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A Functional Assessment of the Use of Virtual Simulations to Train Distance Preservice Special Education Teachers to Conduct Individualized Education Program Team Meetings

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A FUNCTIONAL ASSESSMENT OF THE USE OF VIRTUAL SIMULATIONS TO TRAIN DISTANCE PRESERVICE SPECIAL EDUCATION TEACHERS TO CONDUCT INDIVIDUALIZED EDUCATION PROGRAM TEAM MEETINGS

by

Lee Landrum Mason

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ABSTRACT

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Utah State University, 2011

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The individualized education program (IEP) is a critical component of providing special education services to children with disabilities, outlining the services and modifications that will be provided to help them make progress towards the general curriculum. While simulations have been shown to be an effective means of teaching special education policies and procedures, this can be challenging when working with distance students. The purpose of this study was to identify and examine how virtual simulations function to train preservice teachers learning to conduct IEP team meetings.

Seven preservice special education teachers enrolled in a mild/moderate distance degree and licensure program participated in this research. Through multiple case study analysis, this study examined the specific behaviors emitted by each participant throughout these simulated meetings, as well as the antecedent stimuli and consequences

controlling these behaviors. Additionally, participants were each asked to construct rules, based on their own simulated experiences, to govern their future behaviors for in vivo individualized education program team meetings. Results indicate that virtual simulations served a variety of functions for training teachers to work on a collaborative team, including increased practice opportunities and self-efficacy to collaborate with parents in the future. Although teacher trainees had difficulty generating complete verbal statements to govern future behaviors, each was able to identify discrete antecedents, behaviors, and consequences responsible for controlling their actions throughout the simulations.

(361 pages)

DEDICATION

This work is dedicated to Stacy and Brooks, who provided me the encouragement, motivation, and support to complete this project and my degree. Always…

FRONTISEPIECE

Virtual meeting in TeacherSim

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Lee Landrum Mason

PREFACE

Traditionally, applied behavior analysis relies on observable, measurable behavior or by-products thereof as the primary source of data upon which to report. The behaviors under study in this research, however, are those performed in IEP team meetings, as well as the development of verbal statements to control future IEP team participation (i.e., rule-governed behaviors). Clearly these are composite actions made up of a variety of smaller, more discrete behaviors. Therefore, selecting particular behaviors to record and measure over the course of an IEP team meeting proved troublesome. These meetings, which can often end up lasting several hours, consist of countless topographical responses which may occur as often as 1,000 times per minute (Calkin, 2005). Instead of attempting to delineate the relevant operants, I asked my participants to identify the behaviors they considered to be most pertinent throughout the meeting, along with their corresponding antecedents and consequences.

The primary source of data in this study comes from verbal self-reports collected through participant interviews, with additional data supplied by observations and the examination of permanent products. Radical behaviorists accept that internal behaviors can be measured and observed, even if only by the performer him- or herself. Although these events cannot be validated or tested for reliability, I have chosen to accept them as a valid form of data for this study. Therefore, when I write a statement such as *The participant felt that the simulation was real*, I am not claiming to have measured or observed how she felt about the simulation experience. I am simply relaying her tact of an internal response to a stimulus in the virtual environment. Additionally, this facilitates

reading through the manuscript.

By examining such a large unit of analysis, I am no doubt compromising experimental control. As with all qualitative research, however, the goal is not to establish a causal relationship between an independent and dependent variable. Rather, my purpose is to frame each operant (in qualitative research often referred to as the phenomenon or quintain) as it pertains to the individual participant, thus providing greater detail of why this response form was selected, and how it functions in the context of an IEP team meeting.

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CHAPTER I

INTRODUCTION

> "What follows is admittedly—and, as a behaviorist, I must say necessarily—a personal view."
>
> B. F. Skinner (1974)

In passing the Education for All Handicapped Children Act of 1975 (EHA; PL 94-142), Congress answered the question of *who* should have access to public education (Guttman, 1999). This law, for the first time, required public schools to provide every child with a disability with a free, appropriate, public education (FAPE) in the least restrictive environment. Thus, individuals could no longer be refused an education on the basis of a physical or intellectual impairment.

Additionally, PL 94-142 stated that a detailed individualized education program (IEP) must be established for each special education student. For students with disabilities, the IEP is a means of answering the remaining questions of special education curriculum theory. According to the law, the IEP must include: (a) a statement of the present levels of educational performance of each child; (b) a statement of measurable annual goals, including short-term instructional objectives, (c) a description of how the student's progress towards meeting each goal will be measured and reported, (d) a statement of the special education services, related services, and supplementary aids that will be provided to the child, (e) an explanation of the extent to which the student will not participate in the general education classroom with nondisabled peers, (f) a statement of individual accommodations necessary for state and district assessments, (g) the projected

date for services and modifications to begin, (h) a statement of postsecondary goals and transition services for students ages 16 and older, and (i) a statement that the child has been informed of the rights that will transfer to him or her upon reaching the age of majority (Norlin, 2007).

While much work has been done to improve services for exceptional students, certain barriers often stand in the way of the IEP process. These services are especially true for novice teachers who may be unfamiliar with legal policies and procedures, or working with parents from culturally and linguistically diverse backgrounds (Mostert, 1996). Given the importance of the eligibility process and IEP development for students with disabilities, teacher education programs need to sufficiently prepare preservice teachers on the content of special education policy and procedures. Additionally, training is needed on the ability to effectively collaborate with other members of the IEP team to develop an individualized curriculum to meet the needs of each student with special needs.

In traditional campus-based programs, students preparing to become special education teachers typically learn about conducting IEPs thorough participation in simulated collaborative team meetings staged by their instructors and populated by their peers. However, an increasing number of students receive their instruction via distance delivery systems, and implementing collaborative activities in distance programs where many students may be isolated is challenging (Glomb, Mendenhall, Mason, & Salzberg, 2009). What, then, can distance teacher preparation program do to ensure that students are prepared to engage in collaborative IEP team activities? Answering this question is

the primary focus of this research proposal.

Purpose of the Study

Simulation training literature suggests that learning through simulations can be an effective method of developing skills and becoming adept at dealing with situations that are likely to occur in the future (Fowler & Pusch, 2010; Ward, Williams, & Hancock, 2006). For preservice teachers enrolled in a distance degree program, however, geographic barriers may prohibit the use of simulation training to develop certain skills such as the collaborative development of individualized education programs. The use of Multi-user virtual environments (MUVEs) appears to be a promising medium for connecting preservice teachers located hundreds of miles apart and facilitating the use of educational simulations to teach the special education eligibility and IEP process.

To date, there have been no reports of studies investigating the impact of preservice special education students learning to conduct IEP team meetings through virtual simulations. The purpose of this study was to analyze the function of simulated IEP team meetings in a MUVE for distance undergraduate students learning to become special education teachers. Given the diverse range of individual characteristics and background experiences of each participant in this research, the extent to which these setting events differentially affected the IEP team simulations was also considered. From this research, a better understanding of the benefits and challenges of learning in MUVEs was sought.

Research Questions

In essence, this study was a functional assessment of the use of a MUVE to simulate IEP team meetings for distance undergraduate students enrolled in a mild/moderate special education teacher preparation program. Through qualitative methods, antecedent → behavior → consequence (ABC) data, the experiences and perceptions of distance undergraduate students participating in these virtual simulations were explored. The research questions guiding this study were as follows.

1. How does the use of virtual simulations function to train distance preservice special education teachers to determine special education eligibility and develop individualized education programs?
    - What do participants identify as the relevant antecedents (motivating operations, setting events, and stimulus control) for simulating IEP team meetings in a MUVE?
    - How do preservice teachers define the behaviors they engage in while conducting IEP team meetings in a MUVE?
    - What do preservice teachers identify as the consequences of conducting IEP team meetings in a virtual simulation?
2. What rules do students generate to govern their behavior while conducting IEP team meetings in the future?

Limitations and Delimitations

This study was delimited in scope to the experiences of students participating in

the *SPED 5070: Special Education Policies and Procedures* course taught in the Mild/ Moderate Distance Degree and Licensure Program at Utah State University. Most notably absent from this research are the perceptions of general education preservice teachers. Additionally there are a variety of other media for bringing together students in distance education, such as course management systems, satellite broadcasts, and teleconferencing. However, this study only focuses on the use of MUVEs.

Accordingly, several limitations should be acknowledged when considering the results of this research. This study is designed to examine a small group of undergraduate students enrolled in the same distance degree and licensure program. Although the sampling procedures were purposeful for this type of study, the homogeneous nature of the participants will create limitations in generalizing the results.

A second limitation concerns the fact that the researcher in this study is also employed as the project coordinator for a federal grant designed to restructure the distance education program to meet the highly qualified standards of No Child Left Behind. This "backyard" relationship has to be considered as possibly affecting the results. However, the impact of researcher on results is also an accepted outcome of this qualitative study, due to the required involvement of the researcher. It is important to note that dual roles of the author as both researcher and project coordinator are not conflicting. Rather, they seek the same objective: To better understand the use of MUVEs in simulating classroom activities.

There are a variety of limitations to be considered when interpreting the results of this research. Most notably, the study included relatively few participants ($n = 7$), which

therefore restricts the generality of the findings. Furthermore, the measures employed in this study were based primarily on participant self-report, which reduces measurement quality by introducing imprecise or vaguely defined data into the research. Participants may have been unwilling or unable to respond for a variety of reasons. For instance, competing reinforcers may affect responding. The preservice special education teachers may have been informed, but reluctant to share this information. Participants may have responded according to what they believe was expected of them rather than what actually occurred. Additionally, factors such as feeling tired or pressed for time may have affected responding. Participants may have strived for consistency across their responses, rather than attending to what each question is asking. Furthermore, they may have concerns about how their responses will affect what other think of them.

Dodd-McCue and Tartaglia (2010) identified eight types of self-report response bias that may have impacted this investigation of the use of MUVEs to simulate IEP team meetings. These consist of social desirability, acquiescence, leniency or harshness, extreme response style, mid-point response style, critical events, recency, and halo effect. Social desirability refers to the tendency of research participants to present themselves and their responses according to current cultural norms. Therefore, preservice special education teachers may edit what they say according to their perceptions of situational norms and expectations. Acquiescence, or yeah saying, is the tendency to agree with statements without regard to content. Acquiescence is often related to the construct of the question posed in addition to contextual factors throughout data collection. For instance, participants may be more inclined to agree with statements or questions that are

ambiguous, vague, or neutral in desirability. Additionally, respondents may be more inclined to acquiesce if contextual factors increase the demands placed on them, such as time constraints or other distractions.

Similar to acquiescence, leniency or harshness refers to participants responding positively or negatively regardless of the question asked. Extreme response style is the tendency to express the most extreme points of view. While, on the other hand, midpoint response style describes the tendency to endorse a middle road perspective, regardless of what is being asked in both cases.

The most likely types of bias in the current study are critical events, recency, and halo effects. The first two are both related to the participants' ability to recall the IEP team simulations. When dramatic events are weighted heavier than routinely occurring events, this is referred to as critical event bias. Alternatively, recent response bias occurs when previously occurring events are overshadowed by those that took place more recently. Finally, a halo effect occurs when the participant's response to a previous question or statement prompts all subsequent responding. Thus, a respondent's previous assertion provides a framework for all future responding.

Definition of Terms

Avatar—Originating from Hindu mythology, the word "Avatar" means the incarnation of a divine being. Within MUVEs, it is used to refer to a digital representation of oneself used to interact with the virtual surroundings.

Behavioral intervention plan (BIP)—A written plan for changing a student's

behavior, including target behavior, strategies for teaching replacement behavior, reinforcers, and a schedule for review of intervention effectiveness data.

Contingency-shaped behavior—Behavior that is primarily controlled by direct exposure to its contingencies.

Differential reinforcement—Reinforcing a response in the presence of one stimulus or situation and not reinforcing the same response in the presence of another stimulus or situation (Kazdin, 2001, p. 41).

Distance learning—The acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance.

Ecological fidelity—The realism of the environment in which the simulation takes place (Fritz, Gray, & Flanagan, 2007)

Eligibility meeting—A meeting of the IEP team to determine whether or not a student qualifies as a child with a disability, and under which category s/he will receive services.

Equipment fidelity—Hardware and/or software realism of the simulator (Fritz et al., 2007).

Evaluation—Procedures used in accordance with these Rules to determine whether a student has a disability under the IDEA, and the nature and extent of the special education and related services that the student needs.

Fidelity of implementation—The delivery of instruction in the way in which it was designed to be delivered (Gresham, MacMillan, Beebe-Frankenberger, & Bocian,

2000). Fidelity must also address the integrity with which screening and progress-monitoring procedures are completed and an explicit decision-making model is followed.

