easier for her to participate and understand but I didn't think that it would be like almost exactly like Ed and Sean.

I: so you think you had lower expectations for Tasir but higher for Edith?

Lana: [nods] yeah.

Alexis: I kind of feel the same way that they did, I mean but I was prepared with the questions and I was ready to teach so I knew exactly what to ask but I had the most hard time getting it through to Edith but then with the rest it was easier because I knew the questions were set up for them and then I thought I set it up good for Edith but it was a lot, you had to repeat it for her more, or I thought I wasn't talking loud enough but I felt like she wasn't listening as weird as that sounds cause it's like reality but I was just feeling like she is ignoring me [other participants nod and say yes].

I: did you have to rephrase the questions?

Alexis: um I just had to repeat it, yeah I didn't even rephrase it, I just repeated it and then she kind of like took a minute and then she answered it.

I: oh ok, so she needed more wait time.

Alexis: yeah

I: Alright, thank you.

Elaine: I felt kind of the same way they did, for me I didn't think Edith was that bad, I mean like she answered my question I think pretty well. Edgar was kind of confusing to me because I asked him a question that should have been on his level and he just looked really confused. You know how sometimes like they make faces when you ask them a question, like they don't know what's happening and I was like I'm confused because that was on your level, it was exactly how someone else had showed it to us because we saw someone else do a procedure thing, so I modeled it just so as her question and he didn't really answer it at first. I might not have given him enough wait time but like rephrase it to make it easier but like he was the only one who seemed confused by my question, the other two were ok.

I: Do you remember the question you asked?

Elaine: umm, I don't know, I gave him options or something like that, she.. I remember the lady, she said about her steps like oh which step is this or something, he was able to just give the answer straight out but when I asked, he was like [makes a confused facial expression] umm... so I made it like a yes or no question so he could obviously answer that one easier so...

I: Ok, thank you, so how do you compare the avatar students with real students? Please share your impression of what they might have in common or the differences you noticed?

Lana: They behave a lot better than children usually do, they sit and they don't like talk to each other unless they are told they are allowed to talk and the ELs are just, they don't really interact with anyone else, like you see Ed and Sean talking to each other but the other ones don't speak at all and I feel like ELs in a real classroom they do have other friends, they don't sit by themselves the entire time.

I: Oh, Ok so in your classes do they interact? Even if they are like a beginning level?

Lana: if anything they'll interact with someone who speaks their native language. I've seen like a couple of kids, they group together, I don't know if they have like known each other outside of the classroom because they seem really close but they just flock to the people that they feel comfortable with

I: oh ok, but in this class you thought they were very separate?

Lana: yeah very separate.

I: any other differences or similarities?

Susan: I just felt like from my experience in the classroom with the beginning she didn't speak like any English. She just moved here last year and she really wanted to interact and she really wanted to try like when she had a spelling test and she couldn't write any of them down she wanted me to like write them for her so she could trace them like to help her learn them, you know do different things. But I felt like in the video Edith was just like so like with her head

down like really, I mean maybe she was really paying attention but it didn't seem like it the way she was just like with her head down and really stand-offish to everything.

I: but in your own class you feel like-

Susan: in my class I feel like they really try and they interact with the other kids maybe not like verbally but they interact with them

I: what age group?

Susan: It's a K through second grade class that I go to. So I think she was in kindergarten last year and now she is in first grade. It's the same class though again, like there is a few students but a lot of them are the same cause it's an ESE class that they go to so a lot of the students were the same. So she was with them last year too so that probably helps.

I: so she knew them

Susan: but I went to the class last year when she was first brought to the classroom too.

I: and she acted the same way?

Susan: uhuh

I: Ok, thank you, any other similarities or differences between the avatars and real students?

Elaine: I feel like it's easier with actual students to recognize if they understand you, if they know what you said or not, it's kind of easier you can gauge their response; like you can see their face if they are confused and you see [gestures] oh! I understand it, so it's a lot easier. I think in some ways it's similar cause I asked a question that I would ask Edgar to a student in real life

and made it easier like asked him, “Do you know what this is?” Had no idea so “which would you choose this one or this one?” And then he was like that one! So it was similar so that’s kind of the same.

I: Do you think it is easier because you can read the students better and facial expressions and everything or there is anything else that you think makes it easier when you are with the real kids?

Elaine: I think just like facial expressions and also for real kids they might be really high in one thing and then really low in something else so it’s kind of easier to figure out, oh like which one are they gonna understand cause you just have to change it up for them.

Alexis: they all took everything, I was gonna go with what she was saying about how I think it was similar like the questions asked for them, they probably like the levels that they are is probably what you are going to see in real classrooms like those three levels of English learners.

I: any differences?

Alexis: maybe just the way that they talk. Like I feel like they like, um, like the way they were talking, like they would try and talk more in the classroom than the way they talk on the computer. I feel like kids in classrooms would either try and talk more or just like try and communicate in a way, than just sit there and stare, like they try to be heard no matter what.

Lana: They just say something even if it is in their native language, especially in Spanish because it might be easier to understand Spanish we might be able to understand what the kid is saying like Azul or something like blue and you know a little bit of Spanish.

Alexis: yeah like Spanglish

I: so they interact more even if it is not in English

[Everyone nods.]

I: Thank you. What were your thoughts when you met the TeachLivE™ virtual classroom for the first time in class during the Classroom Procedure workshop? What went through your mind when you saw them?

Alexis: I wasn't there but when I saw them for the first time like when I sat down and watch them teach, I thought it was really cool, I had never seen something like that so I thought was like interesting, I guess...

I: in what ways did you think it was interesting?

Alexis: Umm because it really does, it's the way to get a firsthand look of what you might how to deal with, instead of talking to your teacher and saying what you would say, you're actually getting someone that is answering you back and actually can't speak English, instead of it like being your teacher pretending or like your friend pretending...it's just a real life kind of experience...

Elaine: For me in this class, it wasn't my first time because my TESOL teacher actually brought it in, but when I first saw it I was like wow it's really cool, it was really funny how everyone was talking about Ed because of how polite he is, all the girls were like "awwww, he's so cute!".

Like it was super funny and everyone was super impressed by how well they could see us even if we are at the back of the room like one girl in our class was like making a face and Sean called

her out, he was like: “ Why is she making a face at me?” It was supper funny so I think it was really cool.

I: what was it exactly about it that you thought was really cool?

Elaine: they could see us and communicate cause like even if you're skyping just one person you usually have issues so it's five people at the same time, they can all communicate at the same time, or one at the time so just how well the program worked kind of threw everybody off I think [laughs].

Susan: Yeah, I think it's a really good experience, um instead of like role playing it's like a live experience and then I think that from doing it that like Sean and Ed were in the front, they talk a lot and the ELs they are just in the back and they don't really, you don't have that interaction with them unless you call on their name. Like I feel like somehow they should have more interaction too, because there is just not much interaction with them when we were in our groups it was more interaction with like Sean and Ed when we went there, there was no interaction with them.

I: During the workshop?

Susan: yes cause they weren't really saying anything, it was just like Sean and Ed saying things until you call on them and it pulls them forward but I feel like there should be some way they can interact with them while Sean and Ed are still being seen

I: Yeah, I see, what did you think about the workshop? How was it? Like the way it was set up, did it give you good information?

Susan: Well because in this class we didn't really go over like leveled-questions like if you had taken TSL 4080 so you would have known that so I think that helped for people who hadn't taken that class before.

I: uhm, but if you had taken that class before you thought it was good?

Susan: I feel it's still good yeah it's review, like she'll show you like what you need to do like if you didn't feel good about your lesson

I: Do you think it was clear? Like the organization of the workshop, the way it was presented?

Susan: I feel like it could have been better

Lana: Yeah, I don't know if she was nervous or anything cause she did seem nervous when she was presenting it, I mean I'm nervous when I present to my peers or people just around my age so I don't know if it was just that or I don't know. It helped with showing the examples, I liked the example part more rather than the presentation part at the beginning

I: when she went in and asked questions?

Susan: Yeah, first showed them and then asked

I to Lana: What were your thoughts when you first saw the avatars?

Lana: I didn't like them at first [laughs nervously] I don't like the way they look

I: what was it about the way they look?

Lana: Just like most of the characters that are like Disney characters or like known characters I don't like [pauses] they just freak me out, so I got really scared [laughs] but once they started like well I realized that well I think there is like people looking at you and they are answering for them so it's not the same as, it's a person with character I think so ...[pauses]

I: what is it like the general cartoonishness of characters?

Lana: I even get goosebumps just thinking about them [laughs nervously] I don't know I think like well Tasir in particular like the way that she looks at you is so scary

Susan: Yeaah she is real scary...

Lana: she scares the hell out of me, her eyes are like so mean and red

Susan: she does look sick

Elaine: She didn't look how I would expect, she doesn't look Egyptian.

Lana: yeah, yeah like she doesn't look Egyptian.

Alexis: Oh wait, I thought they were all Spanish...I haven't taken the TESOL class yet.

I: so you guys think that they look different than what you had imagined?

[Everyone confirms]

Lana: yeah, especially because of the ages.

Alexis: I thought it was gonna be like animation, more cartoony, to me they looked more realistic than I thought, I thought it would be way more like animated I don't know how to explain that

but even though it was like a cartoon it still looked more human to me, I thought it was gonna be like Jimmy Neutron I don't know like a cartoon with a person like that I didn't think it was gonna be like someone that can look like a human, like creepy like that [laughs].

I: who did you guys think looked so different than what you had expected?

Susan: well because the ages are different in your book Edgar is in 10th grade, so like in this video he's like in this little kids' class so it is not the same

Lana: I think the way they looked, I don't know are there pictures in the TESOL book?

Susan: no, but we saw them online though remember she showed us pictures online of each of them and they look a lot different

Elaine: I feel like for being Hispanic Edgar and Edith look fine just like Tasir threw me off, she doesn't look like anything I would have imagined

I: what were you expecting Tasir to look like?

Elaine: she had like blonde hair, was it?

Susan: Yeah, I thought she would have like dark hair, she was very gray [laughs].

Lana: yeah, black straight hair and like creamy skin not like gray skin [laughs].

Elaine: She looked like a vampire [laughs].

I: Ok, thank you, next question is please explain any aha-moments during your interaction with the avatars?

Lana: I liked that I went last with the groups, everyone before me kind of asked like yes or no questions for Edith so I was able to like so you don't want this and I kind of fixed the questions that I had based on everyone else's feedback.

I: so seeing your peers helped?

Lana: yeah, it helped a lot and I felt that it made me a lot more comfortable too cause I wasn't like one of the first people to go up and talk to the creepy little people [laughs] I just sat there and listened to them for a while it made it easier.

I: other than adjusting your questions what else helped you from seeing other groups go first?

Lana: I liked seeing just the way they presented the procedures because I think that our group was the only group that had like turning in paper everyone else had like fire drills.

Alexis: I don't think I really had an aha moment like I kind of went really quick through mine cause I'm not an elementary school teachers so these procedures to me like I would never have to teach my students that so to me it was like I'm not saying it was a waste of time.

Susan: but you would still have to do like fire drills.

Alexis: Well I don't know the way I presented mine like my feedback wasn't that I should be a high school teacher because the way I was explaining did not raise any like it was class discussions so I literally just repeated myself like twice and then asked questions because I like showed them how to do it.

Susan: I though like there was an older version.

Elaine: there is an older version but we all just got the middle schoolers.

Susan: Oh I thought like she was splitting us up into two groups because she was like...

Alexis: she was supposed to when she like gave us the little one so I literally gave my 2 minutes because to me I'm not used to talking to little kids so it was every time I had feedback it was like you didn't talk down to the student, you talked to them like they were high school students like the way I was talking to the computer I guess, like I can't I don't have the patience to teach a little kid like how to ask for a pencil I don't know.

Elaine: Yeah by the time you get to high school like you know the fire drills.

Alexis: I remember my high school teacher was just like get up and follow this board, don't talk, ok like and you still talk and just follow them. The way you have to teach the procedure it's as if they didn't know what they were doing so to me I was just like oh I don't know, it didn't work I feel like they should have given us the second option for if you were secondary because I feel like even though we did get to use this but I don't feel like I got what I needed out of it completely because of how easy it was to do it if that makes sense.

I: but do you think like for example if you are completely new to a country and you didn't know any of the like you didn't know you hadn't gone through any of the previous grades you would still want to know the procedures?

Susan: Yeah but I feel like that would be a pre-teach, you know what I mean, like you would do it with the students by themselves not to the whole classroom like if you're in high school and your whole class you would just teach that student.

Alexis: to me as a high school teacher if I at the first day of school was like if you need a pencil you raise your hand like asking for a pencil at that point I feel like kids in high school have their own pencils and they already know where the sharpener is, they know to be quiet you know it shouldn't have to be taught to them, it should be like something you do after class or maybe before school even starts for the year, you know you come in early and you help them with those things.

I: Ok so in that regards you think it wasn't very realistic?

Alexis: Yeah.

I: would it have helped if it was an older version in high school?

Alexis: definitely like we were thinking with the discussion like having them do a discussion and our teacher said that it was too complicated to do because we only had a certain amount of time but we weren't doing like an example of a discussion like a critical thinking discussion start with them she said it would be too difficult so we just didn't do that whole part of it.

I: how would the discussion go?

Alexis: we would do like popsicle sticks so we were gonna have popsicle sticks and ask throughout the day, the teacher would draw a popsicle stick instead of having kids raise their hands so everyone had to participate so we were gonna pick the popsicle stick and have like a question set for Tasir but like have it a little bit more complicated because at high school level even if it is a yes or no question at that point I feel like if you are in that class you know more than just yes or no because they would put you in an ESOL class at that point. Like you wouldn't

sit there and look at them blankly because if you are at high school level you would at least be somewhere I feel like. I feel like they don't put a kid who didn't know any English whatsoever in the middle of a Junior level class because at that point you know you're setting them up for failure you know.

I: Yeah but I think depending on different states they do.

Alexis: They do, really? These poor kids then. Then that's ... cause I know when we did Colonial like they had a specific classroom for those kids and the teacher was an ESOL teacher and they did all their classes in the ESOL room. So even if they were thrown into the Junior level work in the classroom everyone was kind of in their position you know. They didn't throw them into a classroom where it was like...

Susan: So they never go to a regular classroom?

Alexis: I don't know, I don't think so

Susan: Like the classroom that I go to, the class that my junior achievement that was a fifth grade classroom and there were ESOL students. Most of them could speak English though and read it so they were not like beginning level but the ESOL teacher would come in there during certain times to help them and they also went to her ESOL class for certain periods.

Alexis: Yeah no I think a few students only had an ESOL period where they went and like because they were more fluid but the kids who were literally like on the first level of English they were just in there all day because they didn't want to put them somewhere where they are not familiar because they knew at that point the kids were just like couldn't sit there and not do

anything because at a high school level not knowing English to an elementary school of not knowing any English, those kids are not gonna try as hard as like the little kids to participate.

Susan: Well, right like in Elementary schools the students you are teaching might not even know, like they know English but they won't necessarily know the spelling of the words you are teaching so they're kind of in the same boat like in elementary school but in a higher level they are not in the same boat at all.

Lana: Yeah like Edgar and Edith were very defiant of learning and I feel like that is characteristics of older kids because older kids regardless of their fluency are defiant to learn, like little kids are easy

Susan: Yeah I feel like that's another thing like that's another difference from what the book says to how he reacted because he wasn't really defiant at all during your TeachLivE

[other TCs confirm]

I: so do you think it would've been better if there was a difference? Because in TeachLivE we have behavior levels and we can adjust that

Susan: Yeah cause he should be a little worse because that's what you expect from the book

Alexis: and personally the whole EDG class to me because you guys are all Elementary right? Yeah cause I'm a secondary and I personally think this class doesn't help a secondary student because the way they teach us to discipline and what to do with our students is nothing like you would do in a high school. For me it's nothing that I've watched in my high school classes like they don't do anything that the class teaches us so I personally think like the ESOL stuff is good

for the level of elementary and what the classroom management like the 4410 taught us but for a secondary level teacher some of the things in it, like you always see me bawling Professor [name of the instructor] , I'm always like Oh, wait. But that's how I feel about it, especially like schools around here like high schools around here, students do not wanna learn and they are not the nicest students and the way they teach you to teach the students is sometimes is [gestures so so] different. It's different because like she said [pointing to Lana] high school students are defiant to learn, like it's hard to get them to want to learn compared to what like in elementary school

Lana: Yeah, they're more willing to learn.

Alexis: Yeah, like doing Junior Achievement and stuff it made me wanna be an elementary school teacher because watching elementary school to high school, I'm like oh my God, what am I in for? [laughs]

Lana: They're scary as much as this TeachLivE thing [laughs]

Alexis: yeah, they are pretty scary, I'm not gonna lie, but I don't have the patience to teach little kids that's what I've learned.

Elaine: I don't have patience to teach older kids cause sometimes they can be really mean

Susan: they are, yeah/

Alexis: Well the thing with that is that I can ignore them, like I'm blunt so the way I teach I have to be blunt with the kids. So I'm gonna be one of those teachers who is always sarcastic back to my kids like I'm gonna be that teacher [laughs].

I: Do you think that would have helped if you had those students with the same characteristics like that or would it throw you off?

Alexis: Oh yeah totally. No, I think it would have thrown off like an elementary school teacher but I think if you knew the major you should be able to adjust it before they went and taught. Like if you know you have a secondary education major coming in, then you should raise the bar a little higher for the behavior and stuff because the way that the kids acted in that classroom is not probably gonna happen in high school.

Susan: Well, I thought the way they acted in that classroom isn't the way they would act in any classroom, to be honest. They were just very well-behaved and I mean I guess when a new teacher comes in most students are well-behaved because they are like their teacher tells them like they have to be or something will happen. But there was like no interruptions or disruptions through the teaching, I feel like there would have been some sort of something.

I: Do you think it would have been helpful to have some sort of interruption?

Alexis: Yeah, like someone would talk without raising their hand or something like that

Susan: not something like too much but I'm saying like they should have some kind of something.

I: to make it more realistic?

Susan: Yeah.

I: Ok, Thank you. Any Aha moments you guys had? Like oh uh this didn't work I have to try this one or do it differently?

Susan: Yeah, like rephrasing the questions, you know like I felt like my questions were very simple and to the point and when didn't understand I was like oh my, what should I do? You know what I mean? like I felt like they were leveled- questions but then they still didn't understand it so it was just having to change it.

I: do you remember any of the questions? Like an example?

Susan: Umm, not really... and then it was like after our group like almost everyone in our team went you had mentioned Edith might be saying yes to your yes/no question it might be because she didn't know what else to say so she's just saying yes, she might not really be answering your question, you know. I thought that was really interesting cause she probably wasn't answering anyone's question she was just like [gestures nodding] uhum uhum because she figured that's what you wanted to hear.

I: Yeah and then everyone kept saying yes yes yes ...

Alexis: Totally

Susan: [laughs] yeah, we were directing to say yes

Lana: [gestures nodding her head multiple times and holding a picture in her hand] yes, yes, yes?
[laughs]

Alexis: that's how I still feel, [laughs] I'm like Ok, yes.

Lana: I realized how important it is like for modeling, cause when Edgar the question the first time it was at his level but I don't know if I was speaking too fast or what he didn't understand, maybe I didn't give him enough time but I stopped and then modeled like do you stand or sit [models standing or sitting] then he was like oh ok, sit!

I: Oh Ok, good. So once you modeled like he could answer it. Cool, thanks for sharing. Any other aha moments that you thought it was working or oops it is not working?

[everyone shakes their head saying no.]

I: Ok, so, how have your perceptions or beliefs about your teaching and reaching English learners changed after your experience with TeachLivE?

Alexis: I need to be more patient. Like I need to slow down, that's what I learned I need to slow down my lesson.

I: Uhum, is that just like the speed or the rate of the speech or ..?

Alexis: the rate that I move from step to step, like I should've just let it sit maybe another second before I moved on to the next step.

Susan: Mine just like how much visuals helped them, like pointing out different things and using visuals and movements, gestures.

Elaine: I think our group did pretty well so I don't think anything changed.

I: what was your group doing that you thought went really well?

Elaine: Well we had our poster with our rules and I made it like each rule is a different color but all the key words were one color and we had pictures and the pictures had the steps as well so everything kind of connected. So it was very easy to, so if they don't understand the words here they also have them here, they also have the key words so they know what is really important for them to get from the lesson.

I: So you think the organization of the lesson helped?

Elaine: Yup.

I: Anything else about reaching English learners?

[Everyone says no.]

I: All right, what are your thoughts or perceptions about using a mixed-reality environment for teacher preparation to reach the needs of ELs? What do you think are the advantages and disadvantages of using something like TeachLive or any mixed-reality classroom for teacher preparation?

Alexis: Advantages would be that it gives like real life practice to have an ESOL student in your classroom and then a disadvantage would be maybe that I thought one thing that I liked that it wasn't scripted like you could say basically anything like I remember I asked like how Sean was doing and he was like oh I have allergies. And I was like oh and I hope you have tissues and he was like I do so I like that you can talk to them like that. But I think the disadvantage would be that I think they were too calm even though it wasn't scripted it still felt like it was staged. I felt like nothing wrong could happen, you could basically say anything and it was gonna be okay.

Susan: I feel like Service Learning hours are better than using the TeachLivE because it's like I don't know it's like a real classroom [laughs] like you have those interruptions, you have those problems more than you did in the TeachLivE. I mean this is just like a short time with it so ...

I: Yeah, so are you thinking of it as a substitute to Service Learning?

Susan: No, the Service Learning experiences in the classrooms have been more beneficial for me. I have learned more from that than using this TeachLivE in this classroom.

Elaine: I think for the benefits just to practice with the leveled-questions just so you get practice making them for different levels so when you do get to the classroom you're like oh this student is like Edith and can't answer anything so I know what kind of questions to ask this student. So just for practice and kind of making it stick in your mind the kind of questions you can ask to each level.

I: uhum, so leveled-questions you think that would be positive? [Elaine confirms] anything else you noticed that would not be very positive?

Elaine: I mean we already spoke a lot about it's just not real, as real as a classroom but I think it's good just for a kind of beginning step like okay well at least I can try with these fake students. It's easier but at least I'll know that I can do it this way so when in classroom you're not completely like I don't know what to do or what to ask or anything so...

Lana: It's good practice, for someone who is first coming in, who's maybe nervous to go into a real classroom like they wouldn't be able to handle like the behavioral side of the classroom it'd be a good way to introduce them to teaching lessons.

I: uhum, what did you think about the organization of how it was all set up like in the beginning we came in with the classroom procedure workshop and then you had to go in in groups, what did you think? Did you prefer having an individual session with them or in groups?

Susan: I thought it was good in groups because you could see the way they reacted with other people and other people's lessons as well because if you just did your own little 2-5 minute lesson you're not really getting that much time with them so you were able to see the way they reacted with other people.

I: what did you think about the feedback? Like the coaching and the feedback you were receiving did you think it was beneficial or no not really?

Lana: Yeah, I really appreciated it

Alexis: It was good

I: What was about it that you though was helpful?

Susan: I just felt like it was all like good feedback, no one wanted to give anyone negative feedback

Lana: Maybe you didn't .

Susan: [laughs] well I just feel like there wasn't much of it so like it would've helped if we would've given each other more like feedback that would actually like impact their lesson

Elaine: I think we got some.

Alexis: in my feedback let me tell you [laughs] everyone in my group wanted to point out negative stuff, they were nitpickers, I'm not saying it hurt my feelings or anything but I'm just saying I was like damn! But at the end of the day it's good because it helps you and you're not gonna do it again because you don't want someone to nitpick again, let me tell you [laughs] I'm like not happening again [gestures checking a box].

[Everyone laughs.]

I: What was the feedback do you remember?

Alexis: Oh it was that kid, she always does it, she always has something to say. I forgot her name but every time, ugh what did she say to me? I forget it was something that I didn't think needed to be said but she said it and I was like okay, I guess it's noticeable but then umm it was something about how I taught, I forgot what it was but it was something about the way I talked, oh it was that I didn't talk loud enough and I'm thinking to myself like I didn't talk loud enough [says sarcastically and laughs] or like I wasn't clear and I was like oh ok, I guess I have to work on that but she said it like it was rude and I was like. [makes a surprised face]

Susan: Well yes we need that feedback about things that we did wrong or things that we could've prepared better but like obviously you shouldn't be giving your feedback rudely [laughs] because you know you wouldn't like that kind of feedback either.

Elaine: The lady in our group, I don't know if it's like the same for everyone she gave us all like feedback. She was like you did this, I like your poster and your pictures and like how you modeled and then all this stuff and then she also was like but one little thing wrong and then...

Alexis: That's what she did for ours too, it was like compliment, compliment, you know how they teach you to do all that. It's like a good thing, and a good thing and then a critic

Lana: I think that helped a lot more than our peers cause everyone is like [gestures thumbs up] oh you did great and then someone from the outside isn't going to feel like they are obligated to be nice to you [laughs].