Free appropriate public education (FAPE)—Special education and related services that:

1. Are provided at public expense, under public supervision and direction, and without charge;
2. Meet the standards of the USOE and Part B of the IDEA;
3. Include preschool, elementary school, and secondary school education in Utah; and
4. Are provided in conformity with an Individualized Education Program that meets the requirements of Part B of the IDEA and the Utah Special Education Rules.

Functional behavior assessment (FUBA)—A systematic process of identifying problem behaviors and the events that reliably predict occurrence and non-occurrence of those behaviors, and maintain the behaviors across time.

General curriculum—The same curriculum as that provided for non-disabled students

Highly qualified special education teachers—Teachers who meet the highly qualified standards as described in the Utah State Board of Education NCLB (ESEA) approved plan.

Individualized education program (IEP)—A written document required by the Individuals with Disabilities Education Act for every child with a disability. This

document contains statements of present performance, annual goals, short-term instructional objectives, specific educational services needed, relevant dates, regular education program participation, and evaluation procedures.

IEP meeting—A meeting by the IEP team to develop annual goals and determine which services the child with a disability will need to make adequate progress towards those goals.

IEP team—A group of individuals that is responsible for developing, reviewing, or revising an IEP for a student with a disability. The required team members are the parent of the student, an LEA representative, a general education teacher, a special education teacher, and a person who can interpret the instructional implications of evaluation results, and, whenever appropriate, the child him- or herself.

Least restrictive environment (LRE)—To the maximum extent appropriate, students with disabilities, including students in public or private institutions or other care facilities, are educated with students who are not disabled. Special classes, separate schooling, or other removal of students with disabilities from the regular educational environment occurs only if the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.

Motivating operations—An environmental event, operation, or stimulus condition that affects an organism by momentarily altering (a) the reinforcing effectiveness of other events, and (b) the frequency of occurrence of the type of behavior that had been consequated by those other events (Michael, 1993, p. 58).

MUVE (MUVE)—A desktop-based, online 3D virtual environment. Also referred to as a virtual world.

Nontraditional students—Over the age of 25, taking classes part-time, working full-time, and/or residing off-campus.

OpenSimulator—An open source 3D Application Server used to create simulated 3-dimensional spaces with customizable terrain, weather, and physics.

Operant behavior—Active behavior that operates upon the environment to generate consequences (Skinner, 1953).

Parent—A biological or adoptive parent; a guardian, but not the State if the student is a ward of the State; a person acting in the place of a parent of a student (such as a grandparent, stepparent, or other relative) with whom the student lives; or a person who is legally responsible for the student's welfare); or a surrogate parent who has been appointed in accordance with the Utah Special Education Rules.

Parental consent—Consent means that:

1. The parent has been fully informed of all information relevant to the activity for which consent is sought, in his or her native language or other mode of communication.
2. The parent understands and agrees in writing to the carrying out of the activity for which his or her consent is sought, and the consent describes that activity and lists the records (if any) that will be released and to whom.
3. The parent understands that the granting of consent is voluntary on the part of the parent and may be revoked at any time. If a parent revokes consent, that

revocation is not retroactive (i.e., it does not negate an action that has occurred after the consent was given and before the consent was revoked).

Psychological fidelity—Reflects the degree to which the trainee perceives the simulation to be a believable representation of the reality it is duplicating (Fritz et al., 2007).

Related services—Transportation and such developmental, corrective, and other supportive services as are required to assist a student with a disability to benefit from special education, and include speech-language pathology and audiology services; interpreting services; psychological services; physical and occupational therapy; recreation, including therapeutic recreation; early identification and assessment of disabilities in students; counseling services, including rehabilitation counseling; orientation and mobility services; and medical services for diagnostic or evaluation purposes. Related services also include school health services and school nurse services, social work services in schools, and parent counseling and training.

Rule-governed behavior—Behavior that is primarily controlled by a verbal description of a contingency of reinforcement or punishment.

Scientifically based research—Research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and program.

Simulation—the recreation of an activity designed to provide opportunities to practice a particular set of skills or to become adept at dealing with situations that will occur in the future.

Special education—Specially designed instruction, at no cost to the parents, to meet the unique needs of a student with a disability, including instruction conducted in the classroom, in the home, in hospitals and institutions, and in other settings; and instruction in physical education.

Student with a disability—A student, ages 3 through 21, evaluated in accordance with the Utah Special Education Rules as having autism, a speech or language impairment, deaf-blindness, an emotional disturbance, a hearing impairment including deafness, an intellectual disability, multiple disabilities, an orthopedic impairment, another health impairment, a specific learning disability, a traumatic brain injury, a visual impairment including blindness, or a student ages three through seven experiencing developmental delays whose disability affects their educational performance and who, by reason thereof, needs special education and related services.

Supplementary aids and services—Aids, services, and other supports that are provided in regular education classes or other education-related settings to enable students with disabilities to be educated with nondisabled students to the maximum extent appropriate

Virtual education—Instruction in a learning environment where the teacher and the student are separated by time, space, or both (Müller, 2009).

Assumptions of the Research

A primary assumption of qualitative research is that human behavior is not random or idiosyncratic (Bogdan & Bilken, 2007). Thus, the concern of qualitative

research is not generalization of results, but a greater understanding of individual experience from the perspectives of the participants. Multiple case study analysis (Stake, 2006, 2010) was used to provide an in-depth examination of the various factors that contribute to the use of virtual simulation with preservice teachers in rural practica placements. Yin (2009) noted that the use of case studies is most relevant when the researcher wants to clarify "how" and "why" events occur within a specific context. Furthermore, Merriam (1998) acknowledges that case studies are "chosen precisely because researchers are interested in insight, discovery, and interpretation rather than hypothesis testing," and allow the researcher to "uncover the interaction of significant factors characteristic of the phenomenon" (pp. 28-29).

The specificity of focus makes multiple case study analysis an especially good design for complicated questions, situations, or occurrences that arise from everyday practice. Information derived from this analysis will provide a better understanding of how virtual simulations can benefit preservice teachers, provide a better understanding of teacher training and professional development, and examine the efficacy of simulations in distance education.

Significance of the Study

This study addressed questions related to the application of simulation training in distance education coursework for preservice teachers. As virtual education programs continue to grow in popularity, researchers must evaluate the use of distance technologies to better understand student experiences and to better meet the needs of students enrolled

in these programs. Furthermore, instructional methodology, such as educational simulations that have been shown to be effective in on-campus classes, must be redesigned to function in an online format.

A better understanding of virtual educational simulations would provide valuable insight into the ability to train preservice teachers to develop IEPs via distance technologies. This study investigates perceptions of the methods employed, provides theoretical underpinnings, and promotes the development of theoretically sound virtual simulations. Specifically, the findings of this study addressed the efficacy of conducting educational simulations in MUVEs. Thus, the intent of this study was to provide a descriptive explanation for better understanding the context of virtual educational simulations from the participants' perspectives.

CHAPTER II

REVIEW OF LITERATURE

To obtain a better understanding of how virtual simulations can be used to train distance special education students to conduct IEP team meetings, a review of the current literature was conducted. Not surprisingly, no prior research was found on this specific topic. Instead, the review of literature was broken down in to more general topics including IEP development, simulation training, distance education, and rule-governed behavior training.

Individualized Education Programs

The IEP process is a critical component of the provision of special education services to children with disabilities. The IEP outlines the services and modifications that will be provided to each eligible student to ensure educational progress. As essential a component as the IEP is, however, teaching this process to preservice special education teachers can be somewhat challenging. Unlike other aspects of a special education teacher's job, preservice teachers rarely get to witness—let alone participate in—the IEP process before graduating and taking a job with a school district (Burden, Tinnerman, Lunce, & Runshe, 2010).

The Individuals with Disabilities Education Improvement Act (IDEIA) of 2004 establishes a comprehensive format to evaluate students with disabilities, determine classification, and develop and implement an individualized education program with related services. According to IDEIA regulations, school personnel must use a wide

variety of assessment strategies to gather relevant information about the child, as well as assess the student in all areas related to the suspected disability. The school district is responsible for collecting all data to be considered for the evaluation, including observations by teachers and related service providers. Additionally, the evaluation must contain information from the parents and anyone else who interacts with the student on a regular basis (Bateman, 2010). This information is used to determine whether or not the child qualifies for special education services, as well as in developing appropriate goals spelled out in the IEP.

In addition to outlining the services to be provided to each student with a disability, the IEP also acts as a measure of accountability for teachers and schools (Heward, 2003). The extent to which a teacher or educational program is considered effective may be judged according to how well they are able to help the student meet the goals and objectives identified in the IEP. The school district must be able to demonstrate that a conscientious and systematic effort is being made to achieve each year's goals (Huefner, 2000). Apart from acting as an accountability device, the IEP offers several benefits including improved planning, consistency in instruction, regular evaluation, and clearer communication among parents, teachers, and others involved in the student's education (Lytle & Bordin, 2001; Menlove, Hudson, & Suter, 2001). For special education teachers, developing, revising, and reviewing an individualized education program can be one of the most of the important parts of their job. Essentially, this document dictates what the teacher will be doing on a day-to-day basis over the next year.

Given the importance of the IEP document, as well as the values and long-term goals unique to each family of a child with a disability, collaboration between parents and the school becomes increasingly important. However, a variety of barriers often prevent this collaboration from taking place, including cultural differences, lack of communication, and a mindset that teachers and school administrators know what is best for the student (Billings, Norman, & Ledford, 1999; Butera, 2005; Hazen, 2002).

Challenges such as coordinating schedules and finding time to meet burden both school professionals and parents (Karge, McClure, & Patton, 1995). Additional obstacles are also unique to each of these perspectives. For instance, parents may feel frustrated by perceptions of inequality on the team, inexperience with special education policies and procedures, or simply not understanding the terminology and jargon used by the other members of the IEP team (Lytle & Bordin, 2001). School personnel, on the other hand, often feel frustrated by the parents' misunderstanding of their professional limitations, as well as the perceived apathy or nonchalance often misinterpreted from the parents' lack of participation in the meetings (Mostert, 1996).

IDEIA mandates that parents are included as part of the IEP team to develop an evaluation plan, determine eligibility, create an individualized education plan, and determine placement. However, despite the emphasis on active participation on the IEP team, parents often defer to other team members' expertise (Garriott, Wandry, & Snyder, 2000; Harry, Allen, & McLaughlin, 1995; Salembier & Furney, 1997). While some parents choose to limit their participation in the decision-making process, others find their efforts to involve themselves in their child's program blocked by attitudes, diverse

backgrounds, logistics, and outside parental responsibilities (Rock, 2000).

Briggs (1997) stated that the culture of each individual IEP team usually affects the team's ability to work together towards a common goal. The culture of a team is manifested by the way participants share information, who speaks at meetings, how influential each member's perspective is in making decisions, the specific recommendations people make, and the expressed beliefs about instructional strategies and their effectiveness (Dabkowski, 2004). Therefore, team culture may affect parent participation in the meeting by the way the team structures the meeting environment, the jargon team members' use, and the respect team members give differing cultural values.

Cultural and linguistic differences can lead to conflicting beliefs about a student's ability and how special education services will work towards long-term goals and objectives. These disparities may result in differing or even incompatible goals on the student's IEP (Cloud, 1993; Lamorey, 2002). Furthermore, cultural beliefs can influence the value placed on the relationship between home and school in educational planning, a concept not valued equally across all cultures (Kalyanpur, Harry, & Skrtic, 2000).

Additionally, language preferences and practices embedded in team culture can create a barrier to active parent participation. Language barriers are not limited to linguistic differences or the use of professional jargon (Berry & Hardman, 1998). They may also exist between native English speakers and in the absence of professional jargon preventing parent involvement on the IEP team (Dabkowski, 2004). Effective IEP Teams structure their decision-making processes to address these differences when they arise, rather than merely dismiss them.

Individualized education program team members must depend on one another and support each other in order to effectively meet the needs of the student. Lytle and Bordin (2001) explained that to accomplish this, each person on the team plays a clearly defined role characterized by a set of specific behaviors. Ambiguous roles often lead to wasted time, miscommunication, and can ultimately prevent the IEP team from reaching its goal of creating a functional and supportive learning environment for the student.

To illustrate interpersonal interactions that occur during an IEP meeting Burden and colleagues (2010) recommended the use of simulation training, thus allowing preservice teachers to experience the inner workings of the IEP process while maintaining the confidentiality of students with IEPs. After viewing video simulations of IEP team meetings, preservice teachers in this study had a better understanding of what to expect when participating in actual IEP meetings with regard to advocating for students, explaining IEP requirements to general education teachers, and communication with parents. Similarly, having viewed in vivo IEP meetings, either in practica or student teaching situations, students expressed how viewing the videos increased their self-efficacy as they approached actual IEP meetings.

Burden and colleagues (2010) concluded that the use of video simulations and virtual reality simulations offer preservice teachers the ability to understand the intricacies of IEP team meetings that may be otherwise unavailable. The authors suggested that future research involve the development of virtual simulations in which preservice teachers enter a virtual world to take an active participatory role in particular case studies.