I: So you thought that the feedback that your peers gave you and the feedback that the coach gave you were very different?

Lana: They were similar but there were more critics by the coach which was more helpful than just people telling you that you did a good job

Susan: yeah, I think our classroom should have like... like giving some critics too because like it helps like if we're paying attention and we can pick those things out, it helps you learn too.

Lana: Like one guy in our group, I said something like when I stated Edgar's question then I had to model it for him, he goes well shouldn't she have just stated it just like a yes/no question and the coach was like no she didn't, she did it perfectly and I think that was like clear for him just because he was thinking he should've made it easier like for Edith level...

Susan: And I think that's good like he was like asking a question not really giving you feedback but I think that's good for the whole class to like know that she felt like it was fine the way it was.

I: Oh ok, and you think that it was good that you guys were in different groups and you were hearing other groups' feedback? Did that change anything in the way that you presented your

lesson? Like watching others, cause I think you [looks at Lana] said that it kind of helped you with the questions?

Lana: I was able to just get the critics of the coach when she said that you need to change this and when you said not to ask yes or no questions that were difficult I was like well let's scratch that question and change it to blue or red? Instead of yes or no and she was still able to get like a one word answer but it wasn't, she wasn't just nodding.

I: Alright, thank you. Is there any other way that you think we should use this mixed-reality classroom environment? Any changes?

Alexis: Just the behavior adjustment would be the only think that I would say and the look of them. Just kidding [laughs] you don't have to change the look of them, it wasn't that important but if you have extra time and you want to do like an upgrade but it's not like first priority thing to change.

Elaine: Just make Tasir look less like a vampire then we're good. [laughs]

Alexis: But yeah just the behavior thing like if you could adjust it that would be good, especially knowing the levels that they are teaching at.

I: Any other ways that you guys think it should be used? Or it should be used for a longer or shorter period of time?

Susan: Yeah, I think for this class that was fine but I think it would be good if we could use it maybe more often. I don't know this is my first semester here so this is the first class I saw using

it but just saying maybe I'll use it more later but it would be good to have more interaction with them.

I: Would you be interested to have more time with the avatars? More individual time or in group settings again?

Susan: I don't know I feel like teaching a different lesson too, like an actual lesson

[Alexis and Lana show their agreement.]

Alexis: because they have it in our lessons like what we would do like with our students so I feel like if they have us write it in our lesson, they should have us actually put it into a lesson.

Because we teach our lesson but we don't go on the ESOL parts of our lesson so it would've been cool to actually like teach like show what we would actually do for the ESOL parts and like when you get into the group, just like put the kids into actual groups and like at least observe, well I guess you can't really observe from the TV but if you can observe your ESOL students actually using what you put into the lesson. I think that would be cool to see like that you're making a difference by putting that stuff into your lesson.

I: How long do you think the sessions should be?

Alexis: Well for that lesson 2-5 minutes was fine but if it was any other lesson like 8-10 minutes.

Susan: Right.

Lana: I think a lesson plan would've probably been more beneficial to present to them more than just the procedures cause you're just telling them what to do. You're not really interacting with

them and making sure that they are learning but isn't there like a workshop that you can go to work one-on-one with them?

I: yeah, there are open labs that you can go to but this is actually one of the reasons why we are doing this research so that we know what else to add so that we could have that later on as an option that you could sign up and go and teach your lab lessons. If you were to teach a lesson do you think you would need?

Susan: We only had what like 10 minutes to do our lesson.

Alexis: well it depends too like if your students can actually interact with you and like do the lesson with you, you can take like 45 minutes cause you're actually teaching a lesson but if you're just...

Lana: Secondary.

Alexis: Well yeah cause I'm a secondary it would take 45 to an hour to teach a lesson so for my first micro-teach I wanted to teach like psychology like disorders and stuff but there's no way I could teach that in 8-10 minutes because you had to kind of summarize your lesson but I feel like if you get to rent like the TeachLive you can actually see if you can do an actual lesson with like the ESOL high school students cause I think that's difficult like being able to teach like mental disorders to people who can't understand full English so that should be, there's like the challenge of what the teachers are supposed to do with ESOL students.

Susan: I think it would have helped in that TESOL class?

I: TSL 4080?

Susan: yeah.

I: when did you take that class?

Susan: I'm taking it now.

I: is it online?

Susan: no it's a mixed-mode class

I: Oh Ok, because most of the TSL classes have it some still don't but that's a good point that we have to have it across the board.

Susan: Yeah, everyone needs to have that experience.

Lana: Mine was all online.

I: yeah online classes don't, they do have I think the leveled-questions workshop online

Susan: but even if it is online, if you have like one mandatory meeting where they have to like interact with them.

Lana: like we could use webcams to be able to, well I think the computers at the library have it to even if your home computer didn't have one so people have the access to it so that they have a Skype interview with these kids.

Susan: Ya, it would be a one time thing.

I: You mean they could interact with them? And not just a workshop?

Lana and Susan: Yes.

I: Ok, so two last questions: If you could change anything about your experience with TeachLivE what would it be and why?

Alexis: Like I said I would just slow down.

Elaine: I would just pick someone else to teach [laughs].

Susan: I was glad that I was able to teach because like I feel like if I wasn't I would've missed out on that interaction and now these other people didn't get to have it.

I to Lana: With being scared, what would have helped you to not be scared?

Susan: Well it was your first time meeting them that you were scared, right?

Lana: Well I still don't like them. [laughs]

Alexis: She wants to get them changed [laughs]

I: change them to real students? [laughs]

Lana: I don't know, this is just me

I: No, no, it's totally fine. There is nothing wrong with it, this actually might come up with other students as well.

Lana: Well it is like a thing like people are scared of the cartoons or animated creatures [laughs]

I: Were you scared of cartoons before too though?

Lana: I was scared of like, have you ever seen like the Wiggles like the octopus and the dinosaur? I wasn't like scared of Barney or Micky Mouse or something but like the weird generic versions of like well-known characters [laughs] like there was this woman that came in to work with a mask on her head and I was like terrified and I was like I'm not looking at her, I turned away.

I: You have to see a person's face.

Lana: Yeah, I have to see someone's eyes to be able to connect with them on some level and I can't do that with a computer.

I: aha, so you wouldn't like to have more sessions with TeachLivE like it wouldn't be comfortable for you?

Lana: Like if I was able to do what I did with the class, go in and sit there and get comfortable in front of them, then I think that would be ok. But I wouldn't go just by myself.

I: And is it specifically for that reason or anything else that you do not like?

Lana: No specifically for that [laughs]

I: Ok, thank you [laughs while drawing the attention to Elaine] and why didn't you want to be the one to teach?

Elaine: It's just like we had someone else who volunteered to do it and he really wanted the experience and I didn't really like care for it as much as he did so I felt bad he would have probably gotten more out of it than I did. So I feel like having someone else teach who actually

wanted the experience would have been more beneficial than someone who really didn't care as much.

Susan: That's why they didn't let him though to volunteer.

Elaine: Yeah, I was like we have someone who wants to do it...

Susan to Alexis: I thought you had volunteered?

Alexis: No, I just saw where the short straw was and I picked it on purpose because I was like followed through with my group and told them that I would do it, you know what I mean so I was just gonna keep my word and do it but she said that we couldn't volunteer but I watched her where she put the short straw and I went up before my classmates and I picked it cause I was like I'm not gonna be that person [laughs].

Lana: I thought like I knew where she put it and I didn't want to do it so I picked mine and was like Nooooo .[laughs]

Alexis: And like honestly I need the experience because I'm one of those people who learn from doing it than not doing it. Like from watching and listening, I'd rather do it.

I: Did you guys like the random selection?

Susan: I liked it, I mean everyone in your group was supposed to plan to do it so it wasn't like we weren't ready to do it.

Elaine: Yeah, I understand her wanting like everybody to be prepared so to think like everybody can go but I still feel like at the last second she could be like ok if you really wanna go, you may

go. So like everybody was prepared to go but the one person who actually wanted to go gets to do it.

Susan: But then if everyone in your group wanted to go...

Alexis: Then you draw a straw [laughs]

Alexis: I don't it would ever happen though.

Susan: Yeah if everyone wants to go you draw a straw if no one wants to go you draw a straw if not let the one person do it [laughs]

I: You kind of answered the last question, but just to wrap up. Would you like to participate in more TeachLivE sessions to practice your teaching skills in the future? Why or why not?

Lana: No, too scared

Alexis: I would if I know I can make it more realistic with the behavior and stuff I would totally do it again because I would like to see how my management skills would come into teaching.

Susan: Yeah, I would like to do it again. I think it's a good experience and to have some more of those interactions like longer interactions though and like a different lesson like an actual lesson.

Elaine: I wouldn't like to do it. I felt like it's more nerve-racking doing something like first like a weird online thing that I have never done before and also like all your peers watching as opposed to doing it like with real kids and kids are understanding and they are like they help you out and there is a teacher there to help you but it's not like everybody is watching you, everybody is

wondering how well you're gonna do and stuff like kids are more understanding. If they don't understand you can tell and help them out. I just feel like this, I didn't like it.

I: was it more the pressure of your peers watching you or it was more the avatars?

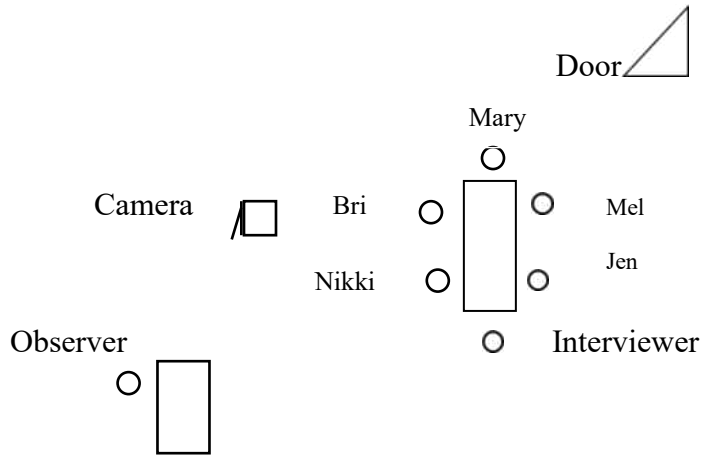
Elaine: I mean it's kind of weird talking to a computer screen, trying to gauge everything so I feel like it's easier with real kids so I'd rather just not do fake children.

I: Alright, thank you so so much everyone. Any other comments or anything else that you would like to add?

[No one adds anything.]

APPENDIX H: FOCUS GROUP 2

Focus Group 2



Participants: Jen, Nikki, Bri, Mel, Mary

Follow-up Individual Interview: Nikki

[The interviewer introduces herself, greets the TCs and offers them refreshments which are placed on the table in front of them. Then, I goes over the Informed Consent Form with the participants and gives them more information about the study. After making sure that the participants do not have any questions in regards to the study, I gives everyone the Participant Information Form to fill out which includes general demographic questions as well as the option to choose a pseudonym for themselves to be used in the research in lieu of their real names. The names provided below are the pseudonyms chosen by the participants.]

I: Thank you for being here today. Could you please introduce yourselves? What can you tell me about your past learning and teaching experiences?

Jen: My name is [real name]. I don't really have much teaching experience. I have a job at a school. I am a coordinator there, I was a counselor then I got promoter. So I do have I guess some form of teaching sort of but not the JA kind of prepared me for the lessons and all that but dealing with like I've dealt with parents and discipline the students and stuff so that's kind of prepared me for you know for being a teacher in the future so...but mostly what I'm not prepared for like the lesson planning and the lessons so

I: have you worked with English learners?

Jen: Umm I have observed them. I haven't been like one-on-one with them or worked with them but I have seen like you know what it's like

I: Ok, thank you very much.

Nikki: I'll go. I'm [real name]. I don't have a lot of teaching experience like my teaching experience has been like service learning and then Junior achievement. But I was lucky enough, I know that a lot of the you know student service learning is alright sit in the back of the class and observe, but I was really lucky I got one teacher, she was a high school English teacher and there were ESOL students in her class and she had me sit in the back with three of them and work with them one on one. So I felt like that was a really good experience for me to have. Like I got a little bit of the taste of it without being like thrown into it and junior achievement was good too. That was actually being able to stand up and teach in front of a class for the first time. So it was good.

I don't have that much experience but it's nice to like be able to get in front of a class and do something with the students.

Bri: My name is [real name]. I don't have much teaching experience but I have done the clinical experience as well as the service learning. I've done a little bit more here cause I transferred from a different school. Like junior achievement kind of gave me a little taste of what it's gonna be about or like what teaching is and you know how I'll be in a classroom. I feel like that was a great opportunity for me to you know be able to ... and on top of that I was able to be one on one with students like help them, read to them and just engage with the students. I wasn't able to do that in the previous school I was at so that was good.

I: Great, thanks. Did you work with any English learners?

Bri: No, I've never worked with any English learners.

I: Alright, thank you very much.

Mel: Well, my name is [real name]. I don't have that many teaching experience but I'm working... I'm a preschool teacher but it's kind of different but you still work with parents... the junior achievement did help a lot cause most of the time like in the past I did service learning but you just sit there and observe what they're doing. For junior achievement you get to interact with the kids and you get to see how it is so it did help a lot.

I: Great, have you worked with English learners?

Mel: Yeah I have. Plenty of times. One-on-one it was kind of hard at first cause like you see the difference, you see how they struggle so ...

I: How long have you been working with ELs?

Mel: about 2-3 years now.

I: Good, Thanks so much.

Mary: My name is [real name]. I've also worked at a YMCA for 3 years as a site director or site coordinator so I do... I would say it's a lot of experience with kids, teaching not necessarily because it doesn't give you that position to teach the students. It's more so fun and casual which is also good. But as far as working with ESOL students I did volunteer on campus at the Global Achievement Academy for about 16 hours what we had to do with undergrad. And then the JA was also a very good experience, it was fun as well. It was kind of like what we do at the Y but more so on the teacher level so that was really cool.

I: I see. And have you worked with English learners?

Mary: Just the volunteering.

I: and how long was that?

Mary: It was just for a semester and the minimum was 15 hours, I did about 16 I think because I also work full-time so it didn't allow me to. But it was interesting, they were older. They were college students. They were actually young but being that they were from another country they were more advanced. I was working with 16 year olds but I was also working with 19 year olds and you can see that to some extent they are very Americanized and very verbal and they like like movies and TV and music but when they came to school you can see the balance and how they may struggle in some areas.

I: Ok, thank you so much. So the second question is what experiences have you had with video or virtual games that use tracking devices? How did those experiences help you in navigating TeachLivE™?

Nikki: I mean the extent of mine is like using the Kinect like Xbox and just stand there. That's my extent of like video –tracking devices but I just felt like because of that, like I play a lot of those games like with my niece and nephews because of that I was more comfortable standing in front of the camera and not being like oh someone is watching me. I felt like more comfortable standing there and like kind of in my head getting that it was a simulation and being able to like go for it and be like alright, these are simulations and they're not judging you, I can just go and do what I gotta do. So that helped a lot, just having that experience of using the Kinect and all of that.

I: So you felt more comfortable?

Nikki: Yeah, I felt more comfortable. I didn't feel like it was a camera recording me, I knew it was just for the simulation.

I: Ok, thank you. Had anyone else had any experience?

[Everyone says no.]

Mary: For me it was like the video games but other than that though I didn't feel it made me nervous. I know a lot of people were and when I got there I was like ok maybe I will be. But then I got there and was like nah I don't feel too nervous. It was comfortable.

Bri: I think I was more nervous with me being in front of my peers [other TCs nod and confirm.]

that made me nervous but me being in front of the screen that wasn't that bad.

I: Ok, thank you very much. Now have you had any experience with mixed-reality classrooms prior to having TeachLivE™ in your class?

[Everyone says no]

Bri: No, I've never had anything like this. When I first did I was like oh my Gosh, I've never seen anything like it and me I'm easily Wowed [laughs].

Mary: It was different though

I: it was? How was your experience with meeting them and seeing something like that?

Bri: It was fun. I had questions, a lot of questions.

Nikki: Yeah, I loved it. I wanted to know how it worked but like aside from that I was like so cool. Like I was really excited about it.

Mel: I didn't know something like that would exist

[Everyone confirms.]

Mel: It caught me off guard, I was like oh wow, that's cool.

Mary: I think it's kind of funny how they keep the reality away from us, it's kind of like Santa Clause like who's really behind this but they don't wanna tell us. It's almost like I feel like a little kid [laughs, other TCs confirm.] but it keeps it to where like you know we need to be aware of

what we're doing as opposed to taking it as joke because we know that there is some form of reality and human behind the cartoon.

Bri: When I went the first time that we encountered with them. You know I asked them, I was like "are you real?" and he was like, "what do you mean I'm real?" [laughs] and it felt just so weird just I don't know, it was a real good experience though.

I: That's so funny. Did you like the fact that you didn't know exactly what was behind it or how it was or were like no I wanna know...

Nikki: I was really curious.

Mary: As an adult you kind of wanna know, you're like this can't be real but you know as in a position it's a good way to keep that distance so that you can remember that this is what you need to do. It kind of leaves like something unexpected.

Bri: Will we ever know though? [laughs]

I: [laughs] I can't tell you, remember Santa Clause, maybe when you grow up [laughs]

Bri: Damn it [laughs]

I: Ok, so what were your perceptions about the EL cases, Edith, Edgar, and Tasir before meeting them as avatars?

Mel: ESL class

I: what did you know about them? What did you learn about them?

Mel: Well in the book we were reading about what grade level they are, what do they know, what they have problems with so that kind of helped a lot, it kind of guides you

I: What did you know exactly about Edith, Edgar, and Tasir from that class?

Mary: We knew where they were from, we knew how long they'd been in the US which was good. It was kind of like reading the book before seeing the movie so taking that class before was really good which not everyone may take that TESOL class before taking this class...

Nikki: Yeah, I didn't.

Mary: yeah so it was a good way, maybe that's why we were more comfortable because we were able to read in-depth, fully and had activities assigned with four of them before actually teaching them.

Mel: Cause in the book there is like a chapter for like Edith, for each student so like that kind of eased me into like, oh where they come from so that helped a lot.

Bri: Yeah, I think introducing students to it first before experiencing it is very good, it makes you more comfortable.

Nikki: I mean we had online like they did have online, they had a little synopsis of them in video that we watched in class and it wasn't a lot of information like I assume that wasn't as in-depth as it was for you guys but like it gave enough information about where they were from, what level of learning they are at, what their strengths are, what their weaknesses are. I feel like having that information helped enough for me personally to feel comfortable in front of them.

I: Would you have preferred to have read about them in more depth?

Nikki: I mean I definitely would have preferred to be more prepared. Like I'd always rather be over-prepared than under-prepared but umm in this case I felt like the little synopsis we got online was enough to handle it professionally.

Jen: I didn't get to meet them before we did the LiveTeach because I was out sick but the... I don't know like I thought ummm I was really nervous about it since I hadn't met them but I knew like there is someone behind it but I didn't know like how the interactions would be and umm as far as preparation like I did the, umm you know we did assignments and stuff on them but I did not take the class they're talking about the TESOL class but we had other assignments on Edith, Edgar, and Tasir but ummm so I don't know, I was really nervous, I kind of psyched myself out so I wasn't as prepared as I could have been but...

I: But you kind of knew a little about them?

Jen: Uhum

I: I see. You guys mentioned it was like reading a book before watching the movie, do you think it was helpful? Because some people say that like it wasn't like what I expected and things like that. Did they look like what you thought they would?

Nikki: They were fine, I mean I wasn't worried about how they looked but the one thing that I found that made it difficult for me personally was that what Tasir what level she was at as what was described in the book and our first interaction with her was at a much higher level than when we went in for our own teaching it seemed like I kind of ... There were people who phrased the

questions like almost exactly like in our original meeting of them and then like she didn't understand it at all. So that was I feel like in that sense having those preconceptions of them kind of made it more difficult cause Edgar was a lower level I think so too [other TCs confirm] so I think having those preconceptions of them kind of made it a little bit more difficult when you actually went in to teach with them.

I: Do you feel like you were expecting something and then it wasn't the same or similar?

Nikki: Yeah I think we were prepared for that and then you go in and it's like oh it's something else here.

Mary: but to kind of latch on to that, it kind of brought the reality to it because meeting or getting introduced to an ESOL student the conversation is more casual. They probably would be more advanced in that sense and then when it comes to academics that's when you kind of see the lack of so... that kind of made sense after the fact when I was talking about it with our peers because the level did drop drastically especially with Tasir but that's kind of the reality of it.

I: Uh, I see. That's true. What about others, what differences or similarities did you notice in terms of their behavior, levels, etc?

Nikki: I felt like what they were described as or what I had heard before I feel like they were really accurate to how we thought they would be

Bri: I feel like they look, back to the question before she pointing out Tasir not being at her level, yeah the picture of them yeah I visualized them exactly how they looked but I didn't expect them to really like ... [pauses] I'm trying to say that I'm really still awed like [laughs] I honestly feel

like it's actress, I feel like it's actress but umm I won't say nothing else about it [laughs] yeah that's how I think about it, I feel like it's so weird that you know and then one of them complimented one of the girls on her shirt and I was like wow!

Mel: Yeah, they knew exactly where we were and I was like who's there

Bri: Yeah, that was cool

I: Cool, ok thank you. How do you compare the avatar students with real students? Please share your impression of what they might have in common or the differences you noticed?

Jen: Other than like they couldn't you know get up from their seats but I think it was Sean right? That could so but other than that umm to me I didn't really feel the difference because I felt like I was speaking to students [other TCs confirm] so and you could see that they were there and you were visualized in the classroom so you didn't feel like you weren't in front of a room but um as far as anything else they didn't feel too different other than like I said they couldn't stand

I: Yeah, so was that from the beginning or did it take you a while until you thought oh I feel like I'm talking to real students?

Jen: from the beginning, um I kind of like eased into it and I was like ok this isn't so bad

I: how long did it take you do you think until you got to that point?

Jen: I think the first minute

Mel: Cause you see that the students going like this [she puts her hand on the table and leans her head on her hand and looks around the classroom] and moving their head [other TCs confirm].

Jen: and they're like what?

Mel: there is always that one student that's very talkative like Sean is very talkative so you always have them, like the quiet one, the shy one so it's really like the real thing [other TCs confirm].

Bri: and then for Sean to notice [name of one of their classmates] making faces over [another student's name] talking that was like wow that was like pretty much real [laughs].

Mel: and obviously he knew how many girls were there and how many boys were there

Mary: Yeah that was neat

I: Yeah, so they could give a description of what was going on in your class?

Bri: Yeah so cool

Nikki: I feel like the students like I was doing the secondary level cause I wanna be a high school teacher the only thing that I was like secondary school students wouldn't be this active in the classroom cause the couple of times I've been in the secondary classrooms they don't wanna raise their hands and answer anything. So it was exciting for me to go in and like have them raise their hand and all that but like I was just like this isn't real [laughs] like on an elementary level this is expected like when I worked in an elementary school like every question like everyone raise their hand and they were so excited compared to like when I was in a high school and no one wanted to answer

Bri: well also do you think it could have been like they were like that because they know they're in a class with Edith , ESOL students it's always like they don't know like you know cause most kids in secondary they don't want to raise their hand because they're afraid of maybe they get it wrong maybe but the ESOL students they don't understand what you're saying half of the time so that could be another reason why they were so voluntary raising their hand that could be one too just to think about

I: Yeah, it could be different reasons. Ok, thanks everyone. How was your experience when you met the TeachLivE™ virtual classroom for the first time in class during the Classroom Procedure workshop?

Nikki: I thought it was that workshop where we as a class went and watched someone participate I thought that was great. I thought that was the perfect way to like ease us in and give us and example of this is how it's gonna be when you come in like I really felt prepared when I went in to do my TeachLivE like when I walked through I was like alright I know what I have to teach, I know how my voice has to be and what tempo I need to go like I felt more prepared having done that. Cause I need examples to understand what I'm gonna do so like having that, having someone do it before me it was great for me to know what to prepare and how to be for my actual TeachLivE experience.

Mary: I thought it was really helpful cause it kind of gave us an idea of what we should have and how we should prepare um because if you were just told for example the only thing is for like the introduction we didn't know for the actual TeachLivE or I didn't know that we were supposed to have leveled-questions. And so when I went to teach I wasn't really prepared so I was doing that

while everyone else was presenting cause I didn't go first but um that kind of made me realize like you know that there are other things besides what you're seeing as an introduction that you should've thought about which can definitely happen in a classroom so it's something like you should always have a backup plan which was very good.

Mel: The workshop did help so it's like if you just went into class and it was TeachLivE you'd be like what is it and so confused so the workshop did help a lot. When I went I was I think one of the first people so I was like really really nervous and my mistake was that I forgot to speak to Edith so my mistake was like I didn't have a backup plan so now I know from that experience what to do so it did help. I feel like if in the future if I have my own class and I have a student like Edith I'll know what to do to be more prepared.

I: Anything negative that you guys thought could have been presented in a different way in the workshop?