Distance Education

Students enrolled in distance teacher education programs, however, may not have the opportunity to simulate certain educational practices in a live, face-to-face context. According to Wei, Berkner, He, and Lew (2009), over 20.4% of undergraduate students took at least one distance education course during the 2007-2008 school year. This 12.9% increase in enrollment over the number reported the previous year far exceeds the 1.2% growth of the overall higher education student population (Allen & Seaman, 2008). The increased growth in distance education can be attributed to a variety of factors. A meta-analysis by Means, Toyama, Murphy, Bakia, and Jones (2009) found that on average, students learning in online environments performed better than those receiving only face-to-face instruction. Distance education programs also tend to allow greater flexibility in regard to geographic location and scheduling. Taking virtual classes eliminates a variety of traditional barriers for post-secondary students, including lengthy commutes, parking challenges, travel costs, poor road and weather conditions, lack of child-care, time constraints, and limited financial resources (Koch, 2007; Rural Students, 2006).

Choy (2002) noted that participating in distance education allows for many nontraditional students to overcome some of the barriers they encounter in coordinating their work and school schedules as well as in obtaining the classes they want. The likelihood of a student enrolling in a distance education program increases along with the number of nontraditional characteristics of that student.

The traditional undergraduate is defined as a student who enrolls in a college or university full time immediately after finishing high school, relies on his or her parents

for financial support, and either does not work during the school year or only works part time (Choy, 2002). Nontraditional student, on the other hand, is characterized by one or more of the following: (a) delayed enrollment in postsecondary education by more than one year, (b) takes classes part time for at least one semester, (c) works full time while enrolled as a student, (d) is considered financially independent, (e) has one or more dependents other than a spouse, (f) is a single parent, or (g) did not receive a high school diploma.

While inclusion of any one of these categories constitutes nontraditional student status, Horn (1996) noted that the traditional/nontraditional binary is better described as a continuum based on the number of these characteristics present. That is, on one end of the spectrum, students with only a single nontraditional student characteristic are thought of as "minimally nontraditional." On the other end, students are considered "highly nontraditional" if they have four or more characteristics. Those with two or three of the above characteristics fall somewhere in between, and are classified as "moderately nontraditional."

Seventy-three percent of all undergraduate university students are in some way nontraditional (Choy, 2002). Additionally, the author notes that there are roughly as many highly nontraditional students (28%) as there are traditional students (27%) and that over the past decade an increase was seen in the percentages of students who delayed enrollment, worked full time, had dependents, and were single parents. Conversely, a decrease was seen in the percentage of undergraduate students attending school part-time, a trend that is projected to continue.

Many universities offering distance programs have recognized the differences associated with learning online, and as a result are offering specific workshops and certifications in teaching these types of courses (Cole & Kritzer, 2009). There is still much debate about what types of activities can be presented better in a distance versus face-to-face format. Until recently, the use of educational simulations in distance programs has been difficult at best. However, emerging technologies offer the ability to conduct such simulations with participants who are located in rural or remote areas (Annetta, Folta, & Klesath, 2010).

Educational Simulations

As noted above, one method shown to be effective for teaching special education law is through simulation (Bruner & Bartlett, 2008; Burden et al., 2010). Unlike traditional research that breaks down a performance into its component parts to isolate variables and establishes experimental control through task simplification and the use of novel and artificial tasks, simulation reproduces the "real-world" demands faced by experts in a particular field (Ward et al., 2006). For preservice special education teachers, simulating the IEP process means developing the skills to work together with teachers, parents, school administrators, related services personnel, and even students to improve educational results for children with disabilities (Küpper, 2000). Thus, these teacher trainees have the opportunity to develop critical collaboration skills and apply educational policies prior to ever setting foot in the classroom.

Simulations have been shown to be an effective method of introducing novice

professionals to complicated and high-risk experiences (Ward et al., 2006). In simulations, the participants' behaviors mirror "real-world" actions, but the natural contingencies of those actions are removed. Research on the use of simulations have shown them to be useful in training a variety of complex procedures such as medical surgery (Haluck et al., 2001), civil law (Rivera & Goldscheid, 2009), and aviation (Allerton, 2000). This scaffolding procedure allows trainees to gain the experience needed to succeed in real world applications while minimizing the potential risks.

However, simply participating in simulations does not guarantee the acquisition or use of effective practices. Ward and colleagues (2006) noted that "the way in which the simulation is implemented during training is of greater importance than the simulator itself" (p. 258). That is, low fidelity simulators, when used appropriately, can be just as—if not more—effective at re-creating an actual experience than high fidelity simulators used poorly. Furthermore, Salas, Bowers, and Rhodenizer (1998) highlighted a number of misconceptions about simulation and training, such as the notion that greater financial investment in a simulator facilitates learning. While increasing ecological representativeness in regard to the actions developed may increase a simulation's efficacy, relatively low-cost simulations that capture the critical components of the task have been shown to be far more versatile for measuring and improving performance. More important than the degree of physical or ecological representation is the degree of psychological fidelity, or the extent to which the simulation captures the real world demands of the task in conjunction with the way in which it is implemented as a tool for training and assessment (Ward et al., 2006).

Additionally, Salas and colleagues (1998) suggested that instructional design features embedded in the simulation more accurately determine the success of training than mere participation in simulation experiences. Educational tools such as performance assessment, task analysis, scenario design, instructional feedback, and participant reflection are necessary to ensure learning in simulation-based training systems. These devices must be properly utilized to demonstrate changes in participant behavior based on experiences in the synthetic environment.

A final misconception of simulations is that if the participants like it, it must be working. While the evocative effects of a training device are an important consideration, this should come second to other more objective outcomes of training success (Salas et al., 1998). Liking the simulation does not translate to learning. Although user consideration is important, it is not the only source of learning. Kraiger and Jung (1997) argued that the ultimate determination of whether or not simulation training was effective must be based on an assessment of whether the trainee learned the target behavior and applied it on the job. In other words, determining the effectiveness of simulation training should come from the trainee's performance rather than the performance of the simulation.

However, Kirkpatrick (1959, 1996) suggested that trainings should be evaluated on four different levels: (a) reaction, (b) learning, (c) behavior, and (d) results. Reaction is assessed by collecting qualitative data on the trainee's perspectives of the training program in order to find out whether or not they liked it. This is an important method of ensuring that participants are motivated and interested in learning. Kirkpatrick explained

that this is the same as measuring trainees' feelings, but emphasized that this part of the assessment does not measure any learning that has taken place. Rather, level two of Kirkpatrick's evaluation (learning) refers to the measurement of progress towards each objectives identified at the outset of the training program. Behavior, the third level, is measured by determining whether the trainee will perform the behaviors acquired through simulation training in the natural environment. Finally, the Results examine the impact of the simulation within the context of the overall training.

Simulation training offers several advantages to natural environment training (Cooper, Heron, & Heward, 2007). For instance, conducting instruction in natural settings is not always practical or possible. Baer (1999) acknowledged that "the everyday environment is full of steady, dependable, hardworking sources of reinforcement for almost all of the behaviors that seem natural to us. That is why they seem natural to us" (p. 15). However, a great deal of time and resources may be necessary to identify field sites, arrange for trainees to be involved there, and monitor and assess performance in these community-based settings.

Additionally, natural environment training may not expose students to the full range of examples they are likely to encounter in the same setting in the future (Mason, Jeon, Blair, & Glomb, 2011). For instance, preservice teachers working in field placements may not have the opportunity to work with students from a variety of cultural/linguistic backgrounds, or have hands on experience with children with autism or other impairments. However, once they become teachers, it is very likely they will encounter students such as these.

Neef, Lensbower, Hockersmith, DePalma, and Gray (1990) found that instruction in natural settings may be less efficient or effective than simulated experiences because the teacher cannot interrupt the natural flow of events to contrive a sufficient number and sequence of training trails. That is, in a field placement a preservice teacher only has the opportunity to practice correcting student errors as often as a student emits an incorrect response. This may or may not occur frequently enough for the teacher trainee to become fluent delivering error corrections.

Finally, target behaviors that must be performed in potentially dangerous environments (e.g., street crossing; Self, Scudder, Weheba, & Crumrine, 2007) that have severe consequences if performed incorrectly (e.g., fire-arm control; Miltenberger et al., 2005), or that involve complex procedures (e.g., self-catheterization; Neef, Parrish, Hannigan, Page, & Iwata, 1990) can be instructed more safely in simulated settings before generalizing to the natural environment.

Salas and colleagues (1998) concluded with six recommendations for the use of educational simulations. First, emphasis must be taken off of the technology and placed on learning. Second, more appropriate and sophisticated measures of efficacy must be developed for simulation training. Third, the notion that higher ecological fidelity means better training and the idea that simulation inherently leads to better training must be abandoned. Fourth, better partnerships between behavioral scientists, systems engineers, and instructional designers must be developed, with each party bringing its own unique expertise and perspective to the table. Fifth, the findings from learning, instructional design, and human performance must be translated into useful guidelines for those who

develop educational simulations. Finally, the field must shift its focus from the simulation to a more holistic consideration of the entire training system including content, measures, and instructional design.

Various Types of Simulations

Alessi and Trollip (1991) differentiated between two primary types of simulations: Those that teach users *about* something, and those that teach users *how to do* something. “About” simulations consist of physical simulations where the user alters objects or events in a synthetic environment (e.g., to model the evacuation of a building), and process simulations that manipulate the speed of a process so that trainees can observe events unfolding in a way that would otherwise not be possible in the real world (e.g., slowing down a tennis serve). On the other hand, “how to” simulations include procedural simulations used to teach a sequence of steps (e.g., diagnostic protocol), and situational simulations that present hypothetical scenarios for trainees to explore and solve (e.g., Harvard University’s River City Project).

Building on this, De Jong and van Joolingen (1998) identified two additional types of computer simulations: Conceptual and operational. Conceptual simulations are used for learning facts, principles, and concepts, while operational models emphasize procedural knowledge. For example, a conceptually focused simulation on laparoscopic surgery may help novice medical students identify various parts of the human body, whereas an operationally focused simulation may allow the students to practice the use of laparoscopic instruments.

However, Fischler (2006) noted that simulation categories become less useful as technologies evolve and programs combine a variety of capabilities and features. Simulation now encompasses everything from static slide presentations using mannequins (Ward et al., 2006) to immersive systems of virtual reality (Whitehouse, 2005). Perhaps a more functional definition was provided by Thomas and Milligan (2004), who identified two key features of simulation. The authors noted that simulations must include both a model of behavior based on a real or theoretical system, and allow the trainee to experiment by directly contacting the contingencies of his or her actions. Additionally, the scope of the simulation is purposefully limited to focus attention of the target behaviors of study (Aldrich, 2004). Interestingly, simulations that too accurately represent the ecological surroundings of the natural environment may distract users from attending to the educational lesson at hand. Therefore, Thomas and Milligan recommended giving the educator control of the simulation's fidelity.

To further define simulations as a functional class, Fischler (2006) identified 21 common characteristics of all educational simulations. Rather than attempting to define simulations by categories or a vague summarizing statement, a richer understanding can be achieved through looking at the variables familiar to all educational simulations.

1. *Learn by doing*—Students learn through active responding. Educational simulations allow students to perform tasks and act in situations that they are likely to encounter in the natural environment.

2. *Learn from mistakes*—Contacting the natural contingencies of incorrect responses punishes the occurrence of those same behaviors in the future, and reinforces

alternative ways to respond (Crowder, 1964). Examining the results of a mistake may prompt a correct response under similar conditions in the future. Through simulation, students can repeatedly respond to a situation and fail, shaping their behavior a little more each time until they are able to succeed.

3. *Surprises*—When difficult situations occur, the student must be able to respond accordingly. Learning how to perform at critical moments requiring immediate action is a vital part of the complexity of real world settings, but can be difficult to learn from a textbook (Warren & Stein, 2009).

4. *Risk free*—In the natural setting, mistakes can be costly (Ward et al, 2006). Simulations minimize risks while still allowing student to contact the natural contingencies of their behavior.

5. *Time compression*—In real life, it may take years to become skilled in a profession, largely because it may take years to encounter most of the situations that could arise in the field. For instance, Engelmann (2004) explained that, on average, teachers need at least 2 years of training to become proficient instructors of low-performing students. Similarly, it may also take a significant amount of time to see the results and ramifications of prior decisions and actions. It may simply be too late to correct mistakes after acknowledging that earlier actions or decisions were ineffective or harmful. Simulations can compress time so that a broad array of situations is encountered in a relatively short amount of time, allowing the outcomes and results to be more easily paired with the student's actions and decisions.

6. *High fidelity*—Functional simulations do not need to have exact point-to-point

correspondence. Although current technologies allow for almost exact replication of the natural setting, educational simulation are often more effective when designed with intentional errors that both mirror the real world and allow for greater stimulus generalization (Stokes & Baer, 1977). Sometimes information is inaccurate, advice is unwise, and things do not always work as they should. Students should become competent performing in an imperfect world, become comfortable with inconsistencies, and evaluate subtle tradeoffs (Fischler, 2006).

7. *Interaction effect*—To be interactive, certain aspects of the simulation environment must be contingent on student performance. In other words, student actions and decisions should affect other events in the simulation. Otherwise, the student is merely passive observing a model environment. The primary difference between a simulation and a model is that the student can interact with and change the course of a simulation throughout its duration. Models, on the other hand, are run using pre-programmed variables which cannot be changed once started. Without a two-way exchange, the student merely observes the outcome of a situation. The student's action has no effect on the environment. In reality, however, the mere presence of a student in a particular situation could in itself alter the outcome of the event.

8. *Meaningful learning*—Simulations are more meaningful to students when they are given the chance to act like professionals in the field (Burden et al., 2010). The more realistic and interactive the simulation, the more the learner will attend to relevant variables of the task. Additionally, students are more likely to retain knowledge they view as meaningful and skills that serve a function.

9. *Applied learning*—Case-based simulations allow learners to immediately apply novel concepts to a specific context (Arslanyilmaz & Pedersen, 2007). Additionally, simulated environments may also let learners witness the implications of their applied concepts beyond the typical case-based method. Timing and context are essential for success, and new skills need quick and appropriate application and reinforcement to be maintained.

10. *Learner-centered*—The student is the center of a simulation, around which the events of the simulation take place. The student is often able to drive the pace of the simulation and, especially with online simulations, can engage in it at almost any time and place convenient to him or her (Hixon & So, 2009).

11. *Permeate reality*—A simulation is more realistic if the learner cannot disengage at will. Fluency is an important part of real world performance and learners need to be able to function within set periods of time (Lindsley, 1995). If learners can control the timing of all events in a simulation, they may become dependent on this power, or accustomed to performing at a slower rate than the natural environment demands. Furthermore, the simulation becomes more realistic when it engages the student's normal state of reality, and pulls the learner back into the virtual world. For instance, a simulation might email the student a message or leave a voice mail about events that have unfolded since the learner last actively participated in the synthetic environment (Fischler, 2006).

12. *Post analysis*—Computer-based simulations have the added benefit of archiving information for post analysis (Ward et al., 2006). A student along with his or

her teacher or instructor can review responses to pinpoint the individual's strengths and weaknesses. Additionally, improvements can be seen over time. Data could be graphically displayed to show progress, mastery, generalization, and maintenance.

13. *Authentic assessment*—Simulations allow instructors to move toward an authentic assessment methodology when testing student performance within the natural environment is overly burdensome or simply not feasible (Aldrich, 2002). Within the simulation, students can be assessed on how likely they are to perform in the natural environment.

14. *Dynamic database*—The quality and quantity of scenarios are fundamental to the efficacy of a simulation. The simulation will have minimal educational value if the scenarios are too easy or hard, uninteresting or not interactive enough, outdated, or superficial. Similarly, if there are too few scenarios for learners to engage in the simulation will be limited in application (Stokes & Baer, 1977). Versatile simulations allow for more scenarios to be added at later times, and online simulations can be updated almost instantly, allowing professional educators to collaborate at an international level to further develop a simulation's database of scenarios (e.g., The IRIS Center).

15. *Progressive complexity*—More sophisticated simulations utilize scaffolding to become increasingly more difficult over time (Carnine, Silbert, Kame'enui, & Tarver, 2004). The student may start with basic situations where only passive involvement is required, and gradually increase active participation as the simulated environment becomes richer in context and more personalized for the learner. At more advanced levels, the learner may become deeply immersed within a simulated world, interacting on

multiple levels, and performing as an expert in the field (Fischler, 2006).

16. *Diminishing assistance*—Over time, the scaffolding is gradually removed as students develop the ability to perform the activities independently (Carnine et al., 2004). This form of diminishing assistance can be built into the design of the simulation to ensure that new students receive much more assistance than experienced ones.

17. *Corrective feedback*—The naturally objective, nonjudgmental feedback of computers can aid the decision-making processes of students. Skinner (1954) discussed the potential for mechanical devices to provide more feedback and to free the teacher up from having to say whether the student is right or wrong in favor of the more important functions of teaching, noting that this "is beneath the dignity of any intelligent individual" (p. 96). Simulations can prompt the learner to explicitly articulate ideas or decisions and promote reflection at relevant times during the simulation.

18. *Expert advice*—The advice of experts can be manifested within an educational simulation (Burden et al., 2010). The content of online simulations can be updated instantly to reflect new theories and current developments within the discipline. Differentiated personalities embedded within the simulation may offer the learner multiple and varying perspectives. Additionally, artificially intelligent agents, or robots, are able to provide timely feedback, facilitate understanding, and motivate the student based on his or her performance (Mahon, Bryant, Brown, & Kim, 2010).

19. *Resource library*—A library of resources can be made available at all times for learners to investigate and conduct research (Fischler, 2006). The flexibility of online simulations allows for students to access the content at their convenience. Content within

the simulation reflects current practices in the field as well as course material.

20. *Active participation*—The progression of an interactive simulation is contingent on the student's participation. Effective simulations ensure that learners are always actively engaged while inside the synthetic environment (Carnine, 1976). Simulations allow for multimedia to engross the learner, with tasks readily available for the learner to achieve.

21. *Visualizing impossibilities*—By manipulating the speed of natural events and processes, users may be able to observe phenomena from a unique perspective (Alessi & Trollip, 1991). Additionally, simulations which visualize impossibilities may allow users to explore in ways that would either be too costly, not socially acceptable, or otherwise impossible.

Although most educational simulations do not include all 21 characteristics described above, they usually incorporate a variety of them (Fischler, 2006). Given the varying definitions and functions of simulations, it can be difficult to make broad generalizations about their implementation. Different types of simulations can be developed depending on how they are to be used. Aldrich (2002) explained that educators must make decisions regarding variations of input, calculations, and output when developing a simulation for training purposes. Input refers to the way that trainees interface with the simulation. The simulation performs calculations and them provides feedback in the form of an output.

Typical input options include multiple-choice (e.g., Oregon Trail, Where in the World is Carmen Sandiego?), direct manipulation (e.g., computer solitaire, mahjong), and

abstract manipulation (e.g., Second Life, the Sims). Additionally, these can be turn-based, as in chess software, or real-time, where the same decision made seconds later results in a different outcome.

There are several benefits and drawbacks to each method of input. For instance, multiple-choice input is relatively easy to construct and simple for the user to figure out. However, they may also provide too many prompts, and limit the number of possible ways in which the person can engage with the simulation to only a hand full of options.

Direct manipulation input typically replaces buttons and switches with virtual alternatives. This often feels real to the user by incorporating natural actions, such as dragging objects from one location to another. But these simulations are often more expensive and time-consuming to develop, and may be confusing for the user.

Abstract manipulations often involve indirect manipulations of onscreen icons (Aldrich, 2002). The user interfaces with the virtual surroundings using a keyboard or mouse, with limited environmental indicators. The primary advantage to abstract manipulation input is that it increases the number of options for the user to engage with the environment quite dramatically. However, this option requires thoughtful consideration of variables throughout the development process, and often necessitates explicit instructions for the user.

Turn-based input is used to promote contemplation, thoughtfulness, and reflection throughout a simulation. These simulations give the user as much time as they need to make decisions and consider a variety of possibilities. However, this reduces fidelity and users may learn to manipulate the situation rather than respond to the stimuli presented.

On the other hand, real-time input requires the user to interact immediately. These simulations are usually more engaging for the user, require active responding, and increase pressure to respond. This, however, adds to the expense of programming, and may give an advantage to those who can respond more quickly and are more fluent with the interface of the simulation.

Three primary types of calculations can be run by simulators. These are branching, state-based, and parallel calculations (Aldrich, 2002). Branching calculations are the simplest type of calculations to create. These are often incorporated in programmed instruction. Regarding the development of teaching machines, Skinner (1958) stated:

> In composing material for the machine, the programmer may go directly to the point. A first step is to define the field. A second is to collect technical terms, facts, laws, principles, and cases. These must then be arranged in a plausible developmental order—linear if possible, branching if necessary. (p. 974)

Branching calculation models are most often implemented along with multiple-choice input methods. They employ adaptive assessment and can imbed instructional content very precisely. However, these models can be somewhat confining to the user.

In contrast to the liner construction of branching calculations, state-based calculations allow for open-ended exploration. This is the model on which place-based learning and GPS-enabled games are developed. State-based construction often provides users with a greater sense of freedom to explore and sequence learning according to their individual interests. An advantage to state-based calculation models is that they allow the user to backtrack throughout the simulation, thus integrating new knowledge and multiple opportunities for practice (Aldrich, 2002). However, these models also allow users to get

lost in a rather static environment.

Parallel calculation models incorporate rules from the real world into the virtual environment, including physics, chemistry, biology, and human behavior. Aldrich (2002) explained that "at the low end, the rules for this model could be captured in a medium-sized spreadsheet. At the high end, this model could encompass thousands of rules that influence one another" (p. 11). Users can then exploit these rules to their advantage, rather than solving single-solution puzzles. Parallel calculations often allow for multiple users to access the same environment, in addition to artificial intelligence. Multiplayer capabilities allow for shared-experiences based on complex adaptive behavior. However, the open-ended design of these environments makes it difficult to monitor and assess user learning, therefore making it difficult to evaluate and draw lessons from the experience.

Finally, Aldrich (2002) identified three types of outputs: browser-based, video, and computer graphics. Standard browser-based outputs are usually the easiest to deploy and consist of text, graphics, small sound bites, and picture images. However, these limit the density of information and feedback that can be provided.

Video output provides an extraordinary amount of detail creating a realistic feel. Video modeling is often employed to assist with teaching specific behaviors or skills (for examples, see Bellini & Akullian, 2007; Gena, Couloura, & Kymissis, 2005; Nikopoulos & Keenan, 2004). However, user interaction with video output is often delayed (i.e., they must first wait for the video clip to finish) and videos can be too realistic, making it difficult to extrapolate rules.

Computer graphics output, on the other hand, can strip away irrelevant details

while exaggerating more important elements to focus the user's attention better than video output. Additionally, MUVEs allow trainees to interface with one another through avatars, incorporating elements of body language and attitude into the simulation. These simulations promote generalization of skills acquired in the virtual environment to the natural environment, but may require a steeper learning curve for users to interface fluently with their virtual surroundings (Mason et al., 2011).

Multi-User Virtual Environments

Several commercially available MUVEs are now available to facilitate the use of educational simulations (e.g., Second Life, ActiveWorlds, and OpenSimulator). These simulations incorporate abstract manipulation input, multiplayer parallel calculations, and computer graphics output. MUVEs allows users to exercise a large amount of control over the environment, receive immediate feedback based on the rules of the simulation, and construct understanding relative to the situation and their own existing knowledge and experiences. However, Dieterle and Clarke (2008) noted that although MUVEs are commonplace to gamers (e.g., Doom, Madden NFL, World of Warcraft), they are rarely utilized for substantive teaching and learning. Educational uses of MUVEs include promoting socially responsive behavior while engaging science-based activities (Kafai, 2006), helping students understand and experience history by immersing them emotionally and politically in a historical context (Squire & Jenkins, 2003), promoting social and moral development through cultures of enrichment (Barab, Thomas, Dodge, Carteaux, & Tuzun, 2005), developing an environment for programming and

collaboration (Bruckman, 1997), creatively exploring new mathematical concepts (Elliott, 2005), engaging in scientific inquiry (Clarke, Dede, Ketelhut, & Nelson, 2006), and creating online communities for preservice teacher training and inservice professional development (Bull, Bull, & Kajder, 2004; Schlager, Fusco, & Schank, 2002).

MUVEs are interactive computer simulations, in which features of the environment are represented by computer graphics (Blaisdell, 2006). MUVE simulations can range from the reality-based small town environment of Anytown (Warren, Stein, Dondlinger, & Barab, 2009) to the fantasy-based settings of Quest Atlantis (Warren, Dondlinger, & Barab, 2008). These online virtual worlds provide a desktop platform for interacting with others. Participants in Second Life create avatars that become virtual manifestations of themselves (Baylor, 2001; Kim & Baylor, 2008; Messinger et al., 2008). Within Second Life, avatars can engage in a full range of activities including interacting with other avatars, constructing buildings, and assuming various jobs.

Originally developed for recreational use, more than 300 colleges and universities worldwide now use Second Life to offer virtual educational experiences (Barkand & Kush, 2009). Typically, these experiences are limited to orientation uses, such as San Jose State University's virtual reproduction of their campus, or as a virtual meeting space for users who are geographically removed. The adaptability of MUVEs also allows them to be transformed into an authentic learning environment, replicating the stresses and demands of an actual classroom. However, the extent to which MUVEs are an effective tool for training teachers—including the properties and values they afford as a teaching

and learning tool—has yet to be fully evaluated. Despite a growing literature base, research on the applicability and efficacy of MUVEs within teacher education remains sparse (Mahon et al., 2010).