Bri: I think she touched on leveled-questions a little bit

Nikki: Yeah I remember

Mary: I must have completely missed that

Mel: I guess since I was nervous...

Bri: Well maybe she did it indirectly, maybe it was important to be more direct and for example say it has to be leveled instead she probably did it through her procedure instruction and that's what made it seem like that's like leveled-question for each one

Mary: maybe we should've also, probably not in the introduction but like as a class gone over what kinds of leveled-questions, the differences... because some you know we thought they were leveled but then they weren't

Mel: cause after we spoke to them, they just didn't know how to answer

Nikki: Yeah, I remember like for me like when I spoke to Edith, I asked her a question and she didn't understand it and then I just like went on a rant which just confused her more and she was that's a mistake a lot of people make so I feel like maybe in the workshop having like a common mistakes list like that so that you don't go into your first experience like making mistakes that like a lot of people make apparently. Like having those common mistakes like that in the workshop would probably be a good addition to it.

I: I see, so you would have preferred like a very direct like leveled-questions...

Mary: Yeah, very direct cause it was very indirect like I missed it

I: Do you think cause in TSL 4080 that's the class they go in detail over the leveled-questions

Mary: They do?

Mel: They do but my class was like once a month so it's just like we weren't there to ask the teacher like hey like how can we speak to this student and that student so

Mary: Yeah and there are so many ways, it's not just one type of leveled-questions there are several...

Mel: cause you have the book in front of you but you still have a lot of questions you wanna ask and the teacher is not there to walk you through so it kind of ...

Nikki: That's the other thing, I feel like the leveled-questions they did in the workshop they were always like the same leveled-questions just over and over for different things. Like I felt like Edith in particular like every question that was asked of her was like the same style of question just like different answers so I feel like having like examples of different questions so when you go into TeachLivE experience you're not just asking the same question as anyone else I felt like that was my problem as the TeachLivE our personal TeachLivE went on I was like oh I was gonna ask that question, I was gonna ask gonna ask that question...

Mary: Yeah, everyone had a yes or no question

Nikki: Like Edith, I know that they said that that's the only thing she could do like she could only nod her head but I feel like

Mary: Like the beginner level you could point , one word like that kind of

I: Well in the workshop they have like questions that are not at their level of proficiency, she went over questions that are like higher than their level of proficiency and the questions that are at their level of proficiency

Nikki: Yeah she did like one that was higher and one that was lower I think

I: uhuh but you guys don't remember?

[Mary, Bri, and Jen shake their heads.]

Mel: I was absent [laughs]

I: Well it's good to know if we need to add more of that

[Everyone nods.]

I: alright, thank you guys. Could you please describe your second experience with teaching a classroom procedure to the avatars in a group setting? So this is the second time that you had TeachLive what do you remember of that day and what was going on?

Mel: Nervous, cause the thing is like that day we didn't know who was going to present so then some of us like I got picked and I didn't expect to be picked so I was like really really nervous ... but I liked how you could see the visuals on the board and then the pictures like ...

Nikki: I know it's more nerve-racking in front of your peers like if you made a mistake like oh you're peers are there but at the same time I think it's good because

Bri: It helps

Nikki: Yeah it helps because I feel like I know again like I messed up with my question with Edith so we could go to everyone else and be like so what would be a good question cause I had no idea. I was like oh my God what do I like what is it and then we could talk with the rest of the group and they could help you out. So at the same time it's really cool cause if you're in front of a normal class like an actual classroom you couldn't be just like alright you're doing this wrong because you're kind of like hmm I can't find the right word ... you're kind of like I guess demeaning the teacher in front of the students because it kind of it's like if you're questioning the teacher in front of the students some students are like huhh they don't know anything and

kind of like knocks down your authority a little bit so it was really cool getting that feedback right as you're teaching, right when you make a mistake without worrying about like your students' perceptions of you.

I: So the coaching was helpful?

Nikki: yeah the coaching [everyone confirms.]

I: Did you guys like it that she could stop you and say ok try this or [Everyone nods and says yes] or was it too nerve-racking?

Nikki: No [other TCs shake their heads as well] like afterwards I would probably forget like I forgot what I asked like Edgar or Tasir so the fact that she could stop me right away and be like ok good but you're doing this wrong by the way I was like ok I know what it is, I remember what I said

Mel: cause those things like those comments are the things that you'll keep in mind of the future so [everyone confirms] like that feedback helped a lot

Jen: And it was detailed feedback it was just like...

Mel: Yeah it wasn't just like oh wrong wrong

Bri: Yeah it was the positive with the negative. It wasn't like just straight positive you know like some people just trying to be nice no that wasn't the case

Mel: People were like the teacher also there told us like what we did, she would like point out things that some students didn't speak about so that also helped too.

Mary: When I did my presentation I'm not sure if she did this for all but like she gave me the opportunity to do it while teaching so it wasn't like after the fact, it was during the TeachLivE and she was like you know this is your opportunity to correct it so it gave me the chance to do it at the time.

I: Oh, Ok, so did you prefer that over at the end feedback?

Mary: yeah, I would've preferred.. well having both was effective. Being able to correct it and then at the end she explained why

Nikki: I wasn't thrown off

Mel: For me like yeah for me I would like it towards the end because if I'm there and the teacher is constantly blah blah blah then I'm gonna get more nervous and then overthink it and then probably say something

Bri: Exactly, and then mess it up even more

Nikki: I was think it depends on your style, I like it as it's happening so I can correct it right away, some people like it after so they can get through it and do what they came prepared to do and then fix it at a later time.

Jen: Yeah it does, I like that I can correct it

Bri: I agree to an extent though so I mean like you said it depends on your style so...

I: Would it make you more nervous?

Bri: Yeah cause at that moment I was already nervous so it was kind of added pressure

Mel: So on top of that ... but I feel like if it's towards the end I'll know that for the next time not to do this, this, and that.

I: Ok, I see. Did you like that it was in a group setting to have your peers comment?

[Everyone confirms.]

Mel: yeah that was really good

I: What were the pros and cons to that do you think?

Bri: Pros feedback and actually being able to be around your peers and to be in a setting where that made you nervous cause when you're nervous about something to get over it you have to face it so you know that was pros. Cons to be by my peers. [laughs]

Nikki: Both pros and the cons

I: Did you find your peers' feedback helpful?

[Everyone confirms.]

Jen: Maybe it was just in my group, I feel like there was not much feedback [laughs] because

Mel: No my group was very detailed like you did this and that

Mary: were you in secondary or elementary?

Jen: Elementary they were more like I didn't get a lot of feedback from the other students in the classroom but I feel like seeing how they presented and what theirs was like and what techniques they used it helped me learn. Umm and also the feedback from the teacher there helped as well

but I think having my peers there made me more nervous although I am glad that I was able to learn from them too.

I: Would you have preferred it to be an individual session like just you and the avatars and a coach?

Mel: At first I did and then I thought about it and no cause you need that feedback to improve your mistakes.

Nikki: I liked that nervous factors too cause when I go into a classroom for the first time like an actual certified teacher, for the first time like my own classroom I know I'm gonna be nervous but I feel like it's more nerve-racking in front of your peers than it is in front of your students so like having that nervous factor in there I feel like that was good to prepare me for like later on.

Bri: Yeah, at least you overcame that nervousness

Jen: If anything I feel like your kids would be more nervous than you [laughs]

Mel: I think the little ones get excited when I was like doing service learning and it was my first day they were like hi what's your name?

Nikki: That was what's nice about elementary education compared to high school. Like elementary they're like hi, we're gonna miss like it was my last day they were like we're gonna miss you, you should come back but then I was in high school and they're like bye, get out [laughs]

I: [laughs] that's cool but did you like the organization of how you have the classroom procedure and then you have the group setting or is there anything that you'd like to be changed?

[Everyone says yes] would you like to have an individual session after that group experience?

Mary: I feel like before.

Nikki: Yeah, maybe like before.

Bri: I think before I don't know because if you're doing it in front of your peers then that's the most difficult thing so it's like coming from the most difficult thing and then going back to the easiest thing so I would like to do the easiest thing first and then go to the difficult last.

Nikki: I mean even with the workshop when a few people could get up and like talk to them like I wanted to them but I didn't know what I was gonna talk to them about and I didn't want to get up in front of everybody and look dumb [laughs] so I feel like having an individual session before the group session might help some people in the long run. But I mean at least for me personally when there is a coach in the room, hearing that coach give other people, like when I'm by myself if I get feedback from a coach I would be like oh my God I did so bad, I bet no one else got this feedback, I bet everyone else did so good but then like being able to be in that group session and listen to other people's coaching you not only learn from that but then you're also like oh ok so everybody has problems, I need to not be so hard on myself. [others nod]

I [to Mary]: what about you? I see you didn't look like you agree

Mary: Personally, I don't mind speaking in front of a group. I think speaking one-on-one would probably be more difficult for me

I: What is it about it do you think?

Mary: Um I always blame it on, I mean I've been dancing since I was 3 so I'm kind of like used to being on the stage like in front of a crowd and showing off or whatever [laughs] but one on one is I don't know kind of I don't know weird for me. I'd rather be in front of like a group.

Mel: I think it depends on different situations. Sometimes I like one on one, sometimes I like being in a group so I guess it all depends. Cause I'm a nervous person like when I talk in front of like a big group I get really nervous [points to her classmates] like they know [laughs] I get nervous but then I warm up and...

I: you ease into it after a while? [Mel says yes] Ok, thanks. What about you? [Refers to Jen]

Jen: I don't like the one-on-one, I think as much as I don't like you know speaking in front of a big group as she does I just like she said I gotta ease into it. I'm just not comfortable with that, I never have been, I'm more like a quiet behind the scenes person so like being in front of other makes me more nervous but I think that's something that everyone should overcome so it's you know being a teacher you know you're probably gonna have to speak in front of your peers at some point or multiple times so you just have to learn to get over it basically. So I mean it's good practice but it's nerve-racking but I think I probably would have been more nervous one-on-one because I wouldn't have that coaching there or I wouldn't feel like the support from my classmates or those who were in my group or whatever so yeah.

I: Alright, thank you so much. Let me see, next question: Please explain aha-moments during your interaction with the avatars? Any examples that you thought, “oops” or “oohh, this is how it works” or any other examples?

Mary: Mine was like “oh, I was supposed to have leveled-questions?!” [laughs]

Mel: That was the same thing with me like the leveled questions. The thing is that I didn't ask Edith a question cause I didn't know what to ask her cause I think she doesn't speak or like she just nods her head or says yes or uses her hands so it was just like. I talked to everyone else but since I was so nervous I didn't know what leveled-question to ask or what to ask because I can ask her something but it would probably be too difficult for her to understand so I completely missed her.

I: I see, what did you think after the fact?

Mel: afterwards I was like I could have said this or I could have said that but it's too late now.

I: What were the things that you thought you could have said?

Mel: Well my topic was fire drill so I could have shown her the images cause she needs visuals, I could have shown her that and ask, “so which one? Is it this one or this one?” point to it but I didn't.

Nikki: I think a big aha-moment for me was when I messed up my question with Edith I asked her something like above her level, I said something like do you go to the basketball courts or the parking lot? Something like that and I think my big aha-moment moment was like afterwards when the coach was like alright stop, you're asking this like barrage of questions, you're

confusing them more and then my aha-moment was like you need to be calm, composed and make sure like if you don't know what to ask, take a second to think about it like it's ok, take a second, think about a properly leveled-question and then ask that so that was like my big aha-moment that it's ok to make a mistake and then take a second to fix that.

I: Do you remember the question that you asked her and she couldn't answer?

Nikki: I asked her something like do you go to the basketball courts and then she like cause I was doing the fire drill too like where we meet up and I was like do we meet up at the basketball court? She didn't understand, and then I was like "do we meet up hear? Do we meet up here?" [says more slowly while using gestures of pointing to different things] and then she was like.

Mary: I think she was trying to give her options and the options became like a series of questions and then she was like these are too many questions and I was like they are too many questions. [laughs]

Nikki: Yeah [laughs] it was like word vomit.

I: [laughs] Ok, thank you. Any other aha-moments?

Bri: That's it then the leveled-questions. I had yes/no questions for every one of them so that was kind of [pauses]

I: Did the questions that you came up with work?

Bri: Yeah they worked [laughs]

Jen: I think once I got them to answer the questions I was like oh yes, finally they got it. Finally they understood me [laughs] so yeah cause I wasn't as prepared for that as I should have been like for the questions so yeah but my aha-moments were when I got them to answer, that they were able to understand me and I was able to ask questions that they could understand.

I: Great, thank you. Have your perceptions or beliefs about your teaching and reaching English learners changed after your experience with TeachLivE™?

Nikki: I feel like I need a lot more experience [everyone confirms]. I think that's the biggest thing like I feel like I've learned about ESOL students and like what we need to do to teach them and I just feel like all that just kind of like it's there but it's not like when it's in the moment and you have to scan for it, it's like ok. And I feel like the only way that I'm gonna be able to feel confident and then ESOL class with ESOL students it's like getting in there and doing that, having that experience of knowing what actually works and what doesn't really work.

Bri: I thought it would be really easy but it involves more thinking than you'd think. It's just so much more than you think cause you know they say you must simplify everything but it's like it's a specific way that it's supposed to be done...

I: What about it was more difficult than you thought it would be?

Bri: I believe the questions because the questions I felt like it if it isn't properly leveled then they won't understand. You know Tasir is a little easier cause she's a little more advanced but as far as Edith and Edgar you know you have to really break it down for them to understand it and it's just like how simple can it get. Because you know because you speak English it's so easy for you

to not be able to, not be so advanced so for you to make it simple it's like uhh I don't know what to do on a daily basis so how can I get you to understand it.

Mary: I think that made me think having an ESOL student in my classroom would make me have to do a lot more research and implement way more things into my lesson plan that I would have normally done. Because you have to be able to teach what you're teaching and have them understand in a completely different way than your lesson plan is really getting to the other students. So you're gonna have to have two lesson plans in one and that requires a lot more work, a lot more patience, and a lot more research as far as what else you can implement for them to understand.

Mel: I thought like it would be easy like she said but it was not because you're working with different kinds of students like beginner, intermediate, and advanced. You need a different plan and learning strategies for them.

I: [to Jen] anything that you'd like to share?

Jen: Someone already touched on it but definitely lots more practice. I felt like I could prepared if I had had you know if I do more practice or if I do more reading on it and things like that. Umm but definitely this avatar lesson did help but yeah lots more practice and more research would help for sure.

I: Alright, thank you. And what are your thoughts or perceptions about using a mixed-reality environment for teacher preparation to reach the needs of ELs? What do you think are the advantages and disadvantages of using something like TeachLivE for teacher preparation?

Mel: It's very good, it's preparing us for sure.

Jen: I don't feel like there was a disadvantage. I just feel like it's helping us be more prepared.

Nikki: And I feel like, I touched on it before but when you're in an actual classroom setting you can't stop the teacher and give them criticism cause then you're just demeaning them in front of the students or taking away their authority in front of the students so I think like it's such a good thing that we can go in and not worry about students like judging us on getting feedback and everything. So I feel like it's good that we can get that instant feedback and we can correct things in the moment if we have to and also that we're not in front of like actual students doing things wrong and making it harder for them to learn for us to learn.

I: In what ways do you think it should be used for teacher preparation?

Mary: I think it can actually go beyond teaching, um it can be used in like office settings even or those who are majoring in any form of leadership because there will be speaking when you have to speak in front of a large crowd or a group of people. It can go definitely beyond teaching, um it can even work for students. If students have to present projects and they're struggling with presenting, they can kind of present in front of maybe an avatar or a group of avatar students so I think it can go beyond that.

I: Ok, so no disadvantages? [everyone says no] Ok, so two last questions. If you could change anything about your experience with TeachLivE, what would it be and why?

Nikki: I wish I had more like...I had prepared better with the leveled-questions I feel like that's the big thing that were all struggling with.

Mel: Yes, if I was more prepared, I normally do better. I wouldn't have been that nervous and would have been able to do better.

Nikki: I kind of wish that I went online and looked up different leveled-questions like cause I think we can do our own research, we just didn't.

Jen: We thought it would have been easier and then we got there and we were like oh no we should have prepared. [laughs]

Mel: Yeah, it's not that easy, it's not what we expected...

Nikki: So I think going there and being more prepared, I think being prepared for the worst would be the best way. That I would have changed.

Mel: Cause I went in and I was like oh this is easy, we'll get by this and then you actually get there and you're like no [shakes her head]

Mary: I think hearing what other students were saying before TeachLivE I think we were just worried about the wrong things [laughs] we were worried about like oh what they're gonna look like, how it's gonna feel standing in front of them as opposed to what do we need to have while we're out there.

Nikki: Yeah, we were worried about being in front of the avatars rather than what we were gonna present to the avatars.

Jen: Yeah Yeah I was more worried about my questions cause I'm like well what are they gonna understand and I wasn't there the week before and you know...

Mary: We were told that they talk back and stuff and you know they can see us so we were like what do we say, what do we do? [laughs]

Jen: Yeah, what's their level of sass today? [laughs]

Nikki: Our teacher was like there was one time that like Sean said something about somebody's shirt about being like a hoochie or something [Everyone laughs] and I'm like I don't wanna be called a hoochie in front of the classroom.

I: What did you think about their level of behavior? Do you think it was ok or too good?

Mary: It was too good, I feel like coming from a secondary standpoint I think it was too good

Nikki: Yeah it was too good

Mel: Someone told me that apparently one of the kids would do this [gestures tapping her pen on the desk] or do something but no they were really not.

I: Yeah, there is a level of behavior that we can adjust so you guys think that it was too low?

Mel: Yeah cause real classroom they wouldn't be like that.

Nikki: Yeah, they were like so well-mannered if they was like people in the background talking or something like stuff like that I just think their behaviors were like too perfect. They were the class that you dream of [other TCs confirm].

Mel: Cause sometimes when you call the kids name they don't want to answer but no they respond to you about what to do, what to say. They were really well-behaved and no classroom is like that at all.

I: Would have preferred to be a little higher in level of behavior or would it throw you off?

Nikki: I mean like that first time...

Mel: It would but then it would prepare us like what an actual classroom be with students, you have that kid that talks, that kid that's shy, that kid that falls asleep, who touches, who does all these things I feel like that would have been more helpful.

Bri: I think there should be levels though like your first experience have them and then as it goes up then it gets more complicated [other TCs agree].

I: Alright, last question. Would you like to participate in more TeachLivE sessions to practice your teaching skills in the future ? why or why not?

Mary: Yes, like what she said about the levels and it to be more opportunities for us to grow and fix our mistakes in different sessions of TeacLivE so I definitely would.

I: Ok, and how would you like the sessions to be? Would you like them to be in a group setting again or individual?

Nikki: I liked the group setting but then I like kind of being on your own like not worried about your peers like I think a mixed of it.

Bri: Yeah, at least one time individual.

Nikki: yeah, at least one where you're on your own and where you can go in by yourself and you have someone there observing like almost like a test but not really you can just go in and do your

thing without the teacher giving you criticism throughout and no peers to give you criticism either. Just being able to go in and do your thing.

Bri: Right, like a micro-teach cause you're not gonna be in a classroom full of your peers, they'll be your students so I would do that.

I: Timewise would you like it to be shorter or longer?

Nikki: I would like to teach a longer lesson, like an actual lesson like a 50 minute lesson I would like to do that with them.

Bri: Well you lost me there [laughs]

Mel: I think longer would be better cause you can go over everything and you don't have to rush through it

Nikki: Yeah, I'd like to test out lesson plans on them. I feel like that would be such a great teaching tool like if you're just learning how to do lesson plans and like set up a lesson like being able to go in and do that and then get feedback on your lesson and how they how the students' interactions with you will be like, I feel like that'd be the best tool to see like where you're at with your skills of lesson planning.

I: So the lesson of your choosing?

Nikki: Yeah rather than something that you're given, yeah [Others confirm]

I: Alright, is there any other comments or anything else that you'd like to add?

Mary: Just another thing when I was typing my review cause we have an assignment to write a review or reflection before. So I mentioned that I noticed that the ESOL students were in the back of the class, as a teacher I would probably bring them forward or maybe have random mix cause like they had the two English speaking students in the front but that's always the case. Maybe have them like one in the front one in between the two in the back cause it kind of helps with like group work or learning even where they wanna like bounce off of each other so I did notice that the ESOL students were in the back and the English speakers were in the front.

I: Do you think that was realistic or not?

Mary: For me it wouldn't have been realistic cause I would have a mix or even have them in the front to allow them to stay focused or to even see cause if you have visuals then they need to be able to see them so for me personally it wouldn't have been realistic. I would have definitely moved the seating arrangements.

I: So even if they had sat like that you would have asked them to move?

Mary: Yeah, just to have the variety.

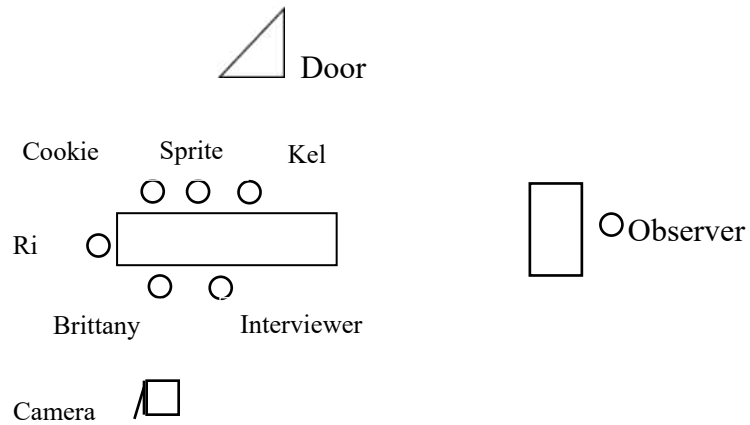
I: That's actually a very good point, that was one of the reasons they sat in the back we can't really move them in TeachLivE as of now but that's actually great because in real classrooms we'll want teachers to think about the seating arrangements of students.

Mary: Yeah have them move forward or even mixed in. You know how you have the problem student with the good student and then eventually there's a balance? So something sort of along those lines.

[The interviewer thanks everyone for their time and contribution and offers them to take refreshments with them. The interviewer also asks if one TC would be interested to stay for a very short follow-up interview which one TC accepts].

APPENDIX I: FOCUS GROUP 3

Focus Group 3



Participants: Brittany, Ri, Cookie, Sprite, Kel

Follow-up Individual Interview: Cookie

[The interviewer introduces herself, greets the TCs and offers them refreshments which are placed on the table in front of them. Then, I goes over the Informed Consent Form with the participants and gives them more information about the study. After making sure that the participants do not have any questions in regards to the study, I gives everyone the Participant Information Form to fill out which includes general demographic questions as well as the option to choose a pseudonym for themselves to be used in the research in lieu of their real names. The names provided below are the pseudonyms chosen by the participants.]

I: Thanks for being here. Let's start with the first question. Could you please introduce yourselves and tell us about your past learning and teaching experiences?

Brittany: I'm [real name]. My teaching experience is just my Junior Achievement and service learning for my classes. My sister is a teacher so I go in sometimes and help her out but that's about it.

I: Great, and what year are you in?

Brittany: Junior, I start my internship next semester.

Ri: I'm [real name]. I'm a junior too. I'm an Elementary education by major. My experience mainly is same as [Brittany's] pretty much as far as being in the classroom is what I've had with UCF you know field experience, service learning. And then I have kids so my ten year old I've helped a lot in his school since he was in kindergarten before I decided I was gonna be a teacher.

Cookie: My name is [real name]. I'm also Elementary Ed major. The experiences I've had I think it was before I decided to be like going to elementary I always helped my friends with homework and all that, and helping them study for tests and stuff... The experience I've had with working in a classroom when I was studying at Seminole State we did observations and sort of hands-on things and worked with the kids so...

Sprite: My name is [real name]. My major is Elementary education. I'm a junior. My mom is a teacher so I kind of just grew up going to work with her and then in high school I was in this... we basically had an actual preschool in our school where actual kids came and in our fourth year

it was just me and four other teachers that we taught all the students. And then at SSC I did service learning and then in my classes now I'm doing service learning and yeah that's about it.

Kel: I'm [real name]. I'm also a junior, elementary ed and I've just had service learning in my community college and observations.

I: Ok, thank you so much. Let's go to the second question. What experiences have you had with video or virtual games that use tracking devices? How did those experiences help you in navigating TeachLivE™?

Brittany: I don't think I've had any experiences

Ri: Yeah me neither, I'm not a big gamer [laughs]

[other students also say they haven't had any experience]

I: Have you had any experience with mixed-reality classrooms prior to having TeachLivE™ in your class?

[TCs say no]

I: Alright, what were your thoughts or perceptions about the EL cases, Edith, Edgar, and Tasir before meeting them as avatars? Like when you were reading about them, what did you read about them, what did you know about them before?