MUVEs have been used for a number of educational purposes, such as classrooms, laboratories, and virtual spaces to practice and assess various skills (Annetta et al., 2010). For example, anthropologists, sociologists, and psychologists have used MUVEs as a virtual laboratory for studying the interaction of avatars (Foster, 2005). Additionally, medical students have used MUVEs to practice strategies for approaching patients (Childress & Braswell, 2006). MUVEs have been utilized for other research on issues regarding marriage, gender identity, social status, economics, architecture, computer science, and religion (Foster, 2005).

Childress and Braswell (2006) exemplified how MUVEs can be used for distance education as well. In their study, a distance education course that initially used the Blackboard learning management system for delivering content found Second Life as a valuable tool for creating a stronger sense of community among the students and improving communication between the instructor and students. In particular, the course instructor engaged students in an online environment that allowed them to become more involved with both the instructor and other distance students. Although chat rooms have previously been used to foster this sense of community, they do not offer the same visual component of a MUVE.

It appears that MUVEs are well suited for distance education. Within the virtual environment, students can complete assignments, leave messages for teachers and other

students, and access resources such as documents, links to websites, and videos (Childress & Braswell, 2006). They can also serve as a meeting place for real-time discussion and collaboration, rather than using threaded text in an online discussion board or chat room. MUVEs even allow for students from different sections of the same class to work, discuss, and study together as they choose in order to maximize their learning experience (Annetta et al., 2010). Dieterle and Clarke (2008) noted that regardless of content and the intended user group, all MUVEs enable multiple simultaneous participants to (a) access virtual contexts, (b) interact with digital artifacts, (c) represent themselves through digital avatars, (d) communicate with other participants, and (e) take part in experiences incorporating modeling and mentoring about problems similar to those in real world contexts (Dede, Nelson, Ketelhut, Clarke, & Bowman, 2004).

Hixon and So (2009) identified three types of technology-enhanced field experiences: (a) concrete, direct experience in reality; (b) vicarious, indirect experience with reality; and (c) abstract, experience with model of reality. Technological enhancements function as a continuum across these three levels, moving from direct experiences in the natural environment to simulated experiences in a virtual practicum (Zibit & Gibson, 2005). Five specific benefits of technology use in field experiences were identified, including (a) exposure to various teaching/learning environments, (b) creation of shared experiences, (c) promoting reflectivity, (d) preparing students cognitively, and (e) learning about technology integration. Additionally, several limitations of technology-integrated field experiences were also noted. These consisted of: (a) lack of interaction with teachers and students, (b) limited reality and complexity, (c) availability of relevant

cases, and (d) technical problems. Hixon and So (2009) concluded that the overall goals and objectives for a specific field experience must be considered when determining the level of technological enhancement for a particular placement.

Rule-Governed Behaviors

Given that the educational simulations employed in this research were designed to be used as a training tool for preparing preservice special education teachers to conduct IEP team meetings, the real significance of this study comes from the extent to which behaviors learned through the simulations are maintained and generalized to the natural classroom environment. Michalak (1981) explained that effective training programs are made up of two components: (a) Acquisition, in which trainees acquire new behaviors through instruction, practice, and feedback; and (b) Maintenance, in which the newly-learned behaviors are carried over to the job environment through both natural and artificial contingencies. He goes on to state, however, that the maintenance phase is neglected in most training programs, and as a result, they fail to produce any long-term changed in trainees' behavior.

To compensate for the inability to set up adequate systems of maintaining desired behavior in the natural environment, Brown (1983) proposed establishing rule-governed behavior in trainees. Skinner (1969) distinguished between contingency-shaped behavior, which is determined by direct contact with physical contingencies, and rule-governed behavior, responding determined by a collection of discriminative stimuli that describes a contingency of reinforcement. For instance, most people do not learn to wear seat belts

by directly experiencing the consequences of not wearing them. Rather, we learn to wear a seat belt by stating (perhaps silently) the rules associated with or without wearing them (e.g., “Seat belts save lives,” or “I put on my seat belt so I don’t get hurt”).

Well written rules are composed of an antecedent, a behavior, and a consequence. This three-term contingency is often considered Skinner’s most significant conceptual contribution to the field of psychology (see Figure 1). Said Skinner (1969):

> An adequate formulation of the interaction between an organism and its environment must always specify three things: (1) the occasion upon which a response occurs, (2) the response itself, and (3) the reinforcing consequences. The interrelationships among them are the “contingencies of reinforcement” (p. 7).

Thus, these are the three terms which make up the operant, a functional class concept, which behaviorists consider to be the basic unit of learning.

Place (1988) explained that “a rule...is a verbal formula or sentence uttered as a self-directed thought immediately prior to the emission of the behaviour which it thereby

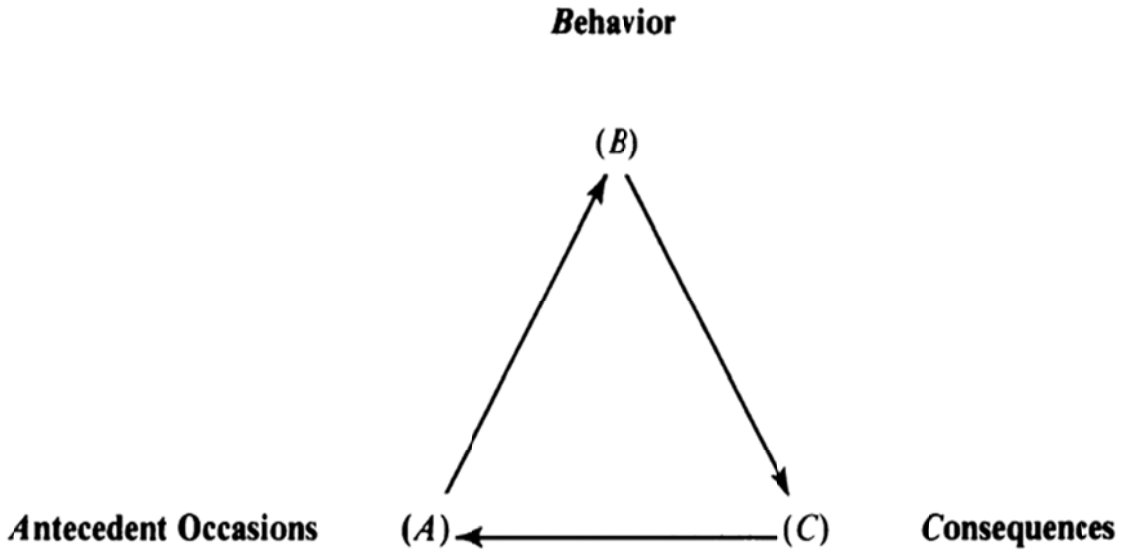

Figure 1. A triadic diagram for Skinner’s three-term contingency.

initiates and controls" (p. 229). In other words, rules are self-instructions which we state—either covertly or overtly—to specify the contingencies when presented with a particular stimulus and then respond accordingly. Verbal statements of rules, then, serve as stimuli to cause us to act in certain ways, without necessarily making direct contact with the results of our actions. This is in line with Vygotsky (1987), who noted that the very act of putting experience into language is inherently a meaning-making process.

According to Brown (1983), most training programs provide employees with a set of rules to follow in performing their job functions. Training programs, including some teacher education programs, may teach trainees to identify certain conditions, and then state a rule about how to respond in that situation. For example: *When a student is off-task, praise nearby students who are following directions to redirect the student back to the assigned activity.* This statement clearly identifies the discriminative conditions under which the behavior should occur (when a student is off-task), followed by the behavior which the teacher should perform (praise nearby students who are following directions). The final component of the verbal statement is the controlling contingency (to redirect the student back to the assigned activity). This rule will only be effective if the teacher is reinforced (i.e., an increased probability of the teacher responding the same way in the future) by the student remaining on-task.

With skills that are frequently practiced, the behavior eventually comes under control of the natural contingencies in the environment, and rule-governance fades out. Brown (1983) explained that "even if the training makes use of behavior modeling or other types of simulation activities, we must rely a great deal on the trainee's behavior

being maintained by rules, rather than by consequences" (p. 5). That is, newly acquired behaviors may not come into contact with the natural contingencies frequently enough to fine-tune or maintain these behaviors.

The use of explicit rule-governed training in teacher education is not widely documented. However, Hargreaves (1977) suggested that teachers possess a repertoire of rules to assist with guiding their behavior in response to the perception or particular configurations of cues. Research by McNair and Joyce (1979) and Yinger (1980) indicates that much of teachers' behavior in the classroom functions to implement previously thought out plans and carrying out a number of classroom routines or activities. Similarly, Calderhead (1981) found that experienced classroom teachers tend to make decisions based on typical conditions and respond in a predetermined, rule-fashioned manner. Novice teachers, on the other hand, discriminate far fewer common classroom situations and tend to react with overall blanket responses.

Regarding the use of evidence-based practices to guide teacher instruction, Fenstermacher (1978) stated:

> The purpose of presenting the results of research as evidence is to encourage the transformation of teachers' beliefs from being subjectively to objectively reasonable. Rule conversion may be an outcome of the transformation process, but only if the conversion is undertaken by those who are expected to follow the rules. (p. 169)

In other words, effective teachers combine evidence from research-validated practices along with contextual factors about their own classrooms and students to develop rules to govern their teaching behaviors. Fenstermacher (1978) added that "Learning to be effective is thus a matter of learning the rules and obeying them" (p. 167).

The key to successful rule construction is to operationalize the rule so that no subjective evaluation may enter into its execution (Van Houten & Hall, 2001). If the rule requires subjective judgment, we may not emit the same response each time it is recited, thereby weakening the effect of the rule. Therefore, a well-developed rule should meet three basic standards (Kazdin, 2001). First, they should be stated clearly enough that another person can easily repeat it in his or her own words. If trainees cannot state the rule in their own words, then they likely have only memorized it and do not understand it. By specifying the rule in their own words, they are framing it in a context which is applicable to them. This standard can be met by restating the rule until someone else can state it in his or her own words without changing the meaning. In essence, they are creating their own rule. Second, the rule should specify the boundary, or limits, of its efficacy. Many times a rule does not anticipate all of the variables or conditions of its application, rendering the rule incomplete. An incomplete rule can be corrected by discussing new circumstances and making decisions about how these will be approached. Finally, the rule should be objective. To be objective, the rule must refer to observable, measurable characteristics of behavior.

Simulating IEP Team Meetings in a Virtual Environment

Through their limited field-experiences, preservice special education teachers may therefore construct specific rules, which specify the contingencies of their teaching behaviors when the natural consequences are too infrequent to maintain such behaviors. In terms of developing expert teachers, however, Siedentop and Eldar (1989) noted the

following:

> Experience is a necessary but not a sufficient condition for expertise. This is because expertise is probably developed contingently over long periods of time within a specific context. The impressive performances of our 1st-year teachers give us hope that effectiveness can result immediately from good teacher education. But training is primarily the establishment of rule-governed behavior (when in this situation, do that, because of these reasons) with only small amounts of practice (wherein direct contact with the contingencies can shape the behavior). It is our sense that not enough is known about expertise to teach it in the form of rule-governed behavior. It is more likely that direct contact with contingencies over a long period of time is necessary to shape expertise. (p. 257)

While many teaching behaviors are contingency-shaped through day-to-day interactions with students and faculty, others only occur every so often, and therefore must be maintained by rules until the natural contingencies take over. One example of the latter is developing individualized education programs for students with disabilities.

As technology advances, so do their educational applications. While preservice teachers in distance education programs may be far too geographically removed to participate in face-to-face educational simulations, the use of MUVEs may alleviate this obstacle. Practicing effective teaching in a MUVE, such as the OpenSimulator 3D Application Server (OpenSim), may hold promise for students in distance special education teacher training programs, particularly those from rural and remote areas. These online virtual worlds provide a desktop platform for interacting with others. Participants in MUVEs create avatars that act as virtual manifestations of themselves. Within OpenSim, avatars can engage in a full range of activities including interacting with other avatars, constructing buildings, and assuming various vocations.

Ward and colleagues (2006) noted that more research is needed to determine whether training under simulated conditions is actually useful in improving real world

performance. The limited research on generalization from a simulated to the natural environment suggests that simulation can be very effective at improving performance specific tasks taught to criterion (Williams, Ward, Knowles, & Smeeton, 2002). Farrow, Chivers, Hardingham, and Sacuse (1998) demonstrated that targeted simulations implemented for as little as one hour can show dramatic improvements in performance. However, as Salas and colleagues (1998) pointed out, it is important for educators to keep in mind that *more* is not necessarily always *better*, as the extent to which behaviors generalize to the natural environment may actually reduce with additional training time (Povenmire & Roscoe, 1973). Although increasing trends during skill acquisition have been shown to level off after the first few hours of simulation training, performance improvement remains correlated with sustained practice (Ericsson, Krampe, & Tesch-Romer, 1993). When practice is maintained, performance will likely continue to improve. Ward and colleagues concluded that "the task for the scientist working in simulation training is to identify the training content and delivery methods that will continue to improve the trainees' performance and move them closer to excellence" (p. 259).