Brittany: Well, we've learned about them pretty much in all of our classes since I started here so I feel like I knew the basis of each one of them like levels but it was different seeing them live and actually like hearing their responses.

I: How was it different?

Brittany: Um just because when you read about something like they don't really tell you how they'd respond. They just tell you what you should ask so it was cool to hear how they respond because you realize sometimes that you didn't ask it right because they didn't understand you.

I: That's true, and which was the first class that you read about them or learned about them in?

Brittany: I think the first TESOL class. There is one before 4080

Ri: In most classes we do lesson plans, modifications for each of them. Read about their cases studies, listen to like little audio clips of them so we knew a lot about them, their levels but it was cool to have interaction with them you know. It's put a face to the name type thing.

I: Were they what you expected they would be? Like how they interact or how they look even?

Ri: Not how they looked, like Tasir

Brittany: Yeah Tasir looked different I think

Ri: Yeah she just seemed like... she didn't seem like she had any language barrier, you know I mean she was fluent but... well she just looked Caucasian and she didn't to me look ethnic which sometimes that's what you associate with a language learner but it's not true, there's Caucasian language learners too.

Sprite: I met them in my TESOL class already so I kind of knew what to expect this time when they were there but it was still surprising. I didn't expect it to be like that kind of real when they came into the classroom.

I: what were your thoughts before you met them in your TESOL class?

Sprite: Umm I guess it was kind of like reading about them it was different than seeing them in person. Like reading about them it was kind of like you still had the unknown of how it would actually happen in real life with you and students and then this kind of helped a little bit cause it allows you to talk on their level and see how they would react if they were asked a question so it helped.

Cookie: For me it was a good experience to have the experience to work with English learners to see what to expect... I think the one thing that surprised me the most was like Tasir because I did not expect those good responses at all. Like I met them in my TESOL class I kind of had a clue of what to expect but at the same time I didn't like expect the answers that I did get from them.

I: For Tasir?

Cookie: Yeah.

I: What about Edith and Edgar?

Cookie: For Edith I knew there would be some difficulties but at the same time I knew how to like kind of void it to where she could at least understand it and think about and not like jab it in

her face or anything like that so... and then Edgar it was a little weird cause I didn't ... for him, I felt like it was a lot more, I feel like I was a little more prepared for him.

I: Were you prepared or Edgar was more prepared?

Cookie: I feel like Edgar was prepared to answer the question like he knew I was gonna ask him a question, he was ready to like answer it so it was a bit different than what I expected.

Kel: It wasn't as real life to like when I was reading about them I wasn't thinking about like a backup plan. I was like ok I'm gonna ask this and they're gonna answer it but then when the real life happened I was like ok I need to think of something else. So it's kind of cool that you have the practice cause in a classroom you know that's it, there is no going back for practice so...

I: That's true, do you have any examples of how like that happened? Like you were like oops they're not answering or I need to have a backup plan?

Kel: Umm like when they put their head down, I was like uuuh how do I say? Do I like point to this word as I'm saying it? Do I act it out? And stuff like that.

I: And you were not expecting those? Ok, thank you. How do you guys compare the avatar students with real students? Please share your impression of what they might have in common or the differences you noticed?

Brittany: I think they're realistic with their answers. It's clear that they see us and can respond to what we say and it's not just like automatic responses but um I guess that they can't do things like some of my procedures were like raise the pencil and they can't do that so I can't.. like that

would be a way to help a real student, would be to have them actually do it which they can't and I guess it's a major difference for me.

I: So the physical things that they couldn't do?

Brittany: Yeah, the physical part of it.

Ri: Yeah, they can't all reply in unison you know like you can't do like a group response, it's just one at a time that made a little less realistic.

I: Anything you thought was similar to real kids?

Ri: Yeah, the way you feel like I assume when you're teaching like the first time you meet your students it was like cause that's the first time I've done that with the avatar thing so it was a little nerve-racking you know. It emulates properly the emotions that you'll go through so that was similar to a real classroom. To go up in front of them and public speaking you know. It simulates a classroom really well.

Cookie: I would agree with what they both said like you know the limitations between the avatars and being in an actual classroom, physical kids like do the things that we'd want them to do so that they can have the practice. I think it's pretty dope to actually teach in front of them I think it'd be the same as like the first day of being in front of a classroom to teach cause we're not on the student side anymore we're on the teacher side.

I: Did you guys feel like you were teaching avatars or did it feel like as if you were teaching a real class?

[Everyone says real class.]

Kel: I think it prepares you well cause it's more nerve-racking teaching the avatars with people watching you than it is in a real classroom so after you did that going in a real classroom it's not as bad.

I: I see, so it was more stressful for you being in front of your peers?

Kel: Right but in a way it's a good thing, it's like a preparation thing.

I: How would you compare them with real students?

Kel: I would say...like a younger child would respond with silly things and so did the avatars so that was a really good similarity between them.

I: Any differences that you thought..?

Kel: Just the appearances.

Sprite: I think emotionally they were like real students but physically they did have the limitations. It would have been easier to teach these procedures if they could actually you know physically talk all together, like stand up... so that was the only limitation but I feel like emotionally on point as real students.

I: I see, did it take you a few seconds or minutes to feel like ok this is a class that I'm teaching and they're kind of similar to real kids or realistic or was it from the very beginning that you felt like it's my class with students?

Ri: Maybe just a couple of sentences

Brittany: Yeah, I kind of from the very beginning cause we walked in and they were like hi, hi, like they respond right back. There wasn't like an awkward pause or anything.

Ri: Yeah, before they speak it feels kind of strange standing in front of a TV but then once you're interacting then it's fine.

I: Great, thanks. What were your thoughts when you met the TeachLivE™ virtual classroom for the first time in class during the Classroom Procedure workshop? So let's think back about the classroom procedure workshop an instructor came in and they had the cart in your class for the workshop what were your thoughts about the workshop? Anything that comes to your mind?

Ri: It was a good introduction to prepare you for what to expect

Brittany: Yeah cause they modeled it for us, talking to them

Ri: Cause they made us go up there I think

Brittany: They had a couple of people go up and test it out

I: Did any of you guys go up there to talk to them?

Kel: Yeah I did. I wasn't like mentally prepared for it at all. She was kind of like you go up so I kind of like froze awkwardly... but for the most part you can put yourself together and ask them a yes/no question you know

I: So you didn't volunteer to go?

Kel: No [laughs]

I: Would you though? Would you have volunteered if you weren't asked to?

Kel: Umm if I knew what I wanted to talk about. But when I'm nervous I just can't come up with things randomly.

Sprite: I think talking to them would have been easier if it wasn't in front of like all of your peers. It was really the only thing.

[Other TCs confirm.]

I: Would you have preferred it to be one-on-one just you and the avatars?

Sprite: Yeah I think it would have felt like a lot more comfortable instead of everyone watching just you.

Ri: or if you're in a group

Brittany: Yeah, I think maybe just a group cause I think it does go both ways like I was obviously nervous to get up and do it in front of everyone because you don't know what the students are gonna do back to you or throw you for a loop in front of everyone. But we also got to see mistakes that other people made and try and fix it when it was our turn and try not to... so it helps both ways but it is more nerve-racking in front of people your age

[other TCs agree.]

Ri: But you'd probably get more out of it kind of doing it in front of people even though you feel uncomfortable and you kind of don't want to put yourself in that situation but it's probably best to do it that way cause you're gonna have to teach in front of people coming to your classroom all the time and you know like principal and whoever

Cookie: Like parent-teacher conferences

[other TCs agree]

I: For the classroom procedure workshop it was in front of the whole class whereas when you did the group teaching section it was in smaller groups, how did you compare those two? Which one did you think was less nerve-racking or better in general or your thoughts about them?

Ri: [pointing to Kel] she had to do it for the class thing.

Brittany: I didn't have to do it but just watching in front of the whole class, it wasn't like they were going up to teach them something. They could go up and be like what do you like to do on the weekends? So that part is more casual and easier but I didn't have to do it so I don't know but it's so that it would make it easier but it's more nerve-racking cause you're actually teaching something. We had to ask them questions when they responded in the smaller group.

Kel: I think everyone was nervous so that's kind of comforting as well cause we were all on the same boat. So I like felt for the person up there so like when they made a mistake, I make mistakes too so...

I: So it made you feel less nervous? Did you think that the classroom workshop was helpful at all like for easing you into your experience?

[everyone says yes]

I: Is there anything that you feel or think could be better or changed? Like for example I think it was fine or I didn't get this part or any thoughts about the workshop?

Brittany: They modeled one for us so we got to see. If I had gotten thrown in to just having to teach them and never having that workshop I would have been way more nervous to not know what it was all about

[Other TCs agree]

Ri: Yeah it was great that we got to see them and see how they were gonna like respond and their personalities

I: Do you like you said that casual interaction was helpful also?

Brittany: Yeah cause it shows you they are real, it's not just automated responses, that they can see and what you do.

I: Ok, thank you so much. Alright now let's go to the second experience that you had with them which was the group setting, tell us whatever comes to your mind or what you remember from that day and how it went and how you were expecting it to go?

Brittany: I was one of the last to go so I think mine was a little easier cause I got to watch everyone else and like the minor errors and just how to work it and stuff. But I also had like the leveled-questions out and when someone would ask pretty much the same question as me like what is step one to a certain kid and they were like no that's more suited for this kid, so I was like switching them around on my paper before I went... So it kind of was helpful for me going last but ... [pointing to Ri] you were first right?

Ri: Yeah yeah, and Edith like put her head down and I was like oh gosh [laughs] because I said like do you do that first or something so it was confusing to her.

I: Do you remember what the question was?

Ri: I think it was do you write your name first? So the wording I would've got rid of first probably if I redid it then... the feedback after was good when you and I don't know the other lady but when you would kind of tell us how you felt we did and what things we could improve that was helpful.

Cookie: For me it was very nerve-racking just in general because like I know in my group we had planned it and we went through it but myself I felt like I couldn't do it [laughs] ... my mind freaked me out, I was like hahahaha not today [laughs]... so for me, I got up there and I was like I started shaking and I was like I can't do it, like how am I supposed to teach them? ... so I went through it, I was able to like ask the questions, the leveled-questions for each one, I was able to ask like a general question for like Ed and Sean so that I could involve them as well and not leave them out.

I: I see, do you usually feel the same way when you're teaching in front of your peers in general or was this particular experience?

Cookie: I think it was just those people watching so it made me nervous like people are watching me [laughs].

Ri: You mean the rest of us, like us in the room?

Cookie: Like my peers watching me like I can't do this

Brittany: Do you feel the same way like with presentations in front of us?

Cookie: Yeah cause presentations in class, I just can't do it

Sprite: I'm the same way so I know exactly how you feel

Cookie: I just can't [laughs] if it was actual kids with nobody else I'd be like ok , let's do it, I can do this but I have kids watching me I'm like uhhh [laughs] I don't know what I'm supposed to be doing.

I: I know everyone at least to some extent had that feeling [laughs]. Would you have preferred you and the students and a coach or not even a coach?

Cookie: I think if I had a coach I'd be ok cause I could ask like advice like how can I approach this way or if this approach is like appropriate... so if I had a coach like I'm ok with it cause I can help like extra help in case if something happens but not like a whole group I can't do it.

With a group watching I'm done [laughs]

I: I understand, it's completely natural. What about you guys about the second experience?

Sprite: I like prepared mentally but then of course you get nervous when you're up there you just stumble over your words, it makes it worse [laughs] but I think I did ok, I mean I went last so I also like corrected myself and changed questions around which I didn't know we had to have questions for Ed and Sean too so I had to like just make them up right there so I did that... and then I guess it was Tasir I was questioning and she didn't actually answer, Sean whispered the answer to her and I was like aaah I don't know if I should say something about that or not but I ended up just brushing over it but that was the only unexpected thing that happened during my lesson.

I: Do you remember the question that you asked?

Sprite: I was asking her like what she had to say in the procedure when I did something and she was gonna answer... I don't remember if it was Tasir or Edith but it was one of them and she was taking like a moment to think and then Sean just whispered it to her [laughs] yeah so that was the only unexpected thing and I didn't know if I should say something to Sean about that or just go on with my lesson...

I: So you kind of had to make an on the spot decision?

Sprite: Yeah and I just kind of decided to just brush it off

I: Yeah and that happens in real classrooms too

Sprite: Yeah in a real classroom I would have said something but I didn't know during that presentation if I should have.

I: Alright, thank you. How was your experience [looks at Kel]

Kel: The fact that it wasn't graded kind of helped the stress as well [other TCs confirm] so kind of what did on paper was the grade not what we were saying so that helped the stress a lot but like a lot of the stuff I planned I didn't do because of my nerves ...

I: Do you remember any examples?

Kel: I think I like skipped over a few things and I didn't have a question for Sean either and the other one as well... and I think I was too nervous to think of one either, I just couldn't get over my nerves basically...

I: Yeah, had you all practiced with your other group members before?

Brittany: We didn't physically go over ours, we just kind of wrote out what we wanted to say together but we didn't actually practice.

I: Do you think that would have helped if you had practiced with your group?

Brittany: I think practice always can help... cause I forgot like I didn't practice at all and I planned to go over the steps multiple times and then apparently I didn't cause at the end they were like go over it more than once and I was like Oops [laughs]

Ri: Oh yeah, I remember, more than once but you still did a good job but it was just repeating it one more time

Brittany: Yeah it was just that up there in front of everyone you forget, you're trying to rush through it like I just wanna be done

I: Do you think the timing of it was too short or too long? How was the timing for the lesson?

Brittany: I think it was good

Ri: Yeah cause you can control it, you can just say end class when you're done, right? So I didn't feel like pressured to go fast or slow just you know.

Sprite: I feel like... we found out who was the teacher like that day right before so if I knew I was the teacher I would have probably practiced a lot more than I did [laughs] just to mentally prepare, I didn't expect to be chosen but I was.

I: Do you think if it was timed it would have been more stressful or it would have made you like ok I have 5 minutes or however many minutes and then I have to finish it at this point I have to practice so I can get it during that time frame?

Ri: No I think it would be more stressful

Brittany: Since it's already a stressful environment so to know that I have a specific time to meet but not to go over, I'd be like ... it would be too much at the time

Sprite: Especially since ESOL learners don't like you don't know if they're gonna comprehend the question you have to plan like to ask another one, take more time for them to understand it so...

[Other TCs agree]

I: Alright, thanks. Please explain any aha-moments you had during your interaction with the avatars? Any examples that come to your mind?

Kel: When we were like pointing to the words that like helped them. I think they were talking under their breath as we were pointing so that was kind of cool, they were like oh this is actually helping them. Like gestures and body language.

Cookie: I think using pictures as well like having pictures match up with like each of the steps and have them match up like what they're saying with... like that kind of voice print match thing really helped.

I: Had you prepared the visual for yours?

Cookie: Yeah, our group we did have like little cartoons for each step, we had it like at the bottom of it cause we had like a big gap after the steps so we just put the pictures at the bottom and we used the questions for like questions like for Edith and Edgar. I used the pictures like I pointed out the picture so they can visually see it. Like for Edgar I asked him like is this the third step and I used the picture, he looked at the picture, matched it up with the third step and he was able to read the stuff, he had trouble but he was able to get through it and read it. Once he saw the picture he was able to do the voice print match and like read it.

Ri: I feel like all the things we learned like Show and Tell strategies, visuals, modeling, repetition...so it's nice to see it all in play that it obviously works... one thing that I wanna make sure I'm more careful about is like they always say use simple language but for an English speaker and an English learner simple could be two different things like you know, just something like I thought that was a simple enough question you know, do you write your name first?, but that word first confused her so just to inspect the language that I use more carefully maybe study a little bit more of how to keep it really simple for them based on their level especially for lower levels.

I: Great, was there anything about Edgar and Tasir that stood out to you?

Ri: I mean I felt like they were what I expected you know as far as intermediate and advanced fluency... um I did everything that I thought would help them or tried to so...

Sprite: When I asked Edgar a question for the first time it was something about clapping and he didn't get it and then I repeated it and like gestured [gestures clapping] and then he got it so that was kind of cool.

I: Do you remember what the question was?

Sprite: It was something like which step does the teacher clap at or something like that, and I just kind of gestured it and he got it.

Brittany: With Edith she didn't understand my question, I completely reworded it because I was saying do you raise your pencil and she was like not getting it so I was like do you lift it up

[gestures lifting up a pencil] and like doing it and then she answered... but then we had to reword it like step one was raise, lift up...

I: You used synonyms and rephrased it a little bit so that she could understand?

Brittany: Yeah.

I: Ok, thank you. How have your perceptions or beliefs about your teaching and reaching English learners changed after your experience with TeachLivE™?

Kel: It's really like... This really is like real life I mean... and then also going into a classroom and like acknowledging them in the classroom is like "yeah that's just like Edith" you know something like that...

I: Have you in your real service learning seen a student and were like oh this student is very similar to Edith or Edgar or Tasir?

Kel: Well the English learner I was working with couldn't read very well but we didn't really hear them read so it's kind of like guessing she's kind of beginner, this is probably how this one reads... cause they didn't read to us they just spoke back to us, it might be cool to hear them read

I: I think we can actually do that, that's a very good suggestion we could have reading sessions where you can go in and practice reading with them or teach them about reading and how to read, so do you think it would be better to have different skills and practice those with them?

Kel: Yeah just to see cause it would be like another skill cause they can listen and comprehend but can they read too? So that 'd be kind of cool.

Sprite: I think it kind of put it into perspective how hard it really is for those students to learn like I didn't have to go through that trouble but they do so it's a lot harder for them so it kind of puts it into perspective how you have to teach and modify everything so that students can learn.

Brittany: I just think it was realistic because in my Junior Achievement class on days like after I did my lesson she would have me sit at the back table with her ESOL students and just like we'd do the same assignment but she would have like instead of the textbook the simplified version of the same information and we would like go over it, and I could recognize things like similar to Edith, Edgar, and Tasir. Like one kid didn't want to talk at all just kind of like Edith but we would like point out like "read this paragraph" and he would and we were like "is that the answer?" and he was like "yeah" and he would write it, he just didn't like to speak so it's realistic.

Ri: Yeah, I worked with an ESOL student who couldn't read or write in English but he did really well with visuals and so when I would be teaching my lessons I would stop and make sure that I would point and show him pictures, and it seemed to help him, he would be able to answer questions and respond, he just...the teacher told me he couldn't read and write in English kind of like Edith.

I: Which grade was he?

Ri: Second grade

Cookie: I've definitely seen a lot of similarities like how the avatars acted and the kids I work with for my service learning... and like some of those kids I worked with and I was able to do a

lot of the hands-on, one-on-one with them and I noticed like one of the kids he was Spanish, he's like the cutest thing ever, this was like first-graders and he would raise his hand cause he didn't know what was going on so I would go over I would ask him like ok like I would become the question and I'd point to each word as I said it and I was like "what can you tell me about it?" like I would try to rephrase it and he would tell me and I'd be like "Yeah, that's it, just write it down. There's your answer, you just told me the answer verbally now you just gotta write it down". And then he was like but what about and he was pointing to all the other ones and I was like okay, let's go over this [laughs] so I always helped him and it was like with a lot of other students as well cause they were confused, they probably weren't even paying attention because they were lost so they would ask the questions as they had the time to work it on their own. I saw a lot of them especially with the one kid, to me I saw a lot of like Edith actions that he was doing like he was very quiet, he was reading at a very low level like I feel like probably pre-k kind of with reading. He was slowly getting to like first grade reading and the time that I was there he was able to progress and he's getting better at reading and you could see it cause I was able to hear him read a page. Cause they have like homework books so the teacher gives them a book to practice solo reading and he's getting really good at like being able to read books and being able to do like the voice print match with the words and stuff...

I: Using the strategies that you learned for teaching Edith?

Cookie: Yeah

I: That's great, thank you. What did you guys think about the seating arrangements of them? The ELs being in the back, do you think that's usually the case in classrooms?

Ri: No, they would be sitting in the front that would make the most sense. Closer to the teacher, closer to the board so they can see things better...

I: is that do you think the teacher asking them to sit in the front or them themselves?

Ri: The teacher placing them

Brittany: I don't think they would choose to sit in my class, they were kind of spread out

Cookie: Yeah, it wasn't for my class, in the class I was in she had them like set up in groups of four, one was like a group of five but it was like groups of four, one group of five and the other kid because of like behavioral issues he was set off to the side away from the group that he was supposed to be... and each table had like at least one ESOL Spanish kid or something

I: They were kind of spread out?

Cookie: Yeah, they were spread out

I: Ok, thanks. What are your thoughts or perceptions about using a mixed-reality environment for teacher preparation to reach the needs of ELs?

Ri: It's a great tool... [other TCs agree]

I: In what ways?

Ri: To practice and not damage anyone [laughs]

Cookie: Yeah you don't wanna damage any of your kids [laughs]

Brittany: It's the most realistic besides working with real children

Kel: It helps with your patience too, like I would say in the beginning I would in my service learning I kind of get frustrated in my head but you can't show it to the students so like if you went to the workshops and practiced that would help with that so like you're not going for the kids' neck [gestures holding her hands around someone's neck and laughs]

Sprite: It helped prepare you for certain situations like you can change their behavior, I feel like if you turn them like really bad like it will help you deal with students as bad and practice before you actually have to deal with students as bad like classroom management.

I: Do you think, cause we had it at level zero for the classroom workshop and the group teaching, do you think it would have been better if we increased the behavior level?

Kel: Maybe like the second time [other TCs agree]

Brittany: Yeah if we could do it again

Cookie: Yeah, I heard somebody I think it was one of my friends and she had like a person who had the experience with the TeachLivE and their level was like ridiculous like not what was supposed to be set at and the kids were like flipping out and everything and I was oh no I don't want to have that experience right now I gotta work my way up there [laughs] and experience each level like if I get through like one, ok let me move to the next level like move up instead of like jumping to that level

I: I see, so you'd prefer like different levels like with each experience you can go to the next one?

[TCs nod and show their agreement]

I: Would you like it to be based on skills or levels of behavior? Like teaching skills that you would want to practice for example or classroom management or behavior levels?

Brittany: I think behavior would be more helpful

Kel: Yeah when I was in an actual classroom and they misbehaved I didn't know how to react and what was appropriate so I kind of just like did my best but if in the TeachLivE we had practice to how to react to behaviors that would have helped

Ri: Yeah like just a session, the whole thing just on like have lesson but teaching the lesson not as much be what's important, more the focus be on how you're gonna control and manage your classroom cause that's a big thing that's hard to practice until you're in the classroom and it's probably something that I'm most nervous about. I feel pretty prepared for everything else.

Sprite: Yeah, I have service learning and one of the classes I'm with 17 students, 15 of them are failing and all of them have very bad behavior issues and the entire class like I don't know how to deal with them because they're like so bad and the whole class period is us trying to make them be quiet and sit down and they don't listen and they just don't ...like I was working with a student one-on-one and he just wouldn't do anything, like I literally had to do his assignment for him just so, just to prove to him that we can do it. I'll do it for you but you're gonna sit here and

do it ...so I think it would have helped if I could practice like how to deal with them more if they're like that.

I: Do you think that should be an optional thing that you can volunteer to go to or something that is added to one of your classes and everyone gets to do like this one?

Cookie: I feel like everybody should be able to experience it, you know to have that experience with behavior issues because having to like deal with it in the classroom and having no way out like you don't know how to handle it, it's going to be like really stressful especially like if you're a new teacher and you're just so fresh to teaching and you don't know how to handle behavior issues, I feel like it will look really bad if you can't handle the students and have them like listen.

I: Alright, thank you. Any not so positive or negative thing that you noticed about TeachLivE or a mixed-reality classroom environment? The usage of it ?

Ri: Nothing, overall it's a really great tool. I think it would be cool to have like in your senior year like maybe a core course designed when you've already learned all of the content so it's like you're pretty much almost done and then being able to work through your classroom management and testing your skills before you graduate. Like have a class where you have multiple chances to do different scenarios in TeachLivE.

I: Ok, cool. So it would be a classroom that is based on all those things that you have learned but then within TeachLivE you practice them?

Ri: Exactly to simulate like you know what you're gonna do when you graduate.

[other TCs agree]

I: Ok, that's a cool idea, thank you. If you could change anything about your experience with TeachLivE™ what would it be and why?

Kel: I'd prepare more

Cookie: I'd definitely prepare a lot more and would help if it was without peers and have like a coach or somebody there.

Ri: I would like to know that I was going to be the teacher cause it was just like an added anxiety. We're already nervous and then it's like am I gonna get picked? Am I not? All the way up to the morning of and it's like it's not necessary. Just if you're gonna teach then they know you're gonna teach. I know that's the idea that everybody thinks they're gonna teach but it just adds anxiety you know and then it's hard to get out of that, they're like there and then you know...

I: If you knew that you wouldn't be the teacher would you still prepare?

Ri: I don't know...

Kel: We would still gain from it just by watching them

Sprite: I mean like I'd prepare what I would do to help the teacher. I would practice like my gestures and stuff to go with them.