To this end, the purpose of the current study was to determine how simulations function as a tool for training teachers to conduct eligibility determination and IEP meetings, and the extent to which participants were able to use their simulation training to develop verbal statements to guide their behaviors when conducting IEP team meeting in the natural environment. This research was built on the theory of rule-governed behavior as a means of professional development, and attempted to uncover the rules developed by each participant to manage his or her own behavior. The current study

extended the simulation training and rule-governed behavior knowledge base by including preservice special education teachers enrolled in a distance education program using a MUVE. This research sought to gain a better understanding of the stimuli to which participants attend throughout the simulations, in addition to the benefits and challenges of learning in a MUVE, specifically with respect to collaborative activities that are essential for beginning special education teachers.

CHAPTER III

RESEARCH METHODOLOGY

This section describes the research methods that were employed throughout this study, including how and what was measured, what was done, how it was done, by whom, to whom, in what time frame, with what materials and equipment, and in what environmental context.

Theoretical Framework

Behavior analysis is the scientific study of the operation of the principles of behavior with organisms as they interact with the social and physical environment (Malott, Whaley, & Malott, 1997). Skinner (1938) is credited with developing an experimental analysis of behavior that "has resulted in general descriptive statements of mechanisms that can produce many of the forms that individual behavior may take" (Baer, Wolf, & Risley, 1968, p. 91). These include basic processes and principles to predict and control the behavior of both human beings and other animals. Behavior analysis is a problem in scientific demonstration, reasonably well understood (Skinner, 1953), comprehensively described (Sidman, 1960), and thoroughly practiced. The primary objectives of behavior analysis are identifying principles and laws that govern behavior, extending these principles over organisms, and developing an applied technology. A well-developed discipline among the helping professions, behavior analysis contains: (a) a mature body of scientific knowledge, (b) established standards for evidence-based practice, (c) distinct methods of service, (d) recognized experience and

educational requirements for practice, and (e) identified sources of requisite education in universities (Behavior Analyst Certification Board, 2010).

The antecedent-behavior-consequence (ABC) process is the basic unit of contingency analysis. The individual component parts can be identified, as well as their sequencing in time. However, the relationship between the three stimuli can only be inferred (Vargas, 2009). Changes in behavior are therefore a function of altering contingencies. A reinforcing consequence is one that either increases or maintains the probability of the same behavior occurring in the future. On the other hand, a consequence that is punishing decreases the rate or frequency of that behavior under similar conditions in the future. Applied behavior analysis (ABA) is the process of systematically applying interventions based upon the principles of learning theory to improve socially significant behaviors to a meaningful degree (Baer et al., 1968; Sulzer-Azaroff & Mayer, 1991).

Although rarely used in qualitative research (Day, 1969; Hayes, Blackledge, Barnes-Holmes, 2001a), applied behavior analysis provides an appropriate theoretical framework for the current study. The use of ABA as a framework narrows the focus qualitative results to Skinner's three-term contingency. In other words, particular attention will be paid to the antecedent stimuli eliciting participant behavior, participants' descriptions of the behaviors in which they engage, and the contingencies controlling the those behaviors.

Baer and colleagues (1968) identified seven dimensions of applied behavior analysis, which are presently used to describe the fundamental characteristics of a

theoretical basis for quality applied interventions. They authors distinguish an applied analysis from experimental and conceptual analyses of behavior.

> Thus, the evaluation of a study which purports to be an applied behavior analysis is somewhat different than the evaluation of a similar laboratory analysis. Obviously, the study must be *applied*; *behavioral*, and *analytic*; in addition, it should be *technological*, *conceptually systematic*, and *effective*, and it should display some generality. (p. 92)

Additionally, these dimensions may be used to guide formative evaluations of analytic behavioral applications. That is, interventions that do not incorporate all seven dimensions are incomplete and potentially compromised in effectiveness.

Responsive to its theoretical basis, applied behavior analysis deals with problems of demonstrated social importance. The extent to which a study can be considered applied is determined by the interest which society shows in the problems being studied rather than the research methodology implemented. In behavioral applications, the behavior, stimuli, and/or organism under study are not chosen because of their importance to theory. Instead, they are chosen because of their elevated social importance.

The selection of observable, measurable behavior is emphasized in ABA. Baer and colleagues (1968) explained that pragmatism and behaviorism often appear to go hand in hand.

> Applied research is eminently pragmatic; it asks how it is possible to get an individual to do something effectively. Thus it usually studies what subjects can be brought to do rather than what they can be brought to say; unless, of course, a verbal response is the behavior of interest. Accordingly a subject's verbal description of his own non-verbal behavior usually would not be accepted as a measure of his actual behavior unless it were independently substantiated. (p. 92)

For the present study, verbal responses from each participant were used as a primary source of data. As described below, these qualitative statements were triangulated with

responses from other participants, observations, and permanent products.

Applied behavior analysis requires a believable demonstration of the events that can be responsible for the occurrence or nonoccurrence of that behavior. An experimenter achieves an analysis of a behavior through description, prediction, and control. The purpose of the present research was not to establish a causal relationship between independent and dependent variables. Rather, this qualitative analysis focused on a thorough description of the variables controlling participant behaviors in an IEP team meeting.

The term "technological" simply means that the techniques making up a particular behavioral application are identified and described well enough for the purposes of replication. Baer and colleagues (1968) explained:

> In this sense, "play therapy" is not a technological description, nor is "social reinforcement." For purposes of application, all the salient ingredients of play therapy must be described as a set of contingencies between child response, therapist response, and play materials, before a statement of technique has been approached. Similarly, all the ingredients of social reinforcement must be specified (stimuli, contingency, and schedule) to qualify as a technological procedure. (p. 95)

ABA interventions are described well enough that they can be implemented by anyone with training and resources. The best rule of thumb for evaluating a methodology as technological is probably to determine whether a reader could replicate the procedures well enough to produce the same results, given only a written description of the methodology.

Applied behavior analysis techniques emerged from a specific and identifiable theoretical base rather than being a set of packages or tricks. Baer and colleagues (1968)

explained that “the field of applied behavior analysis will probably advance best if the published descriptions of its procedures are not only precisely technological, but also strive for relevance to principle” (p. 96). In other words, procedures for changing behavior need to be related to the basic principles of applied behavior analysis. Additionally, conceptual systems are needed to demonstrate that there is an integrated discipline. Descriptions must be adequate for successful replication by the reader, and to shows the reader how similar techniques may be derived from basic principles. This has the effect of transforming a body of technology into a discipline rather than a collection of tricks.

Applied interventions must produce strong, socially important effects. The application of behavioral techniques application has failed if it did not produce large enough effects for practical value. In applied research, the theoretical importance of a variable is typically not at issue. Rather, its practical importance—specifically its power in altering behavior enough to be socially valid—is the essential criterion.

Finally, applied behavior analysis may be said to have generality if it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors. These interventions must be designed from the outset to operate in new environments and continue after the formal treatments have ended. Since application refers to practical improvement in important behaviors, the more general that application, the better.

The science of applied behavior analysis has led to the development of a framework for identifying the function of an individual’s behavior when it is not

otherwise apparent (Geiger, Carr, & LeBlanc, 2010; Grow, Carr, & LeBlanc, 2011). Functional behavior assessment (FBA) is the process of identifying environmental events associated with a particular behavior which allow behavior analysts to generate hypotheses about behavioral function. This information is then used to alter important environmental antecedents or consequences to produce desired behavior change. In the current study, an ABA theoretical framework allowed for a functional assessment of preservice special education teachers learning to conduct IEP team meetings through virtual simulations. Specifically, this included: (a) a description of IEP behaviors, including classes or sequences of behaviors that commonly occur together; (b) identification of the events, times, and situations that predict when these behaviors occur across the full range of IEP team meetings; and (c) identification of the consequences that maintain the behaviors, and therefore the use of virtual simulations to train preservice special education teachers. In other words, the theoretical framework of applied behavior analysis allowed for the examination of what functions IEP team simulations appear to serve for teacher trainees.

Type of Design and Underlying Assumptions

This study employed a multiple case study design. Case studies are often used in educational research to describe an event or process in its natural setting. Yin (2009) defined a case study as “an empirical inquiry which investigates a phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used” (p. 18). For the purpose of

the current research, case study analysis allowed for an investigation into the use of virtual simulations (contemporary phenomenon) to train preservice special education teachers to conduct IEP team meetings (real-life context). Furthermore, multiple case study analysis allows for a systematic examination of differences across cases, and incorporation of multiple sources of data (Eisenhardt, 1989; Yin, 2009). Thus, multiple case designs may provide more robust and compelling evidence than individual case studies or other research designs.

Multiple case study analysis employs replication logic, in which a series of cases are treated as a series of experiments, each serving to confirm or disconfirm a set of observations. Each case represents an experiment, and therefore multiple cases are analogous to multiple experiments (Eisenhardt, 1989). Yin (2009) stated that multiple case study analyses are particularly useful for answering “what” and “how” questions, such as those asked in the current investigation.

An advantage to case study methodology for this particular investigation was that because special education poilicies and procedures is a broad concept, it allowed for the specific examination of a small sample size, while remaining flexible within the boundaries of the research. Additionally, empirical evidence and qualitative results were obtained through the collection and analysis of multiple data sources and the subsequent triangulation of these multiple sources. This multiple case study examined the behavior of preservice special educaiton teachers on an IEP team using semi-structured interviews, observations of simulated meetings, and document analysis for triangulation. Participant interviews were the primary source of data in this research, while observing meetings and

reviewing permanent products were used to support and verify their verbal statements.

Herriott and Firestone (1983) argued that multiple case designs have distance advantages and disadvantages in comparison to single case designs, noting that the evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as more robust. Yin (2009) specified that each case must be carefully selected so that it either (a) predicts similar results (a literal replication) or (b) predicts contrasting results but for anticipatable reasons (a theoretical replication).

> The ability to conduct 6 to 10 case studies, arranged effectively within a multiple case design, is analogous to the ability to conduct 6 to 10 experiments on related topics; a few cases (2 or 3) would be literal replications, where a few other cases (4 to 6) might be designed to pursue two different patterns of theoretical replications. If all the cases turn out as predicted, these 6 to 10 cases, in the aggregate, would have provided compelling support of the initial set of propositions. If the cases are in some way contradictory, the initial propositions must be revised and retested with another set of cases. (p. 54)

The current study involved the purposeful selection of seven cases, or seven individual preservice special educaiton teachers. The use of multiple cases in this research supported Herriott and Firestone's (1983) argument that a multiple case study is more compelling and robust. These cases provided sufficient opportunity to determine whether the theoretical propositions for this study can be supported or if rival explanations needed to be considered.

Role of the Researcher

The previous experiences of the researcher, both personal and professional, help shape what data are collected and how they are analyzed (Wolcott, 2009). In this study, the researcher's professional experience as a special education teacher, board certified

behavior analyst, and doctoral student brings a unique perspective to this study.

After receiving an M. Ed in special education and applied behavior analysis, the author taught students with severe disabilities in a self-contained classroom in Martinsville, Texas, and at a residential school for students with autism in San Antonio. He was responsible for teaching students with a range of disabilities, developing behavior intervention plans, as well as supervising the work of multiple paraeducators. As part of this teaching experience, the researcher took part in a variety of eligibility and IEP meetings. Every meeting was unique, considering that each of these meetings was individually tailored to meet the needs of a specific student. Some could be completed and signed off on in under 60 minutes. Others continued for over four hours, as each specific detail was explained and discussed. Despite the variability of these meetings, each one contained important components required under the provisions of IDEIA.

As a doctoral student, the researcher had the opportunity to assist with and later teach the undergraduate special education policy and procedures course both on campus and through the distance mild/moderate program. For the past several years, this course has been taught using a hybrid format, in which students receive content instruction asynchronously through the university's learning management system. Class time was conducted as if it were a faculty meeting, discussing how special education law effects the day-to-day operations of a classroom. The course is heavily dependent on technology to support the development of learning communities among the more isolated distance learners.

The author has conducted previous research in MUVEs, and, based on these

experiences, believed that this virtual collaborative platform would be appropriate for the current investigation on training preservice special education teachers to conduct IEP team meetings. The use of a MUVE for this purpose would provide the ecological and psychological fidelity necessary to increase presence within the virtual world as well as replicate the immediacy of demands from parents and other team members placed in an actual IEP team meeting. Furthermore, prior experiences with MUVEs have been useful for connecting and supporting students in distance education programs. It is important to note that the researcher had access to a MUVE developed through the support of an Office of Special Education Programs restructuring grant from the Department of Education on which he was employed as a graduate assistant.