Ri: Maybe like just tell everybody that you're gonna teach then. Like you're all gonna teach and then the day of say like ok you're actually not all gonna have to teach

Sprite: I would be mad [laughs] I kind of felt like it wasn't fair that the other two didn't have to do like teach too in a way

Ri: Yeah it's like you only have so much time

Brittany: I've been in one class where they made us all do it. It was a summer class I don't know if that made a difference but

Ri: Yeah I guess cause you have to be able to access the avatars and all that for a longer period of time

I: Yeah that would be triple the time that you would present. Would you guys volunteer in your groups to teach?

[TCs say no]

Brittany: Now I feel more prepared but I didn't like we asked our group does anyone want to do it? We were all like [shows being scared using her facial expressions and laughs] but that's more the peers aspect than the nervousness of doing it in front of everyone.

Ri: Yeah, cause we thought initially that we would have to pick who's gonna teach, I don't know why my group did and then everyone looked at me and were like will you go? [laughs] I was like ok, whatever that's fine and then I got picked anyway, I was like [shrugs and laughs]

I: [laughs] alright, and last question: Would you like to participate in more TeachLivE™ sessions to practice your teaching skills in the future? Why or why not?

Kel: I think now no but closer to graduation, closer to a job I feel like wow I'm gonna be a teacher really soon, let's really start to prepare for this [laughs] but probably now I wouldn't but in the future yes.

I: Why wouldn't you do it now?

Kel: Honestly, I'm thinking about finals now but if I had extra time in my day I guess I would just no time now.

Sprite: I'd like to watch like people practicing more than doing it myself but maybe towards the end of my school I'd like to do it like teaching.

I: So more observations?

Sprite: Yeah more observing right now.

Brittany: I think as nerve-racking as it was, I would like to do it again like if it was in my classes, I don't have free time either to just come in and do it but if my classes made me I would like to because I did like observing and I was like learning from their mistakes and like from what they did well but also like watching them I'm like "say this! Say this" [whispers and laughs] like but clearly when you're up there you're nervous so it's different when you actually do it because you do have the nerves so you see how you'd react under those like the pressure and the nerves. So I'd like to do it and observe.

Ri: Yeah, I think it's good that it is included in the coursework and I think they should do a course like with it, based on it where they'll have access to it. Maybe like you rotate teachers so everybody gets a chance to teach and it's not as you know just one time and you get to practice your skills.

Cookie: Yeah, if it was like incorporated into a course I would

Ri: TeachLive 4000 [laughs]

Cookie: [laughs] yeah, right? If that was a legit course I would totally take it cause it's like practice and I would also like to observe cause then I can take notes like prepare like ok this is how I wanna go about it and stuff.

I: Do you think if it's not incorporated in one of your courses you wouldn't volunteer to go and wouldn't choose to go?

Sprite: I feel like it should be incorporated and maybe like offer more in-depth workshops

I: Like Happy Hour workshops?

Sprite: Yeah

Brittany: It's always good to have options to do it if you can but so many people are busy that I think when it's incorporated it's good for those people. Like me I work, like all of us we probably are working too and have so many obligations that we don't have the time to come in on a random day to practice but when it's in my coursework I'm forced to do it and it's really helpful so I'm glad we're forced to do it.

I: Right, what about the timing would you want the sessions to be longer and for example teach a lesson of your own choosing or no like classroom procedure something small that you have to teach?

Kel: I think teaching a procedure was a good mini one but it was kind of difficult they couldn't act out and stuff but ...

Ri: They could practice a procedure in most cases.

Brittany: I do think a mini one is good though, I mean teaching a full like long lesson would be overwhelming...

Ri: or overkill

Brittany: Yeah like too much

Ri: Yeah like 10-15 minutes maybe the most

Brittany: Yeah I liked the mini and getting to see multiple minis instead of just watching one person do it for like a 20 minute lesson

[other TCs agree]

I: Would you like to teach your own lesson plans or practice your own lesson plans?

Kel: I think that would make it interesting

Brittany: Yeah, you can teach what you're interested in

Kel: It'd be a lot more work

Brittany: Yeah, it does add pressure

Kel: I mean we could, we've all made a lesson plan we can just use one we've already used versus create one just for this.

I: So you'd prefer that over having some subjects then you pick among those ?

Brittany: I kind of liked that she had topics because when someone says anything for me I'm like oh God what am I gonna do? And then it just like adds to the pressure like should I do science that's kind of easy or should I do math? So I kind of liked that there were like five and she was like pick one cause it made me like not think as much cause I overthink everything.

Ri: I mean classroom procedures are something you need to know how to teach so it was useful but if I had more opportunities in TeachLive it would be good to teach a lesson.

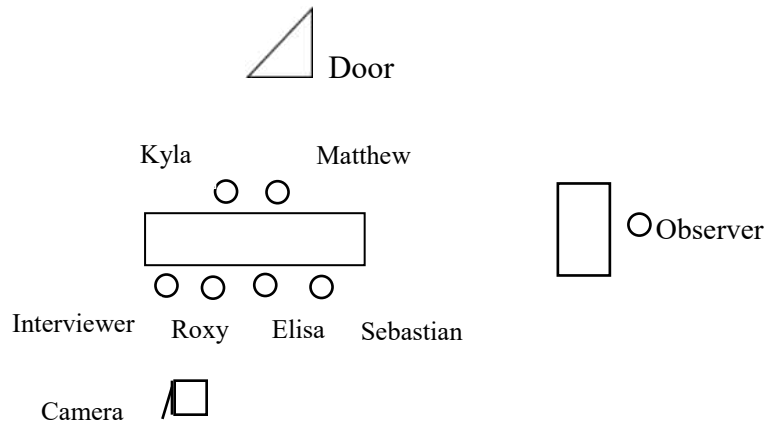
I: Alright, thank you so much everyone. Do you have any other comments or anything else that you'd like to add?

[TCs say no]

[I thanks everyone and asks if one TC could stay for a short follow-up interview. Cookie agrees to stay.]

APPENDIX J: FOCUS GROUP 4

Focus Group 4



Participants: Roxy, Elisa, Sebastian, Matthew, Kyla

Follow-up Individual Interview: Elisa

[The interviewer introduces herself, greets the TCs and offers them refreshments which are placed on the table in front of them. Then, I goes over the Informed Consent Form with the participants and gives them more information about the study. After making sure that the participants do not have any questions in regards to the study, I gives everyone the Participant Information Form to fill out which includes general demographic questions as well as the option to choose a pseudonym for themselves to be used in the research in lieu of their real names. The names provided below are the pseudonyms chosen by the participants.]

I: Thanks so much for being here, I really appreciate you guys taking the time. Let's start with the first question. Please introduce yourselves and tell us about your past learning and teaching experiences?

Roxy: I'm [real name]. I'm a junior. I'm studying English language arts education and this I think is my second or third I guess advanced class within the major. I should be taking more classes and I should be starting internship next fall. Does that cover it?

I: Any teaching experience?

Roxy: Oh, I've been doing tutoring and then service learning so I think I've been a good few weeks into service learning for a few different classes so that's my teaching experience. Also, junior achievement if that counts.

I: Have you had any teaching experience with English learners?

Roxy: For the TSL class so yes I did 15 hours of service learning with them so that was interesting to do as well.

Elisa: My name is [real name]. I'm a science education major. I'm not originally from here. I speak four languages and I've worked with the ESOL students most of my service learning I prefer that so that's always been like my go to. Even though I've realized that a lot of things I didn't know are popping up so ...umm like I've forgotten how hard it was but I think that's it. I did the writing lab at the International Student Center and I did JA and then over 45 hours of service learning, pretty sure going on 60.

Sebastian: [real name] here. I'm Math education. I have over 60 hours of observation and field experience, JA. In high school I had to do like a senior project and what I did was basically like observing my actual math teachers in class for about a month. First week I just observed, second week I helped teach a little bit, third week I prepped them for a test, third and fourth week I made a quiz test and administered it or proctored it I guess. And the fourth week I graded them and reviewed it with them and stuff so I ended up actually teaching for a couple of weeks.

I: Any experience with English learners?

Sebastian: Not really.

I: Have you taken the TSL class?

Sebastian: Not yet, I'm taking it this Spring.

I: Alright, thank you.

Matthew: I'm [real name]. This is my first senior year [laughs] cause I start my internships in the fall. Teaching experience I have all my service learning and 15 hours with ESOL and in my JA there was two ESOL students like I wasn't directly working with them cause I was doing the whole class but there were in the class. I also coach water polo so I'm always working with like kids and students.

Kyla: My name is [real name]. I don't know about the junior, senior thing but I study studio track, I have a minor in Art education and any teaching experience would be JA, no English learners.

I: Alright, thank you very much everyone. What experiences have you had with video or virtual games that use tracking devices? If you had any how did those experiences help you in navigating TeachLivE™?

Elisa: like Kinect and Xbox? I've definitely played some of those.

I: Did that help you with TeachLivE?

Elisa: I mean a bit, I noticed how it was using the same equipment. So it was cool to know that but other than that I mean, I just knew how to stand a certain distance for it to see me better.

Sebastian: I don't think it really related that much like playing video games or computer games or being like really technical-savvy, I don't think it would really matter because it's just all mentally. You're just standing like beginning the class and then it's all talking so it's like no understanding oh I need to stand a certain distance or something. I've played video games before I don't feel like I did any better than anyone else basically.

I: Did it feel like a game to you?

Sebastian: Not really cause there is no like it's not like a game.

Roxy: They actually interact with you based on what you're saying whereas in a video game even if you...

Sebastian: You'd have to react

Roxy: Yeah you're reacting to whatever the game gives you so if you can't turn into an area or like somewhere that's not on the map you'd have to find a different route whereas when you talk

to the avatars they guide you and you can guide them into different things. So other than I guess standing there I mean...

Sebastian: It's a lot more controlled.

Elisa: Yeah one of them actually commented on my shirt so [laughs]

Roxy: They're alive in a sense or something like that, they talk to you. It's not pre-destined the interaction. I mean other than the graphics they don't seem like games.

[other TCs agree]

I: Ok, thanks so much. Have you had any experience with mixed-reality classrooms prior to having TeachLivE™ in your class?

Sebastian: Like online lecture videos?

I: Well mixed-reality classrooms would be something like this that you'd have avatars.

Elisa: I mean if you played Sims but it's not as... I've only played that on my phone it's not like a classroom.

Matthew: I've used it before, it was brought into my class. That was the only experience I had.

Elisa: Yeah, before I used TeachLivE I had never seen anything like it.

Matthew: But before this class I used it in another class.

I: Was that the TSL class?

Matthew: I think so. The leveled-questions with the pictures and stuff.

I: Ok. What were your perceptions about the EL cases, Edith, Edgar, and Tasir before meeting them as avatars? When did you first learn about them? What did you know about them? And what did you think about them?

Roxy: In the TESOL class you go in-depth with them because you have an actual textbook that talks about them essentially everything on them. But if you're not considering the TSL class this class has a little blurb about them.

Sebastian: Yeah, I didn't take the TSL class so the first time I ever heard about them was we had to make a lesson plan and create... you'd have to edit it so that it would work with Edith, work for Edgar, work for Tasir and on like the UCF website there is like a little paragraph with the bullets about them so that's about all I knew about them. It's like Edith beginner and then it gives you like just came here, it says like her tendencies like she shuts down blah blah blah. It goes in-depth about them.

I: Did you think that you knew enough about them before you met them?

Elisa: Well considering we had like prior experience I know I felt really comfortable with them.

Matthew: First time I did it, I didn't like the idea. I was very against it but the second experience with it I was a lot more comfortable and I saw a lot more benefit than the first time.

I: What was it about the first time that you thought..

Matthew: I was just super uncomfortable talking to a screen but like I don't know...

Elisa: I mean for me the first time I did it the first like few minutes was like horrible and then like once I got used to it, it was okay. But this time around it felt more natural I think because I was already in front of an actual classroom and I could relate it better but it was weird.

I: Was the first time the leveled-question?

Elisa: Yeah

I: Were you the one that asked the questions?

Elisa: We all had to I think so.

Matthew: Yeah my classroom we all did.

Elisa: We all had to ask a different question and address different people.

Matthew: You'd only ask one or two questions though. It was very minimal.

Roxy: For me it was kind of backwards because the first time when I was introduced I was super excited to work with them because I had never seen anything like that. But then I think I got more nervous when I had to deliver a lesson because it was a lot... it was a bigger scale than these are questions as opposed to I'm going to teach you something. I think that was a little more frustrating to me because I didn't know how they would react to me delivering a whole lesson without them knowing about it. So I guess that was different in that way.

Elisa: No I was nervous, don't get me wrong I was nervous. But I felt different I don't know like I was nervous mostly because we didn't know who's gonna present so it was like last minute we

had to literally draw a straw and I was like um no. I didn't like that [laughs] but if that element would have been gone, I would have been more comfortable.

I: Would you volunteer though if it wasn't planned that way?

Elisa: Oh no [laughs]

Roxy: I would like to work with them again. I'd really like to so I can get more and more comfortable with them because they're really cool like source of I guess material I mean...

Elisa: Yeah if it wasn't in front of the rest of the class like if it was me and the computer then yes, I would have volunteered. But if it's with the rest of the class watching me do the lesson that's what was kind of weird.

Sebastian: I felt really comfortable doing it, like that was the first time I've ever done it. But I'm very comfortable speaking in front of groups of people like regardless of what's going on, it takes a lot for me to get uncomfortable talking in front of people but getting to watch everyone else not necessarily stumble through it but like we would go through it and then we would ask them a question and the other woman that was in the room would pause it and say oh like try asking it this way or whatever. So I was able to pick up on little things and in the end I'm not saying I did it perfect at all, I'm just saying I felt a lot more comfortable getting to watch five other people go before me and seeing "oh, pause ask it this way" or "don't forget to do that" or something...

Elisa: Yeah that helps.

I: So you found that helpful?

Sebastian: Absolutely, so I think if everyone got to go like somehow last and watch four people in front of them go I think we'd all have... it would have gone much more smoothly I guess.

Roxy: I mean I went first...

Kyla: I think you did good.

Sebastian: I'm not saying anyone did bad at all.

Roxy: No like I'd totally agree with that like if I would've gone last, I would have picked up on... while you went through every single group you saw different tactics that they used and how it worked and how it didn't work so I feel as though watching in groups is also beneficial regardless of if I went first or last but first well okay [laughs] but it was really cool to see all that especially with Edith she's I guess the most frustrating which I think it's a sad thing to say because she doesn't move...

Elisa: She doesn't react that much.

Sebastian: She just looks at you and like nods and puts her head down.

Elisa: or stares at you.

Roxy: Yeah, so I think that's the most frustrating but I feel as though I mean you have to tailor it to the type of student that she would be.

I: That's true. Would you guys like to go and observe sessions like other teacher candidates?

Roxy: Totally, I think that would be really beneficial.

Sebastian: To watch other teachers do TeachLivE? Yeah that would be interesting to watch.

I: Would you like to observe only and then teach yourself or no just observe?

Roxy: I think the mix of both would be cool like I feel as though if...

Elisa: As long as it's observing first and then...

Sebastian: and then let us go cause we can take notes of what like if they stumbled, oh like they stumbled because they asked to difficult of a question like and then you stopped them and said "Oh ask Edith like a yes or no question not a three-word answer question" or something like make a note of that then when I do it I know.

Roxy: Like watching someone I guess a professor or like in a small group it feels as though you're in a bigger you don't really... but in a small group if you can teach them or interact with them doing something I guess getting them to settle down or something typical that you do in a classroom and then having everyone else in that group do that and try different ways that would be super beneficial I think.

Sebastian: And just getting to interact with them cause we had like a goal or like an objective when we were talking to them. If they are on the screen right now and I would be sitting here like casually and trying to have a conversation with them, I could pick up on things like ok now I know how difficult of a question I can really ask Edith. Not like oh I need to teach her how to line up for a fire drill like it's kind of like "how's your day?" "where are you from?" just normal questions. Just getting more comfortable in general talking to them to know more about them.

I: I see. Do you think the classroom procedure workshop that we had before the group setting, do you think that gave you enough opportunity?

Sebastian: It was messing up. Remember when they came in and the one lady did it for us, it froze, the connection was messed up. It wasn't really beneficial because the system was messed up.

Kyla: Yeah it kept freezing.

Elisa: We saw a little bit of it though.

Sebastian: Yeah we did see a little but the system kept freezing or like had some bugs or something.

Elisa: Yeah I remember one of the kids that's sitting in the front he mentioned my maid of honor shirt [laughs]

Sebastian: Oh yeah yeah yeah

Elisa: Ed I think and then he went on a rant about like oh you like music?

Sebastian: And then he liked basketball or something too.

Roxy: Or Sean

Elisa: Yeah one of them

I: So because of the technical issues you think that it was not

Sebastian: Yeah it could have been very beneficial, I'd say it wasn't as beneficial as it could be.

I: Ok, I see. [refers to Matthew and asks] I want to go back to your first experience you said you had that you didn't find it helpful or didn't like it, can you explain more about that?

Matthew: I just ... it might have been because I didn't have a positive attitude going into it umm but I thought it was just really awkward to talk to a TV, like I understand it more now I think that helps me but umm it was kind of like brought in and we were doing it... like I don't know I didn't feel comfortable.

Elisa: Yeah it's not like we got... for me at least we didn't get like "oh, we're gonna do this next week. It's gonna be a big thing". It was a surprise like we had like pictures in the room and we had to like make questions and suddenly the next thing is like BAM. You know like it wasn't like explained as it was here like it's an avatar and ... we were a little bit more informed this time around than the first time.

Matthew: I felt like it was silly the first time that we did it.

Elisa: It was treated as a surprise thing.

I: Was it because it was cartoonish that was silly or ...

Matthew: Yeah and it not being explained well, not being explained why are we're doing it. Like we understood like Edith, Edgar, Tasir obviously but it's ... I don't know it just felt like silly to me standing in front of a board you know and just the way they reacted first time I talked to them I didn't really get it but this time we knew like when Edith put her head down there was a reason you know... like we knew when Edgar like leaned like way back he is like not interested you know like we knew more about them...and it just might be it's my second time now you know

so I had a first experience so when they came in I got up right away to go ask a question because part of my procedure I didn't think they'd be able to do it cause it was clapping so I was like they probably don't know how to clap so I wanted to ask that.

Roxy: Also maybe when introducing TeachLivE would be good to just describe what limitations they have because at first I was super stoked when I was introduced to it when I was introduced to them the first time in the TESOL class, I was live twitting the whole time [laughs] I was so excited for it but other than that I just found out this time that the only person who can get up is Sean like maybe have a list of limitations like what they can do and what they can't do... because if you were going to give a procedure on clapping or lining up you can't really do that which I understand because it is new technology, it's a technology thing and it's not like you can't really go inside that virtual world and I understand the limitations.

Sebastian: If you were to do that you should just say instead of what they can't do cause there's a lot more stuff that they can't do than they can do so you should just say Sean can stand up, everyone can raise their hand and that's it. That way no one's like oh can they do this? Can they do that? Like he didn't know if they can clap or not [refers to Matthew] if you walk in and say hey only thing these avatars can do is everyone can raise their hand and Sean can stand up, all other questions no matter what the thing is it's like no they can't do it cause they can only do this so they know.

Roxy: cause that would help people who interact with them more just to prepare them like oh I can't ask this cause they won't be able to do it.

I: I see. So the surprise aspect of it in the TESOL class you didn't like?

Roxy: I loved it, I was surprised. I was super stoked [laughs]

Sebastian: So they just walked in one day and were like yo we want to teach them?

Roxy: [refers to the interviewer] I think you taught like a lesson in... cause you started off the lesson speaking a different language Farsi or Persian and then you started using different aspects that we could use like gesturing, repetition... and then you took a break and then you brought them in so I mean I was stoked about it.

Elisa: I liked that part too when you talked in Farsi, were we in the same class? [asks Roxy]

[TCs start talking about the classes they took, the interviewer brings back the attention to the interview by asking Kyla about her experience]

I: [to Kyla] Did you take the [TESOL class]?

Kyla: Not yet.

I: So this was your first experience with the avatars? What did you think about them?

Kyla: A little weird but I got over it and it was like talking to a computer or talking to someone else.

I: Did you go up and ask them questions when they came in for the classroom procedure workshop?

Kyla: Yeah but the technical difficulties, the connection was bad and I asked a question they said they couldn't see me so they just left after that.

I: Alright, but in general what do you think about that classroom procedure workshop? What things do you think should be changed about that?

Matthew: I think just knowing the limitations cause I would have changed mine to just when I raise my hand I want you to raise your hand and be quiet you know and I don't know if they could all raise their hand at the same time which probably they can't but you know just knowing the limitations would help while we're writing our procedure. You know before like just knowing the limitations and being introduced them before we write our procedure before we're expected to stand up before them.

Sebastian: And then just that little technical glitch that's all. That's probably not gonna happen every time so that's fine.

I: Right, what about the organization of that workshop and the way it was presented?

Sebastian: The girl seemed nervous, wasn't she like a grad student or something?

Elisa: [to the interviewer] it was you no?

Kyla: No it was that Asian lady

Elisa: Oh yeah, true true true, never mind. You're right, I remember you from that other class that I took during the summer.

Sebastian: I don't know I was trying to be as nice as possible. And was she a grad student or something? She just seemed really nervous and was like kind of hesitant.

Matthew: She was one of my TAs that's just how she is.

Sebastian: Just have someone that's like very confident.

Roxy: Like if you were there to teach the class like you taught it really well in TSL, that was awesome, I mean it was fun we all thought at the end of the class but anyways.

I: Oh, thank you. How do you compare the avatar students with real students? Please share your impression of what they might have in common or the differences you noticed?

Elisa: Yes I mean the reactions when you work with EL students you see the same kind of reactions like "wait, what are you talking about?" like that confused look or just like blank stare that kind of thing, that's definitely prominent.

I: So you think that's the similarity? Any differences?

Sebastian: Comes back to the limitations again.

Roxy: But how they do talk to you and how their sentence structure is and everything and how they interact with you, they're just real as well. It's really pretty similar like with Tasir I didn't know her character's limitation I guess didn't understand like phrases, well-known phrases and that was my issue so when I said "thinking cap" she had no idea what I was talking about

Elisa: Yeah she said I left it at home [laughs]

Roxy: Yeah she was like I forgot it like idiom she didn't know that one and I was like oh, ok this is something that an actual student that is an EL that came this time before learning that wouldn't know so that was actually pretty similar.

Matthew: I've never seen like the EL like them with the ... like the way that they would talk like classroom management like the level would be like she had it on zero you know... so I think that would make it like with real ELs like especially with the younger ones that was always like the issue with them cause when they would get bored, they would be bored like they would lean back and they'd be playing with whatever they could get their hands on you know cause they're so bored like keeping them engaged was harder than them the avatars you know cause they were all listening all the time but I don't know if you can turn that up?

I: Yeah, we can actually adjust the level.

Matthew: Yeah so I feel like that would just be my comparison to a real EL is like real ELs they're not always perfect, they're super distracted which I get you know like I get it.

Roxy: They zone out a lot more.

Elisa: I had like a French student I was tutoring, trying to help out but she was like really beginner and it's not one of the languages I speak so I couldn't even try to communicate and she would walk around as I was doing her assignments and just look at what other people were doing cause no one knew what to tell her to do. So teaching her was like how it would be like teaching ESOL students.

I: Ok, any other things that you noticed?

Elisa: I mean the interactions were similar, the only thing is getting used to the actual visual of it but I mean you get passed that real quick.

I: How long did it take you until you thought oh it's actually like I'm teaching a class?

Roxy: I think Sean really helped with that [other TCs agree] because he's the most ...

Elisa: Talkative?

Matthew: real?

Roxy: Yeah he's the most real student when I first talked to him we were talking about Halloween Horror Nights and I'm like oh ok... so I think it's good that he's the first and he's the one who engages with you more because you feel more comfortable with him which I guess is unfortunate because you want to talk with him the whole time but he does help you I guess relax more and get to the comfort level and see oh they actually are real students so he really does help. I don't know anything about Ed, I haven't really talked to him, the one on the left, I haven't really talked to him much. I think he's just a quiet student I guess...

Sebastian: But he'll talk a lot I noticed that he's really interested in basketball and playing basketball so if you like pick his interest I feel like ... I forget I think it was like during the... when you introduced it to us someone was wearing a basketball shirt or someone said something about basketball and he just started going off about basketball so it's more like ... that's like to me it seems very realistic cause I've had kids in my class my actual third grade class like I have an Xbox one this one kid like had an Xbox and he was like every single time I came into talk to him he was like oh I played this and that like always talking about it, so if you peak his interest to talk then that's the only thing he'd talk about so if you're doing anything else that kid wouldn't talk... so like Ed if you don't wanna talk about basketball he'd have nothing to say. I like that though, I wouldn't wanna change that, that's more realistic you're gonna have kids that only wanna talk about one thing.

Elisa: I heard they are adding special education students?

I: Yeah, they actually have one autistic child right now and they're working on kindergarteners so because right now we're using middle school for the EL version but they also have high school.

Roxy: Do they really have high schoolers?

I: Yes

Roxy: Wow, can we work with them?

Sebastian: I wanna do it.

I: Yes, and they have different behavior levels too. This was level 0 or 1 and it can go up to level 5.

Sebastian: That is so interesting. It would be great to practice classroom management with that.

[Other TCs agree]

I: Ok, would you have worked with them more in your first experience with the avatars in the classroom procedure workshop?

Sebastian: After the fact, now looking back on it I wish I did.

Roxy: Maybe after class stay and hang out with them a little bit like after others leave you could stay and interact with them more.

I: So did you like being in your own classroom and going up and asking them questions or was that too nerve-racking?

Elisa: Yeah after without others would be good.

I: Alright, let's think back about your second experience or for some of you your third experience going in your groups and teaching them what did you think about that experience? What do you remember?

Elisa: Certain things like the way some of the questions I asked were phrased like "Can you do this?" or "Can you tell me", the whole "can you" part had to be removed and the coach said that it would confuse the students... and I didn't realize that cause it feels so normal now and it's sad because I was an English learner and you would think that that experience would be more enlightening but certain aspects of it I just forgot that it was that hard so it's something to keep in mind. That's what I remember.

Roxy: The rephrasing questions on the spot perhaps maybe next time I'll just have another list of questions already I guess rephrased in case. So like leveled-questions but leveled within leveled so in case for example Edgar didn't get the question that I had already leveled for him I could have a backup question with the same concept and idea but just in case he didn't understand it the first time around because I feel as though you can think on your feet but if there is too much of a pause especially in a real classroom you'll lose all of your students... so I feel as though that would help me a lot more to plan a backup plan.

Matthew: I really liked the coach, it really went well you know... like the first time our teacher was helping us but it wasn't like this time whoever it was she was very knowledgeable and she was really good at explaining what she meant you know... it wasn't like "Oh you can't say an idiom" she was like think about it, an idiom like you know the thinking cap she really explained that well like getting called on. She really did a very good job of explaining everything so...

Roxy: Yeah she was actually really helpful and helped us a lot like she was very knowledgeable. She also you could tell like she would stand up and she would also explain to you what you did wrong or what you could do to tailor it and work on and make it better. So I thought that was really awesome.

I: Ok, and did you like the fact that she would pause you and then give you feedback?

[All the TCs agree]

Elisa: Yes, absolutely.

Roxy: Yeah, cause that way you can just practice it again you wouldn't have to wait and get all of the feedback at the end when I mean it was over.

Elisa: Yeah, it wasn't useful afterwards...

Roxy: Yeah, I mean it was but we couldn't really practice it afterwards so yeah.

I: So would you prefer it to be paused and get feedback rather than leave that all to the end?

[All TCs agree]

Matthew: Cause if you don't get that immediate feedback you can just get stuck like I got stuck on Edith you know... but it didn't happen really this time so bad because she was there but there was times like my first experience that students would get stuck on Edith and they wouldn't care anyways so they would be just like well, I don't know what to do now [laughs]

I: OK, what else do you guys remember and what did you think about your second experience?

Sebastian: I mean the only difference was basically like the system of reinforcement like the coaching, pausing, freezing.

I: What about the group setting did you guys like that?

Matthew: It was nice having your group to model the behavior.

Elisa: Yes, but personally like I'm really good with presenting to a group but when I'm presenting to someone else and I have an audience to the other audience it's like weird and it made me uncomfortable but I got over it. I mean it's not like a big issue.

I: What would you prefer over that?

Elisa: Maybe like smaller groups or just like in the teaching community instead of like half of the classroom something like that, I don't know. I know logistically it's hard to do but I mean...

Roxy: I mean it was fine, if there were smaller groups that would have been great but I feel like the program is only on a few computers so if you have like 20 something students you can't really do that.

Elisa: Yeah, that's why I was saying it's hard to do.

Roxy: I guess with the half of the class it's beneficial as well because then anyone can interject and let you know what they thought so I mean I feel as though positive and negative feedback for teaching is really important regardless because you can only grow from there. It's not as though this teaching the avatars was for a grade, it's the fact that you'll learn from it. So I think that's ok, like if you messed up, you messed up that's fine. Like I messed up and that's fine, I only learned to get better from it so I thought that was pretty cool.

Elisa: I thought you did pretty good.

Roxy: I mean listen I could have done better but it's fine, it's ok.

I: There is always room for improvement. Would you guys volunteer if like for example in your groups you weren't chosen randomly would you have volunteered?

Roxy: I probably would.

Elisa: Like I said before no, mostly because I hate being put on the spot like that but I mean if I would have to do it, I will do it and usually I do it well so...

Roxy: I mean I don't know of any other interaction you could have with this program so I just really wanna hang out with this program because it's really cool so that's why I would volunteer myself because like if there were workshops that we could come like after hours or something and just interact with them more I'd go to those and then probably not be the first to volunteer in class but because I don't know when you can interact with the program again I like to work with it. I feel like if you can work with them in a lab or something that would be great.

I: I see. Alright, next question: please explain any aha moments you had during your interaction with the avatars? Something that you thought worked really well or something that you thought was gonna work and didn't and you were like oh, aha, this is what I should've done or this is what was working.

Kyla: When one of the groups was doing the fire drill then she mentioned with Edith when you wanted to describe something with Edith , you point at the picture and say this is a line and that helped a lot with her to understand what you were talking about and she got what you were saying so I would say that using gestures and visuals.

Elisa: My aha moment was the whole "being called on" thing. I didn't realize that I could oversimplify and that word was so... it was a concept that didn't get me, Edgar kept asking me like "what do you mean, a phone?" or something and that was like damn, I forgot how bad it was you know when I was an EL so that's something I have to work on and be more attentive on.

I: Ok , so like little phrases and words?

Elisa: Yeah, like some stuff that now I realize are not hard but that are hard for beginners and intermediates and it's hard to point them out because they're so easy [laughs].

Matthew: I think the best moment for me was when I was talking to Tasir how and what she could do out of what I gave her what she could give back to me. You know I was like ok, I must have done it well.

I: Do you remember an example?

Matthew: Well so like it was, I asked her to list the whole procedure she just did it you know without a problem.

I: With Tasir? Do you think it would have been the same thing if it was writing and reading?

Matthew: Yeah I feel like I could ask her to write like the three procedures without looking at them, I think she could do it which I think shows their capabilities.

Elisa: If it was like science or something I think that would have been problematic for her. I think the procedures is easier for Tasir because she has the social language.

I: Ok, any other aha moments you guys had?

Sebastian: The only one I can think of is like I had a strong advantage to last and see like all the other groups and what to ask like I said before but I guess it was when after I finished saying the procedure I asked Edith, Edgar, and Tasir all the questions and when I asked Edith a question it was like too... like I started to stumble cause I had asked her the question and she was kind of like going to her shell and stuff so I was kind of like able to get a yes or no answer out of her then we paused and she said like she gave me a tip of like how to ask her and when I went back into it I ended up just going to Tasir and going on to Edgar and I went back to Edith and then using those tips she was able to like I asked her one more time she answered me right away then I gave her a praise for it. I was like cool, that went a lot more smoothly than when the first time I was trying to converse with them I guess.

I: Do you remember the feedback that you received that helped you with rephrasing your question?

Sebastian: It was like, I think I was asking like the number of words in the question, it was 12 or something and she was like just cut it down to 6 or 7 words instead of saying like “is that a water bottle?” yes or no like say “this is a water bottle, right?” and then that’s how I asked her, I said a statement that was correct and then she was like ... she basically agreed you know so that’s how I reworded it, I was like “step 1 is to stop, right?” she was like she looked at the board, looked at me and said like yes, I was like alright, cool.

I: Ok, great. Thank you. How have your perceptions and beliefs about teaching and reaching English learners changed after your experience with TeachLivE™?

Elisa: Well, pretty much that whole realization of again I would probably need to think about it more and then try to remember how it was when I was first learning a second language and then go from there. But I mean I think I’ve had a lot of background I guess in it so I thought that I knew everything that there was to it now but obviously no so I have to like keep up with what teaching strategies to use and stuff like that.

Roxy: I mean with TeachLivE™ I got frustrated I feel personally and you can’t really do that in a real classroom, it’s not the students’ fault so learning how to deal with your own frustration all while trying to teach the students because it’s not their fault but you can get frustrated when you’re trying to ask the same type of question over and over again. So learning how to deal with that all while creating a better environment and trying to teach them better was I guess a wakeup call or realization because I didn’t think that would happen. I thought like oh yeah no yeah gesturing, I can just gesture the whole time but no that’s not it, no there is a whole lot more than just gesturing and color coding so yeah...

Matthew: Yeah I would say like the amount of preparation that it will take when you have a beginning EL in your class to be a successful teacher to them it will be difficult. It's not gonna be like you couldn't just push them all but to really like push them and help them and have a positive effect it would need a lot of preparation .

Roxy: Question, do they understand the first language that they're supposed to know? Like if you incorporate like Spanish with Edgar he would understand it?

I: Yes, but because the amount of time we have with them is very short and also we want you to practice all your other teaching strategies before you turn to translation we don't encourage it but they can talk back to you like Edith can talk in Spanish and Edgar as well.

Roxy: So cool they can do all that.

Elisa: I heard Edgar was trying to help Edith in one of the introductions like someone asked her a question and she couldn't answer and you could hear Edgar helping her and saying it in Spanish.

I: Yeah and you can have some translations of the words you have or visuals that you can teach them or have a worksheet for them that can help them.

Elisa: Yeah assuming all of your students speak the same language.

Roxy: Well yeah that's why I said language they're supposed to be speaking because like Tasir she speaks Arabic so she wouldn't be able to understand.

Elisa: I've heard they are very similar like Arabic and Spanish.

I: Well they have a completely different writing system and grammar.

Elisa: oh yeah.

I: Alright so what are your thoughts or perceptions about using a mixed-reality environment for teacher preparation?

Roxy: Super cool, 10 out of 10.

Elisa: Very useful.

I: In what ways? Can you explain more?

Sebastian: If you mess up it doesn't actually mess up a kid's life.

Elisa: Yeah that's exactly what I was gonna say and what I wrote on my reflection.

[other TCs agree]

Sebastian: As simple as that like I could make this kid cry and never wanna go to school again and it would be permanent but that would never happen with TeachLivE™. You know it's all your... no matter how bad you mess up or how horrible you run whatever objective for that time frame is it doesn't matter pretty much.

Elisa: Yeah, you can pause, restart, try again, practice, practice, practice until you get it perfect.

Roxy: You can try so many different things with it though with a class you can try one thing and see if it works or not or you have to give a longer time to see if it works or not, but with this one with TeachLivE™ you can try like 5 different things in a matter of like 10 minutes and see if it

all works because they'll have different reactions to each of them so yeah like a restart. Also super cool that they talk to you back like I cannot get over that I'm sorry [laughs].

Elisa: I seriously thought like there was someone in the other room like working at it.

Roxy: I am so still in awe of all of that. That's so weird, I don't know I've never worked with anything like this. It's like way cooler than a video game like they talk to you, they take in what they see or hear. That's awesome.

I: [laughs] That's what we are hoping for.

Roxy: I'm serious, it's super cool, 10/10.

I: great, thanks. [Referring to other TCs] what about you guys, any positive or negative thing that you think is or is not good for a teacher preparation program? Or it should be used differently?

Sebastian: I don't know what negative thing you can say, practice makes perfect. I don't see how you can fault this.

Matthew: I mean just going back to my first original experience with them, I thought it was silly but just because how I was introduced, it wasn't the program's fault, it was just introduced wrong.

I: In what ways do you think it should have been introduced?

Matthew: I mean like how it was in this class where it was like ok, this is what it is like she [the instructor] talked about it, she explained it more and modeled it in front of us ... like it just had more of a purpose I felt in this class than the other class. In the other class it was almost like an

after-thought but in this class it was actually like, ok so you're not just asking leveled-questions, you're going from start to finish of a procedure. I felt it was better than starting off with a like look at this picture, what color is this you know it just seemed silly originally but this is a better application.

I: Ok, anything else that you would like to add? [Refers to Kyla]

Kyla: I basically agree with everyone. What I liked about this class was that she has the videos of Edgar, Tasir and Edith online and we could go and watch them like we heard the teacher talking to them and we could see how they reply that also helped with comparing to the avatars like how they act the same way in the video so that helped visually.

Elisa: They had pictures of them up there and they looked different.

I: Did that confuse you?

Elisa: Well it's not like I have a picture perfect memory.

I: Alright, two last questions. If you could change anything about your experience with TeachLivE™ what would it be and why?

Kyla: I wouldn't really change anything when I saw it, it was my first experience it was something new and different.

Elisa: It was very well-done in this class so I wouldn't change a thing. Oh wait, yes I would the whole surprise who was gonna present thing.

Roxy: I would be super extra prepared next time around if I had known that.

Elisa: If I would have known like it was in the back of my head like “am I gonna present?”, “am I not gonna present?” don’t worry about you’re not gonna be the one to present and it turns out my group we had to choose out of two people instead of three and I got to go and I’m like damn it. I mean I was prepared but not enough as I would have been if I knew for sure it was me and it was weird because you would think when you don’t know you would prepare more but that was not the case with me [laughs].

Matthew: I would change my first experience with it.

I: Alright, great. Last question: Would you like to participate in more TeachLivE™ sessions to practice your teaching skills in the future? Why or why not?

Elisa: Yes, totally.

Kyla: Just for practice and the experience.

Roxy: Also just hanging out with them like honestly they are really cool. [laughs] I might be annoying with it but they are so freaking cool. I mean I didn’t even know there was a high school level I wanna hang out with those kids.

I: Yeah they are the same kids but older. I think they have their pictures in the lab.

Matthew: Yeah, they had their picture there in that room. They’re like taller. Did they get more advanced?

I: Well the things that you teach them get more advanced?

Elisa: Are they still like beginner, intermediate, advanced?

I: Well for the EL version yes because we want you guys to practice the same skills but in the high school level. But they do have a version that they are not ELs too.

Roxy: Aw, that is so cool.

Elisa: I think it is a very good experience considering I don't have that much like teaching experience teaching a classroom so it's good to do that before internships to get a little bit more comfortable.

Sebastian: What the maximum amount of people the program can produce at once?

I: Like the students?

Sebastian: Yeah like how big can you make the classroom?

I: I think right now they have 5 as the maximum, I believe it's based on the amount of grants the college can receive to make new characters because they are very expensive to develop.

Sebastian: Just curious cause I think going forward if you could eventually make it an 18 person classroom...

Elisa: and then have a bigger and a more genuine experience would be nice.

Roxy: It's ideal to have 5 kids but in reality you're not gonna have only 5 persons in class.

Elisa: I would definitely love to do that more often.

I: Would you like to have individual lessons with them?

[TCs nod and say yes]

I: Just you and the avatars or also the coach?

Sebastian: Definitely the coach.

Elisa: Me and the avatars and the coach not anyone else.

Roxy: Or like a small group yeah totally.

Sebastian: I wouldn't mind if it was like the 6 of us or like the 5 of us and you being the coach so I could watch her go.

Elisa: Or like we could do a course or something like a one credit thing where you like get together once a week and practice on it or like an elective or something I don't know it sounds like a good idea but then I'm like nah I don't wanna do that [laughs].

I: You wouldn't?

Elisa: Maybe, I don't know.

Sebastian: To be totally honest, if it wasn't for a grade or within the class I wouldn't do it to be honest. Just because I would be like oh, yeah it would be nice to go work with them but at the same time like I have a million other things I have to do so I kind of wouldn't. I mean if you had like 10 sessions I would probably go to like maybe 1 or 2 of them.

Roxy: If you had I guess after Happy Hour or sometime a few times a week I think they do the same thing for certification now but if you have some time like a block for like an hour and you introduce them and you have time for a few students to go up to the avatars and talk to them and

stuff that would be beneficial. But I mean I wouldn't go to all of them, I would probably go to a few.

Elisa: Like you could add it to like one of these courses as a lab like with extra credit.

Sebastian: Yeah like extra credit make it 4 credit class where 3 credit is for the education class and the fourth credit is like this the lab like for an hour and you get to do like something with it like at the end of the semester you got to teach with them or something.

Elisa: Yeah and that would be very beneficial.

Roxy: Yeah, like teach them a whole lesson that would be very beneficial cause most of our classes you have to produce a modified lesson...

Sebastian: Yeah I already have a lesson that I can teach them now.

I: would you like to teach a lesson that you've made?

Sebastian: I'd rather change it now having experience with them but yes.

Roxy: Because if you did like a lab-type situation you can have a lesson centered around them and have tried different things with them while you are in the lab with them and at the end of the term you will have like a 15 minute lesson that you can deliver to them or something quick.

Elisa: It's just a one credit lab I mean that would be actually really cool.

Sebastian: You'll get so much more out of like me writing that like we had to write a lesson plan, me editing mine for Edith, Edgar and Tasir like that basically meant nothing. I got way more out of the 2 minute teaching and the fire drill than I did the 20 hours it took me to write that

lesson plan [other TCs laugh and agree]. I literally didn't really get anything out of that lesson plan like I read a paragraph about a kid that it just didn't add anything.

Roxy: We also don't have the textbook that goes in-depth about Edith, Edgar, and Tasir.

Sebastian: We only got 6 bullet points about each one and that's it.

Elisa: Yeah, online stuff pretty much.

Roxy: So if you had the TESOL class you'd know more about them so I went probably more in-depth in my lesson plan than you did cause I had the other class so some people didn't really have it.

Sebastian: I didn't know how they're gonna react. I had like well when I do multiplication problems for Edith I'm gonna do this so it's like now I know after doing that that it wouldn't work cause she was putting her head down. So like having that actual experience makes it so much better.

I: Oh, Ok. And about the length of the sessions what do you think would be the optimal time to interact with them if you were going to do one-on-one and a coach?

Sebastian: twenty minutes max.

Roxy: Yeah cause that way you could teach either a small one or if you have something in mind about the lesson that if you have a really cool introduction or an idea and you could produce that because ideally lesson plans last about 25 minutes especially if you're trying to teach a unit with a textbook...

Sebastian: Yeah spend the first couple of minutes to talk about what you're going to do, spend a couple of minutes just interacting with them having a conversation and talk about ok, we're gonna do this , coach them through it, and then 5 minutes in the end to reflect on how it went. So like 20 minutes.

Elisa: And you could do something like the Micro-Teach where you do like the first 10 minutes you start your lesson like you would and then like you stop and go to the closure something like that.

Roxy: Or like not even a lesson like if you just have an idea of I want to host this type of introductory for a lesson or have this idea for something else, you could just try it on them and if it works great, awesome. If it doesn't work then you can toss the idea.

I: Ok, just to practice? Ok, so you would have your own lesson and if you had topics like classroom management or things like that that you can build upon would that help?

Elisa: Yeah, it would help especially if it's like structured in like a lab session kind of thing, it would definitely help to have some kind of direction to go off of.

I: OK, thank you guys. Any other thing that you'd like to add or any comments?

Roxy: No I think we covered everything.

[The interviewer thanks everyone and asks if one TC could stay for a short follow-up interview.

Elisa agrees to stay.]

APPENDIX K: INTERVIEW 1- SUSAN

[The interviewer thanks the participants for agreeing to the individual interview and makes sure to check the email address to send the gift card to the participant.]

I: Could you please describe the classroom procedure when you first saw the avatars and TeachLivE in more detail? What was going through your mind?

Susan: Um I just thought that that would be a really good experience, that it was very interesting. I guess with the interaction with them though I didn't feel like it was enough, you know what I mean. I felt like they were kind of in the background, like the ELs were kind of in the background and Sean and Ed were doing a lot of the talking and like to be able to talk to them you had to say their name and it like pulled them on. I feel like there should be able to interact from the back still, like a normal classroom. You're not going right up to that student to ask them a question. I definitely thought it would be a good experience though.

I: So you thought the interaction was not enough but at the same time...

Susan: Yeah just because the kids in the classroom like us as you know future teachers we were just talking to Sean and Ed because I think they thought that it would be easier.

I: Yeah and you mentioned something about the classroom procedure workshop that it could have been better, in what ways do you think it could have been better? What do you think could have been changed?

Susan: Well, she kind of explained to us like the procedures before even interacting with them and it was kind of like we didn't really need that because this was something we were already working on. We were already creating our procedure so to have her go over what procedure was

and what she was doing wasn't really that much needed like maybe the extra thing she was doing for the ELs, to go over those things but not really to teach us the procedure before teaching it to them. Like we could have learned the procedure when she was teaching it to the avatars.

I: Ok, so were you going over procedures in class before?

Susan: Well she gave us procedures to pick from that we want to use before we even went to that workshop. And it felt like the lady that taught us the workshop was really like nervous or like not very well-prepared before it so that made a difference too.

I: I see. Did you get the topics of the classroom procedure that you could choose from only or was it like you went over how to teach and the steps and things like that?

Susan: Yeah, we had to decide which one we wanted to do and what we were gonna do before that even happened.

I: So that's why you think it was not needed?

Susan: Yeah it was after we had already picked what we were gonna do and what we were going to talk about during our procedure.

I: How long before that was it? How long before the workshop did you get the topics?

Susan: I think like the week before when we talked about what we were going to implement.

I: Ok, thank you. What about the second time when you did the group setting, can you describe your experience? what was happening? What do you remember?

Susan: The one thing that I really remember was when you told us there was one group left to go you were like everyone is asking Edith like yes or no questions, you're not phrasing them the right way and she is probably just saying yes because she is uncomfortable and it gets her out of the situation. So I remember that as like one main thing cause some of the questions were kind of more wordy and probably hard for her to get and then they just put a yes or no at the end and she was like [nods] so just like getting herself out of the situation. So I really remember that and that was helpful and useful to helping and working with EL students.

I: Anything else that you thought like with Edgar and Tasir or even the whole class?

Susan: Hmm, I thought some of the questions that Tasir was asked she should've been able to answer. Like I don't know for sure but I feel like they were, with reading about her she is almost as the same level as the other students you know and then when asked some question she wasn't able to answer them.

I: Do you remember any examples?

Susan: No, I can't remember the exact question but I was like I feel like she would be able to answer that but she didn't, you know. So I was thinking maybe it's just different you know cause I feel like if Sean and Ed could answer it, for the most part she should be able to answer them too.

I: So thinking that she was an advanced level student you thought that she ...

Susan: Right, because they said that it comes like when reading about her it's more problems with like her writing and her you know what I mean? like things like that and we weren't doing

any kind of lesson that we had to write. We were asking a question about the procedure we taught, you know?

I: So reading and writing but since you were doing listening and speaking you ...

Susan: Yeah I figured she would be able to comprehend everything and all the words because they were all pretty simple procedure lessons.

I: I see. Any last comments or any changes or anything else that you would like to see with TeachLivE?

Susan: Not other than what we had said just like the behavioral things because there was no real interruptions. Like Edgar should be more defiant to what you want because that's the way he is described in the book, you know? But other than that I feel like it was pretty well-done. I just feel the behavioral thing needs to be adjusted because there is behavioral issues in a real classroom.

I: and with the age group you felt comfortable with it?

Susan: Yeah, I don't really, you know they're not gonna be real people so [laughs]

[The interviewer thanks the participants and makes sure she has the right contact info and email address to send her the gift card as a sign of appreciation for her participation.]

APPENDIX L: INTERVIEW 2- NIKKI

[The interviewer thanks the participants for agreeing to the individual interview and makes sure to check the email address to send the gift card to the participant.]

I: I wanted to go in more detail about your experience with TeachLivE and even before you actually met the avatars, what were you thinking? What were you expecting?

Nikki: Before I had no idea what to expect. I sort of imagined kind of like simulator type thing where it would be a few kids in the classroom. Like it'd be kind of... I was thinking more like blocky characters like not as nice as it was. Like I thought it was just gonna be something like it was very obvious this was a simulation, it was gonna be like kind of weird and not so smooth before. So I was like alright it's just gonna be an ordeal to do this. But then like when I went in I was like this was really... I was very pleasantly surprised, it's very smooth. All students are kind of doing different things like moving around and all that so it was really cool to have those kind of like have lower expectations and then going in and seeing like how well-done it was.

I: Had you heard anything about it before?

Nikki: No, like we heard about it in class like we'd be going in and we'd be teaching avatars and I was like alright well, let's see what this is [says jokingly and laughs]. Like she never really explained what it was or anything else and I was like okay. I was like a little bit tentative about like going in and being like, alright I'm gonna teach avatars [laughs].

I: Right, and you said you hadn't taken TSL 4080 before?

Nikki: No, I'm taking that next semester.

I: Next semester, ok. And you had just learned a little bit about the cases, right?

Nikki: Yeah, I think it was like good amount of information like we got what level they were at, especially with Edith I feel like it was like she doesn't speak in class. She doesn't really... like if she has a test she'll turn it in blank, like it gave us enough clues and enough information that I felt like we could go in adequately prepared. Like we could tell what level they were at, Edgar and Tasir specifically stated like what level they were at. So I could go in and know what I needed to do for each of them.