Based on the researcher's experiences in special education and training special education teachers, two initial propositions were generated regarding the use of virtual simulations to train special education teachers. First, a MUVE can effectively be used to simulate IEP team meetings with distance preservice special education teachers. Additionally, preservice special education teachers who participate in virtual simulations of IEP team meetings can be taught to construct rules to help govern their behavior during IEP team meetings in the natural environment.

Selection of Participants and Setting

When conducting a functional behavior assessment it is important to gather information from multiple perspectives and across a range of settings, activities, and situations. Often, this process involves interviewing the people who know the focus

individual best, and interact with him or her frequently across a variety of circumstances. For the present research, the participants had the unique opportunity of being the persons of interest themselves. The informants in this study were all enrolled in the same degree program, and, during the summer of 2010, together took a class on special education law.

Utah State University's Mild/Moderate Special Education Distance Degree and Licensure Program broadcasts instruction to 11 satellite campuses around the state of Utah. Program graduates receive a bachelor's degree in special education and licensure to teach K-12 students with mild to moderate special needs. The program emphasizes the principles of behavior analysis for teaching students with disabilities. In the first two semesters of the program, all students take courses on applied behavior analysis and demonstrate their knowledge of thinking in terms of antecedents, behaviors, and consequences. During their third semester of the program, distance students take a class on special education law. SPED 5070: Policies and Procedures in Special Education was designed to provide students with a broad knowledge and understanding of a wide range of legal issues concerning the provision of special education services to students with disabilities.

On the first day of the course, the 27 students in the class were divided into eligibility/IEP teams and given a special education referral for a hypothetical student (see Appendix C). Each student was also given a personnel role to research, which varied according to the needs of the hypothetical student. Most teams included a general education teacher, a special education teacher, a school psychologist, a local education agency (LEA) representative, as well as one or two additional team members based on

the individual case. It was the responsibility of the student to research the role they were given in regard to that person's responsibilities in the special education eligibility determination process.

For each case, the instructor played the part of the parent, with whom each team was required to consult for background information about their student. In order for the IEP team to make a decision regarding the student's eligibility for special education, they must first conduct a parent interview to learn more about the student's personal and educational history, obtain consent to evaluate their child, and provide the parent with a copy of the procedural safeguards. Throughout this process, the team uncovers specific information about the student's background which is relevant to the eligibility and IEP process (e.g., student speaks English as a second language, parent strongly advocates for or against placement in special education, student's entire class fell behind in reading last year, etc.).

For each team, the final course product was to conduct mock eligibility determination meetings and IEP meetings. Using the information they collected over the course of the semester, each team determined under which category their student qualifies for special education. Additionally, they developed tentative IEP goals and placement recommendations, taking into account the concerns and desires of each parent.

These meetings took place in an open source MUVE called OpenSimulator (OpenSim). OpenSim is an open source virtual environment through which the preservice special education teacher interacts using an avatar, a digital representation of oneself. This environment is designed to give teacher trainees the presence of sitting with a parent

around a conference table, where an actual eligibility/IEP meeting would likely take place. Other existing technologies such as Skype and Adobe Connect can provide aspects of participating in a distance meeting, but they but do not provide the psychological sense of being there in a virtual environment. This feeling of being in a virtual environment while actually being physically situated in another location is what researchers refer to as "presence" (Insko, 2003).

In OpenSim teacher trainees' avatars actually sit around a virtual table in a virtual school looking at each other's avatars and communicating through microphones and speakers. Using a setting call "mouselook," students have the ability to make eye-contact with each other or share joint attention on a virtual object, such as a PowerPoint presentation. Students also dress their avatars professionally, heightening the realism of the experience. During the meeting in OpenSim, students lead the parent through the IEP documentation, just as they would in a face-to-face environment.

Early in the semester, all students in the course were introduced to OpenSim, and required to complete a small objective in which they complete a self-guided orientation of the virtual space, change the appearance of their avatar to represent themselves, and then take a snapshot of themselves sitting in the virtual school building. The completion of this mini-assignment served as a basic demonstration of the minimum level of proficiency required for simulating IEP team meetings in OpenSim.

Each student was given the opportunity to experience the use of virtual simulations during the Policies and Procedures in Special Education course as a means for learning about special education law. After institutional review board approval was

obtained for using human subjects in this research, a call for participation in the current research was announced to the entire class. Eight students responded, of which seven completed all three interviews. Ultimately, the sample consisted of all seven preservice special education teachers who had varying levels of experience in special education, the IEP process, and the use of technology. Although each of these students took part in virtual simulations, the contexts in which these simulations occurred were likely to account for unique experiences.

It is important to note that the seven preservices special education teachers who volunteered for this project all had positive experiences with TeacherSim. Although some of the participants needed additional training time and practice opportunities to independently log in and interact fluently with the virtual environment, they all identified ways in which TeacherSim functioned to assist them in learning to conduct IEP team meetings. This was not the case for all students in the course, however. Results indicate that some students struggled with TeacherSim to the extent that it prohibited their ability to simulate IEP team meetings. None of these students chose to participate in this research. This further limits the scope of the study, because the perspective of students who struggled to use the MUVE may have helped to further identify how virtual simulations function for the purpose of training undergraduate students enrolled in a distance teacher education program.

Materials

OpenSim version 0.6.9 was set up on a 64-bit Hewlett Packard Elite 7000 server

running Windows 7 with an Intel Core i7 processor with 2.8 GHz, 12 GB of memory, and a 526 GB hard drive. A doctoral student in instruction technology who had taken coursework on building and scripting in MUVEs developed the in-world tutorial and virtual school building. This desktop-based virtual environment was appropriately named TeacherSim.

To access TeacherSim, each teacher trainee need to have at least a cable or DSL Internet connection, as well as an Apple running OS X 10.5 or PC computer running Windows XP, Vista, or Windows 7 with a 800 MHz Pentium 3 or Athalon processor or better, and at least 512 MB of memory while running their screen resolution at 1024x768 or higher. Most preservice teachers accessed TeacherSim using their extension campus centers which had modern computers that met the minimum specifications.

Teacher trainees were asked to download and install the Imprudence client viewer version 1.2.2 to access TeacherSim. With this viewer, preservice teachers were able to add custom grid information to access USU's private region. Since TeacherSim did not yet support audio within the settings, Skype voice over internet protocol (VOIP) was used as an alternative. While the OpenSim community continues to work on an audio solution, Skype provided an easy interim option. Students downloaded and installed the latest Skype client and held a conference call for the virtual meeting. In other words, running Skype in the background provided the session audio while teacher trainees used the Imprudence viewer to see the avatars in the meetings.

One of the benefits of an OpenSim environment was the ability to have greater control of user accounts. In order to get teacher trainees into the environment, user

accounts were created for each of them before an initial orientation session. Unlike Second Life, preservice teachers used their actual first and last names allowing them to take the role-play activities more seriously and facilitating communication. Along with their accounts, each student in the course was given a protocol instructing them to download and install Skype, Imprudence, and test out their account in TeacherSim prior to the in-class orientation. During this orientation session instructions were reviewed and teacher trainees were brought into TeacherSim. Once accessing the virtual island, students could follow a path that instructed them how to walk, fly, chat, sit, use mouselook, and adjust their avatar's appearance. This orientation allowed everyone in the course some preparation for their practice eligibility and IEP meetings to be held in the same environment. Additionally, the preservice teachers were told to contact the researcher to answer any further questions they had about accessing the environment or to troubleshoot any problems they experienced once there.

Sample Size

Purposeful sampling was employed in this study by selecting information-rich cases to illuminate the above identified focus of inquiry (Lincoln & Guba, 1985). According to Patton (2002), sample size is ideally related to the purpose of inquiry, what will be useful and credible, and what can be done with the available time and resources. It is important to note, however, that the use of an emergent research design does not allow for a definitive number of participants or settings (Glesne, 2006); Information gathering continues until the saturation point is reached (Glaser & Strauss, 1967; Lincoln & Guba,

1985). Generally speaking, the criterion for saturation is met when newly collected data is redundant with previously collected data. However, given the nuances specific to each participant and the context in which she completed the assignment, the possibility that total saturation may never be achieved must be considered.

Sandelowski (1995) noted that the sample size in qualitative research should not be so small that it is difficult to achieve data saturation, theoretical saturation, or informational redundancy. Conversely, the sample size should not be so large that it is difficult to undertake a deep, case-oriented analysis. The number of teachers or individual cases for this study was purposefully selected to ensure that the sample size provided substance and was not so large that data collection and analysis would become laborious and unmanageable. Creswell (1998) argued that the larger the number of participants in a case study, the greater the amount of detail typically emerging from any one individual.

Selecting a small sample from which to collect data has certain advantages, including (a) high-quality, detailed descriptions of each case which are useful for documenting uniqueness; and (b) examining important shared patterns that cut across cases to derive the significance that has emerged out of heterogeneity (Patton, 2002). A purposeful sample in conjunction with an emergent research design allowed for an in-depth investigation into virtual simulations of eligibility determination meetings and IEP meetings, without attempting to generalize beyond the context of the study.

Data Collection Strategies

A variety of data collection methods were utilized to achieve a clearer

understanding of distance students' perspectives of virtual simulation. Information gathering typically involves both direct and indirect methods. Direct observation involves observing and recording the student's behavior and events in the environment while the behavior is occurring. Indirect methods include record reviews, interviews or questionnaires, and tools to assess the broader physical or social environment. While indirect methods provide a great deal of descriptive information, direct methods are used to confirm ideas about the variables affecting behavior.

Data were collected through interviews and observations, as well as document and record analysis of individual assignments, data compiled by the IEP team, and overall rating of each meeting by the course instructor. Prior to beginning the data collection process, a letter of informed consent detailing all components of this research (including the purpose of the study, the data collection process, and the associated risks) was provided and explained to each participant.

Qualitative designs emphasize research as a prolonged, ongoing activity using primarily inductive analytic processes (Glesne, 2006). The use of inductive analysis implies that the patterns, themes, and categories of analysis "emerge out of the data rather than being imposed on them prior to data collection and analysis" (Patton, 2002, p. 390). In multiple case study analysis, cases which confirm emergent relationships increase the validity of the relationships. On the other hand, cases which disconfirm the relationships often can provide an opportunity to refine and extend the categories (Eisenhardt, 1989). These dynamics rely on multiple sources of evidence for description, analysis, and interpretation (Wolcott, 2009).

Interviews

In this study, the primary means of data collection were participant interviews. Interviewing is the indirect gathering of information through discussions with people regarding the individual of interest and his or her behavior. An interview is a purposeful conversation, usually held between two people, with the interviewer guiding the conversation in order to obtain information from the interviewee (Bogdan & Bilken, 2007). Interviews were utilized to collect descriptive data in the words of each preservice teacher participant, allowing the researcher to develop understanding and insights with regard to conducting IEP simulations in a virtual environment. Semistructured interview questions, using an open-ended format, were employed to guide the content of each interview (see Appendix A).

The use of semi-structured interviews entails a standardized format detailing specific questions to be asked to each participant, while simultaneously allowing for deeper exploration of topics through probing and the ability to ask about newly identified areas of inquiry that were not anticipated when the original interview protocol was developed (Patton, 2002). Probing helps facilitate understanding with regard to how the preservice teachers experience virtual environments and their perceptions of simulating IEP/eligibility meetings. Thus, the information garnered through flexible, semistructured interviews presents a richer understanding of the link between virtual simulation and preservice teacher development.

Prolonged engagement through a series of interviews with greater depth and narrower focus generated a more complete understanding of distance students'

experiences and perceptions of virtual simulations of eligibility and IEP meetings. Additionally, listening to initial interviews assisted with evaluating and improving subsequent interviewing questions and probes. Notes were also taken during each interview to help in pacing the interview, recording researcher's reactions to interviewees' comments, and underscoring anything perceived to be particularly important for further consideration (Merriam, 1998).

All interviews were conducted by the author. Given the geographic distance between researcher and participants (ranging from 28 to 316 miles apart), all of the interviews were conducted through Skype. Interviews were scheduled with each participant via email, and took place in the weeks immediately following the respective simulated eligibility meeting and IEP meeting. This coincided with the end of the semester, and two participants completed their final interviews while on vacation in Disneyland and Oregon. Another participant completed her third interview after returning from a Caribbean cruise. Thus, the use of Skype to collect interview data facilitated with the flexibility required for participants to complete the research while still allowing them a break between semesters. The interviews varied in length between 30 and 90 minutes in duration. Each was digitally archived using Ubuntu's audio recorder applet, and transcribed verbatim to ensure that everything interviewees said was preserved for analysis.