I: Were there any surprises that you felt like "Oh, I hadn't thought about this now" or they look like this or they behave like this?

Nikki: Umm it was the... I guess the behavior when they didn't really understand what I was saying cause for Tasir I feel like people like after we said something... cause we mentioned it to the teacher we were with that we felt that the level was lower than it should have been and I feel like I asked a little bit of a higher level question than I should, so I was kind of like anxious waiting for them to answer and everything. So it was like you got a little anxious with your questions and I'm like you know with Edith oh are you gonna get this or like with ... um Edgar it was like are they gonna get this?, are they gonna understand? so there was this little bit of anxiousness when you're going and you're doing... practicing this new skill for the first time.

I: Yeah, alright, great. Is there anything else about the first experience with the classroom procedure workshop that you'd like to add?

Nikki: umm... like they said a little bit of more clarity like I would have liked to know what discrepancies there might be between our actual experience and like what was happening there. Like I would have liked to have known, alright so it may be a little different like I just kind of

assume that it would be the exact same thing like assuming the same people were doing everything for Edgar, and Tasir and all of them so it was kind of like I just wish that they would have been like this isn't exactly like what it's gonna be like, it's gonna be a little bit different each time you use the TeachLivE just having a little bit more clarity with like what's gonna be happening when you go in and do it and what could be different. I guess like I needed that leveled-questions like a little bit more detail about certain things especially leveled-questions, what they're gonna be like when we go in and do it and stuff like that.

I: I see, thank you. Anything else for the second time, the group setting that you'd like to add too?

Nikki: I felt like the second time went really well. I feel like that's all pretty setup well, like you get up, you do it. I felt like it was great the second time like I didn't have any problems with it.

I: You mentioned that you would like to have an individual session before the group session?

Nikki: Yeah, that was for me personally cause I feel like... well no I'd like it after the group because for me personally if I did it individually and then I got feedback I would be like oh, I did so bad, I needed to do better and everyone else did much better and they didn't make these mistakes so having that group session was good for me but I would like to go in and do it on my own and have a one-on-one coaching session.

I: Ok, great. Do you think for teacher preparation purposes where do you think this should come

in your teacher preparation?

Nikki: I think like we should like kind of a get a taste of it in the beginning like not so much an introduction to Education but when we do start getting into our major classes like I think in the beginning when you first start, like maybe you're in your first semester when you're done with your prerequisites and you're starting with your major classes. I feel like that's a very good time cause you go in and teach and you kind of get a feel for it and then you're better at understanding what you're getting yourself into cause like I didn't really know what I was getting myself into until this semester when I did Junior Achievement and I feel like the TeachLivE program gives you a little taste of what you're gonna be doing. And I feel like it would be really good for some students to be able to do that. But I think that TeachLivE personally I think it should be implemented throughout the program like at different levels. Like the same with the rowdiness level like getting it bumped up a little bit at a time especially like in classroom management like the class I was in was pretty good like my Junior Achievement class was pretty good so I don't know what it's like to be like in a classroom where the kids are all bouncing off the walls going crazy. So I think TeachLivE would be a great way especially in a classroom management class like going in and being like alright here's a rowdy classroom, manage them.

I: Yeah, so you think that it should be more focused on different skills?

Nikki: Yeah, like different skills right I think that would be great. Definitely don't cut out like

being in an actual classroom but like have them a day where you do go in and you do

TeachLive. I think would be so great to have in the classrooms cause you don't get every

experience, you never know what you're gonna get in the classroom when you go for your

service learning so like being able to go in and like get what you need to learn these skills I think

that would be so great.

I: Do you think it should be pulled out from the introduction courses or no have that and also

have that in after you go into your major courses?

Nikki: Well, I didn't have it in those introduction courses but I think it should be good to have it

in introduction classes. I think it would be good, again getting kids that taste of like what's it

gonna be without like pushing them into class like hey there you go. So I feel like it's such a

great tool for being able to understand what you're gonna be doing without the pressure of like

having a class that you could actually like affect their learning.

I: Yeah, and do you think it should be simultaneous with the Service Learning, the actual real

classroom or before it or after it?

Nikki: I think it should be like simultaneous like cause it's ... especially if you're in a classroom where you're like not exactly sure what you're doing like let's say you go into a classroom and you see it's an ESOL classroom you can come out and be like hey it's an ESOL classroom I don't know what I'm doing then you could go into the TeachLive and be like alright we're gonna put you into the ESOL setting and you can get feedback. Or I'm in this really rowdy classroom I feel like I need help, alright we're gonna put you in a rowdier classroom and you can work on your classroom management skills. So I think just throughout with the Service Learning so that you can go in and implement those techniques right away.

I: I see, great. Thank you. Any negative thing or like anything that you felt like oh this part was not good or I think it should be changed?

Nikki: I mean aside from them not being able to stand up cause especially when you're doing procedures like I feel like it would be a good thing for them to be able to stand up and demonstrate the procedures and everything um... but other than that like I thought it was amazing like I was super excited about it especially after we saw it for the first time. I think the only negative thing would be like if it wasn't with an actual teaching experience with live students I feel like you can't do all digital, that's the only thing it's not, I assume they aren't real

students behind it so you don't get that real student experience and I think that's just as important as being able to practice all these skills that we're taught. So as long as it's used in conjunction with like a service learning I think it's great but if it was just by itself I don't feel like the student-teacher would be able to get the full experience of a classroom.

I: So it shouldn't replace the service learning?

Nikki: No it shouldn't replace the service learning. It should be used in conjunction with because it's so great.

I: Alright, thank you so much. Anything else that you'd like to add?

Nikki: No, that's it. It was great. I loved using it. I hope I can use it more in the future.

APPENDIX M: INTERVIEW 3- COOKIE

[The interviewer thanks the participants for agreeing to the individual interview and makes sure to check the email address to send the gift card to the participant.]

I: Alright, so let's go back to the first time that you, did you say that TSL 4080 was when you had your first TeachLivE experience in? When was that class?

Cookie: I'm taking it now. What she had us do was like create leveled-questions for each one with a table, so we did that and then she was like one person from each group has to ask the question and then one of my group members went up and asked. I think it was Edith and Edith was like "what?" she was giving like the eyes like I don't know what you're talking about like I don't get it [laughs] and I'm just like [puts her hands on her face as being embarrassed] so I was thinking if that was me how would I go about it so that was going through my head. I was like if I was up there asking questions to Edith how could I go about it so she understands it without clearly having like [she puts her hands around her head imitating the gesture Edith makes when she does not understand] freaking out and going like I don't know and put her head down [laughs]

I: So you were glad that it wasn't you? [laughs]

Cookie: Yeah, I was glad that it wasn't me cause I would be like umm next person please, I'm done, I quit I'm not even doing anything [laughs]

I: Do you remember the question that she or he asked?

Cookie: It was one of... we all had pictures we had to ask questions about the picture and the question was like, is this something?, and she was like what [gestures looking around and being

confused] I didn't even know how I'd go about it, I didn't even know what the picture was like. I was like I can see why she's stressed out cause I wouldn't even know the answer and I felt like her finger was covering the picture or like a part of the picture and I guess Edith might not have seen like I think that might have been the issue but I don't know for sure cause they all look confused.

I: At the same time were you thinking of what you would have done?

Cookie: Yeah, as she was asking the question I was like thinking how would I go about it and I think like the way they had it was sort of like they can pull it out themselves and look at it so they could see it like on their desk like if you're pointing to see what it was but at the same time I felt like the double of the teacher pointing at and trying to find it was hard cause they're trying to like match it. I feel like that might have also confused Edith cause she was like she's pointing at that, let me see if I can find it on the picture and that's hard. If you point to something big then they can easily be like oh this is this ok what is it like is it what she's saying? Instead of like something that's like small.

I: Do you think taking that class simultaneously was better?

Cookie: I feel like taking that class with this class gives a little more leeway of what to expect because then you know ok here is the three of the English learners and two native speakers that can help you out and then Sean who's like the crazy child [laughs] like he just loves to speak so you have to know. I think a lot of the things that he did are things that I've seen in my service learning with kids with behavior issues and in my mind I was like you remind me so much of Sean and with him it's ok he's an avatar, Sean is not even a real kid, he's an avatar, what the

heck? [laughs] And the kid with behavior issue was like he got to a point where teacher had to have a chart with like check marks like he bugged or not if he did he'd get an X and if he didn't he'd get a check mark and he has to get a certain amount of like check marks to be able to have a full recess or half recess or have a prize or whatever it is. So he has a chance every day to get a prize and have full recess and keep a star on the top. So as if he has a chance like anybody else like if he loses the star and the star goes all the way down that's it so he has a chance.

I: That's a very cool idea.

Cookie: Yeah, I was like how does she do it? and she explained it to me like she has a chart with major things that she is trying to work on with him like one was walking in the room, one was talking out of turn I forget the other ones but it works really well like he uses it for his other classes too. The teacher would talk to them like how was he in class? And how did he do? And then she'd go check off he did this, he didn't do that like that. I was like that's a really good idea.

I: Do you think that would be something that you'd like to practice with the avatars?

Cookie: Yeah, I think like if it requires if the avatar and behavior issues are like that extent it would be good.

I: Ok, thanks. Is there anything else that you'd like to add about using mixed-reality classrooms?

Cookie: One thing definitely would be if there was like a separate class in itself so you can go through each level and have that experience and be able to like have a lesson and experience each level. One-on-one and have like a teacher or coach or something so it's not like the teacher is anxious or have anxiety more like tutoring.

I: Alright, anything else?

Cookie: It's a great tool for like coming teachers to experience.

[I thanks the interviewee and lets her know that she will receive a gift card via email]

APPENDIX N: INTERVIEW 4- ELISA

[The interviewer thanks the participant and makes sure she has her contact information to send her the gift card before she starts the interview.]

I: So let's go back to... you said you have taken [TESOL class] last semester?

Elisa: Fall last year.

I: And you thought that the surprise factor was not good?

Elisa: Yeah it definitely put me off like I feel it was fun in the moment but it wasn't beneficial in the whole program aspect of it... like I mean it made the class fun making it a surprise but then when you actually try to interact with them you can't really know ... I don't know it was weird, it wasn't optimal let's put it that way.

I: So was it the way that like the pictures, like the concept of how you were doing it or something that you didn't find helpful?

Elisa: No I mean I could've done the leveled-questions and it wouldn't have been a problem... I don't know it was just the fact that we didn't know we were actually doing it with a class... it wasn't like expected like I had no idea we were doing with TeachLivE, I had never heard of it before, I was like wait, what is this? [laughs] and then just the idea of we had to present like how realistic they would be... it was like completely blank, it ended up being an OK experience but it could have been so much better.

I: If we took out the surprise factor?

Elisa: Like a little bit more explanation like ok you're gonna see this, there will be avatars just a little bit, you don't have to go all out I mean it doesn't have to be that way but that would have helped.

I: What about the classroom procedure workshop do you think the organization of that was way more helpful?

Elisa: Yeah like they said the girl that actually did it was a bit like shy and like yeah but it didn't really affect the actual procedure thing and she did a really good job of modeling how we have to do it and I liked that we got to interact with the avatars and all that so ... I thought that was great, I didn't even remember about the technical glitches until they mentioned it so ...

I: Did you know what exactly you were supposed to do?

Elisa: Yeah and then the teacher before we even got to that point we already had talked about it multiple times about what we had to do and she said I don't know if you've had experience with TeachLive before but you're gonna have this and this so it was very clear what we had to do so I like that [laughs]

I: Ok, that's good. So when you went in your groups had you practiced before the actual day that you had to go in?

Elisa: Well we had all the procedures prepared way before it was due and one of the things I think we could have done as a group better was to present it to each other but we didn't really do that. I did at home by myself to try and get a sense of what I'm gonna do first and how I'm gonna do this and I rearrange things a bit for my own benefit to see ok, I would present better

this way, I don't know how my group would do it you know... but I think we could've prepared a little bit better like in that sense to practice.

I: Right, and you said that you wouldn't volunteer, yeah?

Elisa: [laughs] I'm not the type to volunteer like I would volunteer to make a poster or I'd volunteer to make materials whatever but I don't know... I've always been like one of the reasons my parents didn't think I could be a teacher is because I wasn't very big on public speaking so it was like why are you doing this? Why are you becoming a teacher? [laughs] but I know I could do it I just like... I don't know it's just the ... if I don't have to I wouldn't.

I: Did you find it beneficial after you did it?

Elisa: Yeah, definitely. It was a great experience like after I did it I was like well I could have volunteered for it, you know I wasn't that bad and especially the whole environment like the coach and me back to the audience I could forget for a moment that people were watching me and judging, it was nice.

I: Did you say that the group setting like the way that the students were sitting that was not very beneficial or did you learn from observing other groups?

Elisa: Yes, in that sense it was helpful to have a group because I could see other people go and learn from that but like they said it would be nice if we were all the last group which is always impossible to do but if it was in that sense I would've enjoyed it more if I was the last group because you get to learn from other people's mistakes but we were like the second group so I was like ughhh [laughs] but it was ok, I mean I would have preferred a smaller group and more

of the like the setting we were right now, like talking about it first and then going and talking about it more I don't know.

I: Do you feel the timing of it was ok? Or did you need more time?

Elisa: Oh no that was good.

I: If you were to do your individual session would you be ok if someone else was observing?

Cause I remember some of you guys said that you would prefer to observe like do some observations and then teach your lesson, would be ok if someone observes you and then you get to observe others?

Elisa: Now that I'm more comfortable with it maybe now would be ok, but as first being up there it would have been a bit uncomfortable especially if it was someone I didn't know like from another class or something nope, not at all [laughs].

I: So not someone that you don't know?

Elisa: Yeah that would have been awkward but I guess I could've gotten over it like I know that before you do something and you're nervous about it everything looks like less pleasurable than it would have been and then when you actually get into it you're like nah it's not that bad.

I: If you were to decide where to put this classroom environment, TeachLivE, in a teacher preparation program where would you exactly put it? For example you could choose I want it the first year for Juniors, I want it for Seniors or for this class?

Elisa: I liked it very much with this class, classroom management, teaching strategies all that I thought it was nice. Especially the whole idea of the lab if I would have had that option like oh my God I would have done the whole extra credit just for a lab because it would've been nice to have that separation but still together kind of thing that it would run together... and then the ESOL in the TSL class it definitely helped I mean in general the whole profiling Edgar, Tasir, Edith not necessarily the actual TeachLivE but the whole idea it helped a lot. So I would keep the way it is but maybe add elements.

I: I see. Anything else that you think you would like to add about the EL cases, about the avatars, about TeachLivE in general?

Elisa: Let me see, I mean it was very thorough if you look at the website and if you have that book for [TSL class] I mean you have the whole background story and how they like progress through the year and it's very clear. So maybe for this class for someone who hasn't taken [TSL class] it's very vague but I mean we have to take it anyways so at some point you will see it... I don't know I think it was pretty thorough.

I: One of the students was saying that she's taking [TSL class] at the same time as this class, do you think it would be more beneficial to have them at the same time or [TSL class] before or after this class?

Elisa: I mean either at the same time or definitely [TSL class] before cause it definitely helped having that background and know how to deal with ESOL students when you're making your modifications especially when this course has nothing to do with ESOL like not really and you

have to do modifications for your LiveText and it's like a little snippet but a big grade so it would be nice to have it at the same time or definitely before.

[The interviewer thanks the interviewee and lets her know that she will receive a gift card via email.]

APPENDIX O: INTERVIEW 5- DGREEN

[The interviewer thanks the participant and goes through the research objectives and consent form before beginning the interview.]

I: I'm going to start with the first question. Could you please introduce yourself. What can you tell me about your past learning and teaching experiences?

Dgreen: [real name], learning experiences I wasn't the best student until later in my life.

Teaching experience, I started teaching at my church and decided that I loved it and was an LP and changed my major to Education because I found that I would be better instead of my family pushing me into medicine because it's more stability and you know the money is better.

I: and your teaching experience?

Dgreen: I've been teaching at [name of place] for a few months as helper for junior achievers, center and the whole classroom.

I: Ok, thank you very much. What experiences have you had with video or virtual games that use tracking devices? How did those experiences help you in navigating TeachLivE™?

Dgreen: Not really. The only experience I would say is Sims but that's not really, I could imagine how they would be based on the Sims games that I always play and I was like hmm they're way more interactive, I really like them better [laughs] I wish the game was like that. I'm obsessive with that game, when classes are done I'm like 24 hours Sims mode and then afterwards I kill them off and I'm done [laughs]. Yeah so I kind of imagine them like that and when they were more interactive I was like yes, bring that to Sims [laughs]. But they are way more well-behaved than an actual classroom, it was awesome.

I: I see, what similarities or differences did you see with Sims or any other games that you've played?

Dgreen: Edgar, he reminded me of one of the students at [the school she works at] actually. He actually reminded me of him because he doesn't speak a lot but he is expressive like he is excited all the time, jumps up and down, he just reminded me of him a lot. So kind of good to relate and kind of with Edith, we heard one of the kids doesn't speak much, he just nods and shakes like this so I was able to like I didn't do it with my group so I planned the lesson like everything and just met up with them and said here you go, is that gonna work? And they were like yeah, we're done [laughs]. So yeah that's how it worked with us because I guess the experience from [workplace] helped a lot with the ESOL kids.

I: Did you do that lesson with TeachLivE or with the [workplace] students?

Dgreen: With TeachLivE first and then I used what I learned from TeachLivE for them and so a different reaction I was like huh, this is cool. Cause I learned that asking them more simple questions was good to bring it down a little bit and actually help them interact more so I was like huh, let me do that and he started having more interactive response to the point that his mom noticed and kind of pulled me aside and told me something about it and she said thank you and I was like oh my God.

I: Wow, that is cool.

Dgreen: Yeah just learning from something like just making a lesson plan for TeachLivE so that was cool.

I: That is really cool. Did you go individually and have that lesson?

Dgreen: Yes with [name of the student] I definitely worked with him and he has braces and doesn't respond generally but when I started changing the questions and doing things differently he started responding and his mom was so happy. Cause usually when he is kind of acting out they just put him in the corner and instead I went to talk to him and she was impressed with that.

I: That's impressive. Good job.

Dgreen: Yeah, I wasn't really doing anything really [laughs]. I just did what I learned from the lesson not anything differently so yeah it really showed me I guess.

I: What did you do differently?

Dgreen: I changed my ... like I used to say "hi there, how are you doing?" instead I went like this and I started doing sign language a little bit and I was like "do you wanna learn?" and he said yes and I was like "then you need to say hi to me" and then he was smiling and started talking and responding to me and then his mom came over and she was like "Woah, I've never seen him like this before" so yeah.

I: That's great, so you used gestures and body language?

Dgreen: Yeah cause he was still in that moment and she was like when he is that moment you need to give him like 15-20 minutes but no I did not do that I just went to him right away and he reacted to me differently. She was like if you talk to him, he screams and I was like no screaming here [laughs]. That was so cool.

I: Did you say that you practiced the lesson with the TeachLivE avatars before?

Dgreen: yes.

I: And that was not as part of the group?

Dgreen: When I went to see them and say hello to them and stuff like that with the first class procedure thing, I kind of did a little bit and then I kind of imagined them and asking them simple questions... and the teacher said how you have to break down the words so I did that and I was like procedure means a series of steps and did all these stuff and worked from them and I was like huh, I wonder how this is gonna work where I work right now and I was like yeah let me try it and it worked.

I: Great, I'm glad to hear that.

Dgreen: Yeah cause it's a perfect time, it's ESOL so I just wanted to know if it worked because I always used to go to a private school so I didn't have that experience until going to a different school and experiencing that.

I: With the English learners?

Dgreen: Yeah, I think I'm going to go back over and over again because it's really cool.

I: so do you think your experience with Sims helped you in any way with TeachLivE?

Dgreen: It kind of gave me a glimpse of what to expect as far as the interaction with them but that's it, but it was way more interactive with TeachLivE.

I: Have you had any experience with mixed-reality classrooms before having TeachLivE™ in your class?

Dgreen: No, this was the first time which was really cool. I went to kind of ask them questions and stuff... at first I was kind of nervous but then she told us ahead of time, she said make sure you ask them questions and don't just sit there and I said to a friend of mine "Can you go up with me so we can ask them some questions?" and having her there kind of helped a little bit. We just picked their brains.

I: Oh, ok. So it was more helpful to have someone there with you?

Dgreen: Yeah the first time cause it was kind of a little bit weird talking to a television [laughs].

I: Alright, thank you. What were your thoughts or perceptions about the EL cases, Edith, Edgar, and Tasir before meeting them as avatars?

Dgreen: Well I read about them so I thought I knew what I was getting into until the day of actually teaching the lesson and realizing that maybe my question for Edith was a little bit too hard. Because she could only nod, she couldn't even... I think we said point and that was the best way to say cause we had to change our question to a yes/no answer for her so I was like woah, not even pointing works so different strategy.

I: I see. What had you read about them before?

Dgreen: About Edith? I thought she could like make gestures and maybe she could like point to something or I don't know. I thought that was part of it because it's hard for her to communicate,

so she can nod and shake so I feel like maybe doing some gestures would work also but I wasn't sure.

I: Oh, you weren't sure? But what you had read about them do you think was a good representative of what you saw as the avatars?

Dgreen: Yes, it was. It helped me understand it a bit better cause I read about her and I had this one thing in my head and then after talking to her I was like Oh Ok, I do have to adjust it a little bit.

I: I see. What about Edgar and Tasir?

Dgreen: Umm no it didn't change with them. It was the same.

I: Had you imagined them differently than what you saw?

Dgreen: I didn't imagine them that was good so no.

I: Ok. How do you compare the avatar students with real students? Please share your impression of what they might have in common or the differences you noticed?

Dgreen: They have in common Sean and his attitude [laughs]. There is this little boy his name is Wyatt in my class. He always loves attention, Sean reminded me of him 100% [laughs]. The rest of the kids like I said Edgar there is a kid that I identified him with so I put him there and then Edith was the same but with Tasir and the other child. Oh my Gosh he was so sweet, he was so respectful and I was like I know someone like that. I was someone like that so I was like yeah it was so cool to see. It's because you have like this great grandmother and older person like you

know pushing respect so you have to be like, “Yes, Ma’am”, “No, Ma’am”, “No, thank you”. It is still ingrained in me now and people don’t like it, they’re like “Don’t call me Ma’am”. They really feel insulted when you call them Ma’am and stuff but it’s always like that. But yeah I always used to say “Yes, Ma’am” and stuff like that so he reminded me of me [laughs].

I: Wow, that’s so cool. So you could find someone like Ed, Sean, Edgar, Edith but not Tasir?

Dgreen: Yeah just not Tasir I couldn’t find someone to connect her with but yeah everybody else I did. And then later I met this girl she had long blond hair all curly and had flowers in it and her name was Sara and she was so sweet and I was like yeah, she could be Tasir cause she was talkative and I was like oh my Gosh.

I: Was she an English learner?

Dgreen: Yeah, you could hear the accent in there so I was like yeah, that’s Tasir. But she’s been here for about two years now so ...

I: and how old is she?

Dgreen: She’s 6.

I: Oh, cool. What about your students that you thought were kind of similar to Edith and Edgar, what was the similarity that you found between them?

Dgreen: Hard to talk and really express themselves so they just stay quiet. Especially Edith, the boy that I know he just stayed to himself because he wanted to express himself but it was hard for him to do it so he went to the corner and stuff without doing anything. Yeah so I saw that a

lot and I kept saying “hey, go play” or went to ask him something and he would just sit in a corner most of the times because he couldn’t express himself or talk to kids or do the normal things that they did so he just sat in a corner, isolated from them most of the time.

I: same as Edith?

Dgreen: Well, yeah. I would imagine she would do that because she can’t really communicate like I tried to imagine Sean trying to have a conversation with her and how she would react to that. Maybe that’s the way I saw it in the classroom with the two other kids.

I: Alright, thanks. What were your thoughts when you first met the TeachLivE™ virtual classroom for the first time in class during the Classroom Procedure workshop? What do you remember from that workshop?

Dgreen: It was fun, very laid back. The beginning was like explanations and I was like oh, ok cool, we just learned this so we were all participating. And the second part was like oh, cool, let the fun begin especially when Sean started talking and we started laughing so it was really cool.

I: What did you think about the way the workshop was organized and the content of it?

Dgreen: It was good. Maybe a little too much explanations before the avatars but we get it because we just had the class talking about procedures and then we go to the classroom and

they're talking about the same thing so I was like, oh I thought we're here to meet the avatars

[laughs]. But that was the only thing.

I: So you wanted the avatars section to be longer than the explanation?

Dgreen: Yeah cause we just had the explanation in class maybe that's why. If it wasn't a repetitive thing it was ok.

I: And what did you think about when the section with the avatars started?

Dgreen: We were all curious to see how they are so we wanted to see that part. We thought it was fun.

I: Did it meet your expectations?

Dgreen: It was higher cause I was imagining Sims so it was better, more interactive for sure.

I: Ok, thank you. Now let's think back about your group teaching experience, what do you remember about that one?

Dgreen: I hated that I drew the straw to do the presentation, I hated that [laughs]. And then afterwards I was like I know the materials but I didn't wanna do it so I hated that I messed up with Edith and I kind of rushed through it a little bit cause I was nervous. Because I'm capable of doing it much slower and better so after the presentation I felt like I could have done better cause it was a good lesson.

I: What happened with Edith?

Dgreen: I talked too fast first of all, I had to slow down and repeat the question with her. I had to change my question because it had to do with pointing so it was... then I had to change it to yes or no so it was just that.

I: Did the coach pause you and said try this?

Dgreen: No, she kind of looked at me and I changed my question then she was like it was good that you changed your question. She said you just didn't stick to one like repeating the same question over and over, I just changed it immediately.

I: Ok, great. Do you think the coach and the coaching part was helpful?

Dgreen: Yeah especially afterwards telling you like you rushed too much or you didn't or you didn't do that so that was really helpful because it can help you with your future classrooms.

I: Did you think it would have been better if she paused you and said try this now or was it better to give the feedback afterwards?

Dgreen: Yeah maybe if she had paused and said "slow down", I didn't realize that I was speaking so fast cause sometimes I don't notice and I just go so I feel like if she had maybe said pause for a second, deep breathe, slow down then I would have zoned in and out and would be more calm for the second time.

I: Do you think it would have made you more nervous?

Dgreen: No, cause I would have just slowed down and go with my pace now. I was nervous that's why I was rushing through, just wanted it to be over with.

I: I see. What was the difference between the first time and the second time that you saw it? Cause you said that you were excited about the first time.

Dgreen: Yeah, the second time was more like you were giving them a lesson and people were watching you, all these people it's not just your group. It was like more nerve-racking. It's not really teaching the kids, it's more like your pairs watching you in the room. It's not just kids around. It would be different if it was just kids and the screen, the instructor there and your group not all of this pressure. So that's when the nerve sets in because my peers were like watching me.

I: Cause in the first one you had to be in the classroom too what was the difference?

Dgreen: Yeah but it was more laid-back. It was for fun, not really for a grade or teaching or something serious.

I: So you said that you would prefer if it was you, your group and a coach?

Dgreen: Yeah the three of us and the coach.

I: Would you like to have an individual session with them?

Dgreen: Yeah, that's even better. My nerves would have been gone [laughs]. Cause it's just the room everyone in the back of me, all my peers like judging, watching so yeah.

I: Ok, thank you. Do you remember any details about your lesson with the avatars?

Dgreen: I remember our procedure which was the fire drill. I remember I did a T-Chart for Edgar to like you know explain the words that I was using like explain the procedure as a series of steps so I did a T Chart for him. For Edith I did step 1 and 2 and used a lot of pictures and for Tasir I don't remember what I did for her particularly but I did something special for her also and I used both the front and the back of the poster. Made it really colorful cause everybody commented on how colorful it was and how impressed they were about the T Chart and explaining cause they didn't think of that so that was cool.

I: Alright, Could you explain any aha-moments you had during your interaction with the avatars?

Dgreen: Like I said during the part with Edith that was the aha-moment, the pointing and stuff and not knowing that maybe something as basic as that she's not quite there yet.

I: Do you remember what the question was that you asked Edith?

Dgreen: I think I told her to point to step number 2 and there was three steps and then I asked her about step number two and I asked if it was correct or wrong and then she was able to say yes or no once I changed it.

I: Ok, thank you. How have your perceptions or beliefs about your teaching and reaching English learners changed after your experience with TeachLivE™?

Dgreen: I think I have to have more patience.

I: With the students?

Dgreen: With the students and you have to have like repeat and if they still don't understand then you have to try to adapt it and make more simple so they can understand it and that can help with a lot of pictures, a lot of hand gestures like me, you stuff like that. More elaborate teaching let's go that way.

I: Ok, thanks. What are your thoughts about using a mixed-reality environment for teacher preparation to reach the needs of ELs? In what ways do you think it should be used?

Dgreen: It's good because it teaches the kids about ESOL students and it makes them know how they're supposed to prepare a lesson to deal with every student in the classroom so every student has their needs met. So I do like it.

I: Do you like it to be more included in the teacher preparation program that you are in?

Dgreen: Yes, it should be. They should have more software towards that part of it because it does help a lot.

I: How do you think they should incorporate it more?

Dgreen: We only had one, maybe two. The first one was more like for prep, it's the first time you're doing the lesson and you have a coach there, so the second time you can do better because now that you know what you're supposed to do and what not to do cause you had a coach helping you and you did the first one with all the assistance in the world. The second one would be better because you're more ready and you know what to do.

I: Do you think it should be the same like for example a procedure or something else that you'd like to go in and practice?

Dgreen: The procedure was good cause it doesn't matter about the lesson, it's how you teach it. You could try to teach us like certain things to say and do.

I: Do you think the timing was good? Was it too short or too long?

Dgreen: That depended on us so ... ours was too short because I was rushing through it, so we were done in record time [laughs]. Most of us did the same thing, we rushed through. That's why I said the second time around then we would know from the first experience and do better the second time around.

I: Did it help you to watch other people do it first?

Dgreen: We were nervous. I just wanted to get it over with. I was like just call my name, let's do this, let me do the presentation then I'll be relaxed and then I can listen. Until then it was just like ohhhh [imitates being nervous] those nerves [laughs].

I: Would it have been better if you were the first group to go?

Dgreen: Yeah, then I could have listened to others [laughs]. And the last person that went she was like really good, I was like darn it [laughs]. I was like she's really good and I can't do that. I was so mad at myself and I kept telling her that. I was like I don't like you right now, don't talk

to me [laughs]. Cause she did so well, I was like I don't wanna see you right now [laughs].

I: I'm sure you can do as well as her.

Dgreen: Yeah so for her anybody that went before she learned from them what not to do and that helped her. For me that would not have worked because I was just like in my nerves state I was like I cannot hear you [laughs]. So it worked out for her and I was like fine, I get it.

I: Would you ever volunteer though?

Dgreen: No [laughs]. Cause she bought... one of my group members bought the poster but I actually designed it front and back and I made the lesson plan. So it was just ... I did all the work and I was like what about you do the presentation, that's how I felt. Maybe that's why.

I: You didn't think the work was divided equally?

Dgreen: No because I had an idea. I put it down on paper. Typed it and brought it to them so instead of us discussing... I thought they were gonna say oh, I have this to add or that to add but they were like no, we'll go with yours. I was like oh, ok. That was the end of the meeting. It was supposed to be like an hour, we spent like 6 minutes and we were done. And then I got picked too and I was like darn it [laughs]. I felt like I did this on my own instead of in a group so yeah...

I: Did any of your group members help you when you were teaching?

Dgreen: Yeah they did. They held up the poster and stuff because we could pull of the steps 1, 2, and 3 so they held it up and stuff. Plus we had extra pictures for Edith so we could like hold it up and stuff.

I: Yeah. Would you have volunteered if it was just you and the avatars and a coach? Just Individual sessions?

Dgreen: Yeah cause I would want that training.

I: How would you like that session to be? Would you like to have your own lesson plan and bring it in to teach?

Dgreen: My own lesson plan yes and if I'm doing something she stops me right away so I can correct it and just change it and go on. Yeah, definitely.

I: Would you like each session to focus on one skill or no just like any lesson you can bring and teach it?

Dgreen: No I liked that it was a procedure or something cause it kept us on the same kind of lesson base. Cause we can bring some stuff that may not be good for kids like too many ranges.

I: So if you were to think of a perfect way to use TeachLivE in a teacher preparation program What would it be like?

Dgreen: I think I would have it incorporated twice. Just to make the students feel more comfortable with it. I don't know how you would incorporate it second time cause our stuff is pretty packed and we did something for every class so I'm not sure how that would be in there.

I: Do you mean kind of the casual interaction with them more?

Dgreen: Yes, maybe a little more comfortable, maybe meeting them a little bit more or having the option to do so. Like they would be set up in this room and if you want you can go and do this. I think I'd go and get better.

I: How long do you think the ideal session would take?

Dgreen: Maybe for most 20 minutes or 30 for most.

I: Like some parts of a lesson?

Dgreen: Yeah.

I: Alright, thank you. If you could change anything about your experience with TeachLivE what would it be and why?

Dgreen: My lesson [laughs]. My lesson delivery and how I taught the class that's it. Rushing through it like imagining me doing it perfect so that's it.

I: Ok, and last question. I kind of asked it before but would you like to participate in more

TeachLive sessions to practice your teaching in the future? Why or why not?

Dgreen: I would. I think it would help me more with actual kids. You know like it did just like that one if we could just do that with a brief session, imagine what else it can do if I know a little more. Cause I'm gonna go back to the same school so it's like yeah, I can use whatever I learn and practice it in the classroom and see what happens. Cause once you know what there is and gonna be then you're going to continue doing the same thing cause you want that result so that's how I see it.

I: How about if we change their level of behavior? Cause this one was level zero so they were at their best behavior, do you think you would like to participate in a session when their level is higher?

Dgreen: Oh my goodness. I would need to take a class for that like would you say something Crazy and be like "sit down". How would you react in that? So yeah because chances are there are going to be some problems in some classrooms. I haven't dealt with it yet but I heard some of the students' stories about their JA experiences and some of them have dealt it with it. So maybe we could learn from that too. Especially for those who've dealt with and how you're supposed to react to that situation cause they didn't know how to react. Most of them said they just froze or didn't say much. Like classroom management skills cause it's the teacher's classroom and you don't want to impose yeah.

I: Yeah, any other thing that you think would be helpful to practice with TeachLivE?

Dgreen: Like behavioral for sure cause most of the students complained about that in their field experiences but I didn't have that problem. Cause there were tons of helpers in the class. There were parent helpers, school helpers, a general teacher and then there is a special Ed teacher so they have a lot of help.

I: If there was a TeachLivE course, would you take it?

Dgreen: yeah, I would.

I: As a course on its own or as an elective?

Dgreen: As a course on its own just to learn more and to interact with them and see. Especially since you said there are different levels and it was like level zero and it's different levels, I'm like huh now I'm intrigued I wanna learn more. I wanna know if I have to deal with that how I would react to that and what is appropriate to do and what is not appropriate to do. So I feel like that would give us the experience to just know how to deal with all those stuff.

I: And do you think it should come before your actual service learning?

Dgreen: Yeah or during it. Throughout it so while you're doing that you're learning. So whatever you learn from the class you can take it. Not everybody will, some people will and do it. Cause a lot of complaint has been made about a teacher's attitude and different things that they noticed they could take it from that class and bring it to the classroom. So that would be helpful. Cause then they know how to practice and when you practice it, it stays more in you than just learning it and later trying to remember it. So you can practice it's like ok.

I: Alright, thank you so much. Anything else that you would like to add about TeachLivE?

Dgreen: No, that's it.

[The interviewer thanks the interviewee again and lets her know about other opportunities she can use to interact more with TeachLivE.]

APPENDIX P: SAMPLE OF DATA ANALYSIS

Focus Group 3- Color-Coded and Analyzed

36 Brittany: Well, we've learned about them pretty much in all of our classes since I started here so
37 I feel like I knew the basis of each one of them like levels but it was different seeing them live
38 and actually like hearing their responses.

39 I: How was it different?

TCS' General Perceptions
→ personification of the EL cases

40 Brittany: Um just because when you read about something like they don't really tell you have
41 they'd respond. They just tell you what you should ask so it was cool to hear how they respond
42 because you realize sometimes that you didn't ask it right because they didn't understand you.

43 I: That's true, and which was the first class that you read about them or learned about them in?

44 Brittany: I think the first TESOL class. There is one before 4080

→ General Perceptions + current v-se

45 Ri: In most classes we do lesson plans, modifications for each of them. Read about their cases
46 studies, listen to like little audio clips of them so we knew a lot about them, their levels but it was
47 cool to have interaction with them you know. It's put a face to the name type thing.

48 I: Were they what you expected they would be? Like how they interact or how they look even?

49 Ri: Not how they looked, like Tasir

50 Brittany: Yeah Tasir looked different I think

→ TCS' general Perceptions
Believability of the avatars

51 Ri: Yeah she just seemed like... she didn't seem like she had any language barrier, you know I
52 mean she was fluent but... well she just looked Caucasian and she didn't to me look ethnic
53 which sometimes that's what you associate with a language learner but it's not true, there's
54 Caucasian language learners too.

→ Tasir did not look authentic /
TCS' misconceptions

Focus Group 3- Color-Coded and Analyzed

55 Sprite: I met them in my TESOL class already so I kind of knew what to expect this time when
56 they were there but it was still surprising. I didn't expect it to be like that kind of real when they
57 came into the classroom.

→ importance of taking ESOL strategies course

58 I: what were your thoughts before you met them in your TESOL class?

59 Sprite: Umm I guess it was kind of like reading about them it was different than seeing them in
60 person. Like reading about them it was kind of like you still had the unknown of how it would
61 actually happen in real life with you and students and then this kind of helped a little bit cause it
62 allows you to talk on their level and see how they would react if they were asked a question so it
63 helped.

TCS perceptions of the current use of Teachlive™

→ real-life features

64 Cookie: For me it was a good experience to have the experience to work with English learners to
65 see what to expect... I think the one thing that surprised me the most was like Tasir because I did
66 not expect those good responses at all. Like I met them in my TESOL class I kind of had a clue
67 of what to expect but at the same time I didn't like expect the answers that I did get from them.

↳ level of proficiency of the avatars

68 I: For Tasir?

69 Cookie: Yeah.

70 I: What about Edith and Edgar?

teaching strategies + avatar believability

71 Cookie: For Edith I knew there would be some difficulties but at the same time I knew how to
72 like kind of void it to where she could at least understand it and think about and not like jab it in
73 her face or anything like that so... and then Edgar it was a little weird cause I didn't... for him, I
74 felt like it was a lot more, I feel like I was a little more prepared for him.

Focus Group 3- Color-Coded and Analyzed

75 I: Were you prepared or Edgar was more prepared?

76 Cookie: I feel like Edgar was prepared to answer the question like he knew I was gonna ask him

77 a question, he was ready to like answer it so it was a bit different than what I expected.

78 Kel: It wasn't as real life to like when I was reading about them I wasn't thinking about like a

79 backup plan. I was like ok I'm gonna ask this and they're gonna answer it but then when the real

80 life happened I was like ok I need to think of something else. So it's kind of cool that you have

81 the practice cause in a classroom you know that's it, there is no going back for practice so...

82 I: That's true, do you have any examples of how like that happened? Like you were like oops

83 they're not answering or I need to have a backup plan?

84 Kel: Umm like when they put their head down, I was like uuuh how do I say? Do I like point to

85 this word as I'm saying it? Do I act it out? And stuff like that.

86 I: And you were not expecting those? Ok, thank you. How do you guys compare the avatar

87 students with real students? Please share your impression of what they might have in common or

88 the differences you noticed?

89 Brittany: I think they're realistic with their answers. It's clear that they see us and can respond to

90 what we say and it's not just like automatic responses but um I guess that they can't do things

91 like some of my procedures were like raise the pencil and they can't do that so I can't.. like that

92 would be a way to help a real student, would be to have them actually do it which they can't and

93 I guess it's a major difference for me.

94 I: So the physical things that they couldn't do?

→ backup plans, teaching strategies

→ practice opportunity

TCS general perceptions + current use

→ realistic
not automatic

Avatar movement
restrictions

Focus Group 3- Color-Coded and Analyzed

95 Brittany: Yeah, the physical part of it.

96 Ri: Yeah, they can't all reply in unison you know like you can't do like a group response, it's

97 just one at a time that made a little less realistic.

→ reply in unison
less realistic) movement
restrictions

98 I: Anything you thought was similar to real kids?

99 Ri: Yeah, the way you feel like I assume when you're teaching like the first time you meet your

100 students it was like cause that's the first time I've done that with the avatar thing so it was a little

101 nerve-racking you know. It emulates properly the emotions that you'll go through so that was

102 similar to a real classroom. To go up in front of them and public speaking you know. It simulates

103 a classroom really well.

video game dissimilarities, realistic interactions
similar emotions to real classrooms

104 Cookie: I would agree with what they both said like you know the limitations between the

105 avatars and being in an actual classroom, physical kids like do the things that we'd want them to

106 do so that they can have the practice. I think it's pretty dope to actually teach in front of them I

107 think it'd be the same as like the first day of being in front of a classroom to teach cause we're

108 not on the student side anymore we're on the teacher side.

physical limitations

109 I: Did you guys feel like you were teaching avatars or did it feel like as if you were teaching a

110 real class?

111 [Everyone says real class.]

TC's perceptions about the current use

112 Kel: I think it prepares you well cause it's more nerve-racking teaching the avatars with people

113 watching you than it is in a real classroom so after you did that going in a real classroom it's not

114 as bad.

→ Teaching in front of peers
nerve-racking

Focus Group 3- Color-Coded and Analyzed

115 I: I see, so it was more stressful for you being in front of your peers?

116 Kel: Right but in a way it's a good thing, it's like a preparation thing.

117 I: How would you compare them with real students?

Believability of the avatars

118 Kel: I would say...like a younger child would respond with silly things and so did the avatars so

119 that was a really good similarity between them. *→ realistic behavior*

120 I: Any differences that you thought..?

121 Kel: Just the appearances. *→ appearance differences*

122 Sprite: I think emotionally they were like real students but physically they did have the

123 limitations. It would have been easier to teach these procedures if they could actually you know

124 physically talk all together, like stand up... so that was the only limitation but I feel like

125 emotionally on point as real students. *→ Physical/movement limitations*

Short time

126 I: I see, did it take you a few seconds or minutes to feel like ok this is a class that I'm teaching

127 and they're kind of similar to real kids or realistic or was it from the very beginning that you felt

128 like it's my class with students?

→ realistic

129 Ri: Maybe just a couple of sentences

130 Brittany: Yeah, I kind of from the very beginning cause we walked in and they were like hi, hi,

131 like they respond right back. There wasn't like an awkward pause or anything.

132 Ri: Yeah, before they speak it feels kind of strange standing in front of a TV but then once

133 you're interacting then it's fine.

Focus Group 3- Color-Coded and Analyzed

134 I: Great, thanks. What were your thoughts when you met the TeachLivE™ virtual classroom for
135 the first time in class during the Classroom Procedure workshop? So let's think back about the
136 classroom procedure workshop an instructor came in and they had the cart in your class for the
137 workshop what were your thoughts about the workshop? Anything that comes to your mind?

138 Ri: It was a good introduction to prepare you for what to expect

139 Brittany: Yeah cause they modeled it for us, talking to them

140 Ri: Cause they made us go up there I think

141 Brittany: They had a couple of people go up and test it out

142 I: Did any of you guys go up there to talk to them?

143 Kel: Yeah I did. I wasn't like mentally prepared for it at all. She was kind of like you go up so I
144 kind of like froze awkwardly... but for the most part you can put yourself together and ask them

145 a yes/no question you know → leveled questions

146 I: So you didn't volunteer to go?

147 Kel: No [laughs]

148 I: Would you though? Would you have volunteered if you weren't asked to?

149 Kel: Umm if I knew what I wanted to talk about. But when I'm nervous I just can't come up with
150 things randomly.

151 Sprite: I think talking to them would have been easier if it wasn't in front of like all of your
152 peers. It was really the only thing.

→ teaching in front of peers

Focus Group 3- Color-Coded and Analyzed

153 [Other TCs confirm.]

154 I: Would you have preferred it to be one-on-one just you and the avatars?

155 Sprite: Yeah I think it would have felt like a lot more comfortable instead of everyone watching

156 just you.

157 Ri: or if you're in a group

158 Brittany: Yeah, I think maybe just a group cause I think it does go both ways like I was

159 obviously nervous to get up and do it in front of everyone because you don't know what the

160 students are gonna do back to you or throw you for a loop in front of everyone. But we also got

161 to see mistakes that other people made and try and fix it when it was our turn and try not to... so

162 it helps both ways but it is more nerve-racking in front of people your age

163 [other TCs agree.]

164 Ri: But you'd probably get more out of it kind of doing it in front of people even though you feel

165 uncomfortable and you kind of don't want to put yourself in that situation but it's probably best

166 to do it that way cause you're gonna have to teach in front of people coming to your classroom

167 all the time and you know like principal and whoever

168 Cookie: Like parent-teacher conferences → Future use?

169 [other TCs agree]

170 I: For the classroom procedure workshop it was in front of the whole class whereas when you did

171 the group teaching section it was in smaller groups, how did you compare those two? Which one

172 did you think was less nerve-racking or better in general or your thoughts about them?

individual sessions → teaching in front of peers

→ TCs' perceptions about current + future use

→ Group teaching Teaching in front of peers

↑ positive aspect

→ Future use?

Focus Group 3- Color-Coded and Analyzed

173 Ri: [pointing to Kel] she had to do it for the class thing.

174 Brittany: I didn't have to do it but just watching in front of the whole class, it wasn't like they
175 were going up to teach them something. They could go up and be like what do you like to do on
176 the weekends? So that part is more casual and easier but I didn't have to do it so I don't know
177 but it's so that it would make it easier but it's more nerve-racking cause you're actually teaching
178 something. We had to ask them questions when they responded in the smaller group.

179 Kel: I think everyone was nervous so that's kind of comforting as well cause we were all on the
180 same boat. So I like felt for the person up there so like when they made a mistake, I make
181 mistakes too so...

182 I: So it made you feel less nervous? Did you think that the classroom workshop was helpful at all
183 like for easing you into your experience?

184 [everyone says yes]

185 I: Is there anything that you feel or think could be better or changed? Like for example I think it
186 was fine or I didn't get this part or any thoughts about the workshop?

187 Brittany: They modeled one for us so we got to see. If I had gotten thrown in to just having to
188 teach them and never having that workshop I would have been way more nervous to not know
189 what it was all about

190 [Other TCs agree]

191 Ri: Yeah it was great that we got to see them and see how they were gonna like respond and their
192 personalities → getting to know the mentors before DTLs

Focus Group 3- Color-Coded and Analyzed

193 I: Do you like you said that casual interaction was helpful also?

194 Brittany: Yeah cause it shows you they are real, it's not just automated responses, that they can
195 see and what you do.

→ realistic features

196 I: Ok, thank you so much. Alright now let's go to the second experience that you had with them
197 which was the group setting, tell us whatever comes to your mind or what you remember from
198 that day and how it went and how you were expecting it to go?

199 Brittany: I was one of the last to go so I think mine was a little easier cause I got to watch
200 everyone else and like the minor errors and just how to work it and stuff. But I also had like the
201 leveled-questions out and when someone would ask pretty much the same question as me like
202 what is step one to a certain kid and they were like no that's more suited for this kid, so I was
203 like switching them around on my paper before I went... So it kind of was helpful for me going
204 last but ... [pointing to Ri] you were first right?

teaching in front of peers
+
Group teaching

205 Ri: Yeah yeah, and Edith like put her head down and I was like oh gosh [laughs] because I said
206 like do you do that first or something so it was confusing to her.

gestures / body language

207 I: Do you remember what the question was?

208 Ri: I think it was do you write your name first? So the wording I would've got rid of first
209 probably if I redid it then... the feedback after was good when you and I don't know the other
210 lady but when you would kind of tell us how you felt we did and what things we could improve
211 that was helpful.

the importance of feedback
and coaching

Focus Group 3- Color-Coded and Analyzed

212 Cookie: For me it was very nerve-racking just in general because like I know in my group we
213 had planned it and we went through it but myself I felt like I couldn't do it [laughs] ... my mind
214 freaked me out, I was like hahahaha not today [laughs]... so for me, I got up there and I was like
215 I started shaking and I was like I can't do it, like how am I supposed to teach them? ... so I went
216 through it, I was able to like ask the questions, the leveled-questions for each one, I was able to
217 ask like a general question for like Ed and Sean so that I could involve them as well and not
218 leave them out.

→ Group teaching + teaching in front of peers
teaching strategies

219 I: I see, do you usually feel the same way when you're teaching in front of your peers in general
220 or was this particular experience?

221 Cookie: I think it was just those people watching so it made me nervous like people are watching
222 me [laughs].

→ peers

223 Ri: You mean the rest of us, like us in the room?

224 Cookie: Like my peers watching me like I can't do this

225 Brittany: Do you feel the same way like with presentations in front of us?

226 Cookie: Yeah cause presentations in class, I just can't do it

227 Sprite: I'm the same way so I know exactly how you feel.

teaching in front of peers

228 Cookie: I just can't [laughs] if it was actual kids with nobody else I'd be like ok, let's do it, I can
229 do this but I have kids watching me I'm like ughh [laughs] I don't know what I'm supposed to be
230 doing.

TCS perceptions about the
current use of TeachLivE™

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