This method of data collection followed the three-interview series described by Seidman (1998). A series of individual participant interviews were conducted by the author. The first interview was designed to establish the context of each participant's

experience by asking them to describe their life history in regard to simulating eligibility and IEP meetings in a virtual environment. This initial interview focused on the antecedent stimuli under which each participant entered the virtual meeting simulations, and included questions about any previous experiences teaching or otherwise working with people with special needs, developing individualized education programs, using technology, or simulation experience.

In the second interview, participants were asked to reconstruct the concrete details of their present experience with the virtual simulations. Rather than asking for their opinions of their experience, this interview focused on the details upon which their opinions were built. This consisted of asking each participant to describe and define the relevant behaviors they performed as a member of the IEP team. The extent to which behaviors were considered relevant was determined by the participant herself. Additionally, participants were asked for stories about their experience in the virtual simulation, as well as their relationships with other users in the simulation.

The final interview focused on the contingencies controlling the IEP behaviors of each participant, or what will reinforce or punish the same behaviors in the future. Seidman (1998) stated that the purpose of this interview is to address "the intellectual and emotional connections between the participants' work and life" (p. 12). The third interview prompted participants to focus on understanding their experience in the virtual world. Given that this simulation was designed to give students an advantage when they begin teaching, many of the questions in this interview directed a future orientation.

The purpose of implementing a series of interviews was to facilitate engagement

and immersion in the process, establish collegial relationships, and generate meaningful data. In addition, there was a need to corroborate information or facts the researcher believes have already been established (Yin, 2009).

Observations

Researcher conducted observations were also an important source of data in this qualitative design. In this study, opportunities for observation include the virtual meetings, in which the eligibility/IEP team meets with the parent to determine which special education services will be provided, as well as development activities, such as the initial parent interview and requesting consent to evaluate the student.

As an observer, it was important to be aware of inadvertently affecting the natural environment, participants behaving atypically in response to knowing they are being watched, and the possibility of myself distorting the data through selective perception (Patton, 2002). To compensate for this latter threat, observation evaluation forms were used for each IEP team meeting to determine whether the critical components of each meeting were addressed (see Appendix B). These forms were developed by the course instructor and based on federal and state required components for each meeting. Interobserver agreement was used to validate the researcher's observations with those of other students rating each meeting, as well as the course instructor who collected data using the same observation forms.

Permanent Products

Document analysis also provided a pertinent source of data. The purpose of

reviewing information generated from records is to obtain insights into factors affecting the person's behavior. Merriam (1998) notes that documentation as data is not entirely different from interviews or observations. An important objective with regard to document review in multiple case study analysis is to corroborate and enhance evidence gathered from other sources (Glesne, 2006). Due to the sheer number of documents produced through special education eligibility determination and the IEP process, these documents played an explicit role in the data collection plan for the current research. Specifically, these documents helped to show the decision making process of the participants as they develop individualized education programs for their hypothetical child cases.

There are several general advantages to using participant generated artifacts as sources of evidence. Due to the stability of documents they can be viewed repeatedly. Documents are also unobtrusive in nature, as they are not generated by the case study. Documents are precise with regard to detail, and have a broad range of coverage with the capability of documenting a multitude of events and settings, as well as long periods of time (Merriam, 1998; Yin, 2009). The goal was to seek congruence between the documents produced and the research questions in a continuing effort to develop understanding, uncover meaning, and discover insights pertinent to simulating IEP team meetings in a MUVE.

There are also limitations specific to documents that need to be noted. These include inaccurate and/or incomplete records, as well as files that are maintained inconsistently. Thus, documents may vary in detail and quality. At the same time,

however, document analysis can provide the research with a behind-the-scenes view of a program that may not be observed directly or come to light through interviews (Patton, 2002).

Data Analysis

Data collection and analysis occurred simultaneously throughout the course of the study. According to Merriam (1998), “without ongoing analysis, the data can be unfocused...and overwhelming in sheer volume” (p. 163). Each interview collected for this study was fully transcribed, and researcher notes and documents organized so that coding could begin immediately. Initially, data were coded to identify emerging themes, and then highlighted to note areas requiring additional data collection (Glesne, 2006). This iterative process was complete when the data collected results in redundancy.

The first stage of data analysis focused on systematically organizing data as it was collected, developing a notation system to ensure that data were properly labeled, ensuring that interviews were accurately transcribed, and getting a better sense of the whole (Patton, 2002). Thematic analysis was utilized to break down the data into manageable units. This process involved, “coding and then segregating the data by codes into data clumps for further analysis and description” (Glesne, 2006, p. 147).

Each interview was transcribed verbatim to ensure that the conversations between interviewer and interviewee are accurately documented. This also provided an opportunity for the researcher to be fully immersed in the data. Upon completion of the transcriptions, each interview was reviewed for accuracy by listening to the digital

recordings while reading the transcripts (Patton, 2002).

In the next stage of data analysis, interview transcripts were reviewed and coded to facilitate the search for topics, themes, and patterns. Throughout the readings of each transcript, potentially meaningful units of data were noted. These included antecedent variables for beginning the distance special education program (including motivating operations and setting events), specific behaviors emitted throughout the IEP team meetings, and the reinforcing or punishing consequences of simulating IEP team meetings. Following this step, "units of data—bits of information—are literally sorted into groupings that have something in common" (Merriam, 1998, p. 179). An ongoing record of researcher notes, memos, ideas, and reflections also played an integral part of this overall data analysis. These notes, combined with document analysis, were used to substantiate and enhance the interview transcripts by providing context and interpretive commentary. In doing so, recurring regularities in the data emerged through frequency analysis to reveal patterns that were then sorted into categories. The pertinence of these categories was validated with the help of an expert in the IEP process who reviewed the existing codes and looked for further discriminations within and across categories. These patterns and categories were expanded by building on and bridging connections between existing data (Glesne, 2006).

A fellow doctoral student with advanced coursework and peer-reviewed publication in qualitative methodology served as an independent reviewer in this process to maintain validity by conduct spot checks and verifying the themes derived throughout the study. This reviewer had conducted prior qualitative research on the use of MUVEs

for training teachers, and worked in the Faculty Assistance Center for Teaching at Utah State University. These qualifications made this person a valuable resource for reviewing thematic findings identified by the author, and providing feedback on additional areas of focus.

Themes naturally emerged out of the sorted categories. This was facilitated through the use of a spreadsheet to organize and classify participant responses into individual, IEP team, and class-wide variables. At this point, categories and themes were outlined, and rules for inclusion and exclusion of data for each group were developed (Lincoln & Guba, 1985). With these rules in mind, transcripts and documents were then analyzed and grouped thematically. After these categories were grouped and coded, data were extracted from each source and pasted together into a draft of results.

Each of these questions was researched by collecting qualitative data, allowing participants to describe their experiences and perceptions in their own words. For all questions, the primary form of data collection was semi-structured interviews. Additionally, observation data were collected along with participant generated documents and artifacts. Data analysis consisted of searching for patterns and themes within and across the data acquired from each participant. The research questions guiding this study were as follows.

1. How does the use of virtual simulations function to train distance preservice special education teachers to determine special education eligibility and develop individualized education programs?
    - What do participants identify as the relevant antecedents (motivating

operations, setting events, and stimulus control) for simulating IEP Team meetings in a MUVE?

- How do preservice teachers define the behaviors they engage in while conducting IEP Team meetings in a MUVE?
- What do preservice teachers identify as the consequences of conducting IEP Team meetings in a virtual simulation?

2. What rules do students generate to govern their behavior while conducting IEP team meetings in the future?

The first research question was designed to allow each participant to describe their experiences taking part in the IEP team simulations. The analysis looked at the description and understanding of these simulations within the context of each participant's personal and professional life-history.

The second research question addressed the use of a MUVE as a means for conducting the virtual simulation with preservice teachers who are geographically removed from one another. This question sought to identify the specific behaviors that participants engaged in, as well as the benefits and challenges of the environment, and the extent to which the participants felt these virtual simulations represented an actual IEP meeting.

The third research question was designed to address the consequences which resulted from each meeting. Participants were asked to identify both what they found reinforcing—to maintain or increase the probability of these same behaviors occurring in the future—and punishing—to decrease the probability of these same behaviors occurring

in the future—about the IEP team meetings and the virtual simulations.

The fourth question focused on how participants believe the simulations will affect their future endeavors as special education classroom teachers. In particular, this question examined the strategies or rules they construct to manage their ability to work with parents, students, and other professionals in developing IEPs, and as a result, how well prepared each participant feels to conduct actual IEP team meetings in the future.

Methods of Ensuring Trustworthiness and Transferability

Rigorous and systematic methods of data collection and analysis were employed to enhance this study's credibility. Creswell (1998) identified several verification procedures typically used by qualitative researchers, including (a) prolonged engagement, (b) triangulation, (c) negative case analysis, (d) clarification of researcher bias, (e) member checking, and (f) rich, thick description.

Prolonged engagement refers to an extended time in the field to develop trust, learn the culture, and fully investigate the research questions (Glesne, 2006). This was met through repeated interviews of greater depth and narrower focus with each participant. An extended amount of time was also spent reviewing documents and artifacts complied over the course of the virtual simulation process. Likewise, comparing transcripts and documents to complete an accurate portrayal of distance students' experience simulating IEP team meetings required prolonged engagement.

Triangulation refers to the use of more than one source of data to support a researcher's conclusions. Triangulation was applied within and across the various case

studies to provide assurance that the information collected was both credible and consistent. Multiple case study analysis is recognized as a triangulated research methodology based on the use of multiple sources of evidence used to describe the quintain, or target behavior (Stake, 2006; Yin, 2009). Additionally, the current study used multiple data-collection methods, which comes about by following up one approach with another to augment confidence in the interpretation. This included participant interviews, observations of simulated IEP team meetings, and analysis of permanent products.

This research also employed negative case analysis, which was the conscious search for negative cases and unconfirming evidence so that working hypotheses can be refined (Creswell, 1998). Negative case analysis is a key part of participant sampling to better discriminate between the variables and conditions under which reinforcement is accessed and denied. That is, statements of contradiction were sought with the purpose of identifying the conditions specific to each statement, and how each participant's behavior was affected as a result.

Clarification of researcher bias requires reflecting on the researcher's own subjectivity and its role throughout this study. Glesne (2006) noted that subjectivity is always a part of research, and once recognized, can be monitored for more trustworthy research and subjectivity, in itself, can contribute to research. The researcher's personal background as the course instructor may allow for more thorough probing for details. Likewise, the author's knowledge of virtual simulations may also be helpful in asking better questions and being able to interpret data. In other words, the researcher's subjectivity allowed for more time to be spent on rich details of their experiences rather

than superficial discussions of the course design and virtual environment.

One of the most necessary forms of validity in qualitative research, member checks were used to further augment the trustworthiness of this study (Glesne, 2006; Lincoln & Guba, 1985). This involved sharing interview transcripts, analytical thoughts, and drafts of the final report with research participants to ensure they are accurately represented in the analysis. Ongoing member checks of the collected data, categories, themes, and conclusions contributed to the overall credibility of this study.

Finally, writing with rich, thick description allows the reader to enter into the research context. A clear and engaging description of the virtual simulation process as experienced by these participants gives the reader a better understanding of its utility and limitations as a tool for teacher development.

Bogdan and Bilken (2007) stated that the judgment of transferability of the present research is ultimately determined by the individual readers. The extent to which they can transfer the findings of this study is dependent on the populations they serve, as well as the settings in which they work. The reader will need to explore the relative valuing and weighing of particular evidence as it relates to specific teacher training contexts. Curtin (2010) acknowledged that sole reliance on the theoretical evidence in the form of practice guidelines is no more appropriate than lack of consideration of that evidence. The evidence in this study serve to provide a functional behavior assessment of the use of simulation training to teach distance preservice special education teachers to conduct IEP team meetings. The themes and topics discussed in the this research refer to the specific function of the educational simulations within the context of the special

education policies and procedures course as part of the mild/moderate distance degree and licensure program at Utah State University. Practitioners looking to implement the findings of the current study should consider the individual characteristics, intervention programs, comparison treatments, and outcomes specific to their own environment.

CHAPTER IV

FINDINGS

The research questions guiding this study were as follows.

1. How does the use of virtual simulations function to train distance preservice special education teachers to determine special education eligibility and develop individualized education programs?
    - What do participants identify as the antecedents for simulating IEP team meetings in a virtual environment?
    - How do preservice special education teachers define the behaviors they engage in while conducting IEP team meetings in a MUVE?
    - What do preservice teachers identify as the contingencies for conducting IEP team meetings in a virtual simulation?
2. What rules do students construct to guide their behaviors during future IEP team meetings?

The research questions are answered in the following four sections. Findings were primarily identified through participant interviews and substantiated through observations and document review. Figure 2 displays an outline of how the findings are presented in this section. Each participant's individual background (Tier 1) is first presented to provide the context for her actions as part of the IEP team (Tier 2). Finally, the collective experiences of all participants are presented to juxtapose the contingencies maintaining these behaviors, and the verbal statements constructed by each participant (Tier 3).

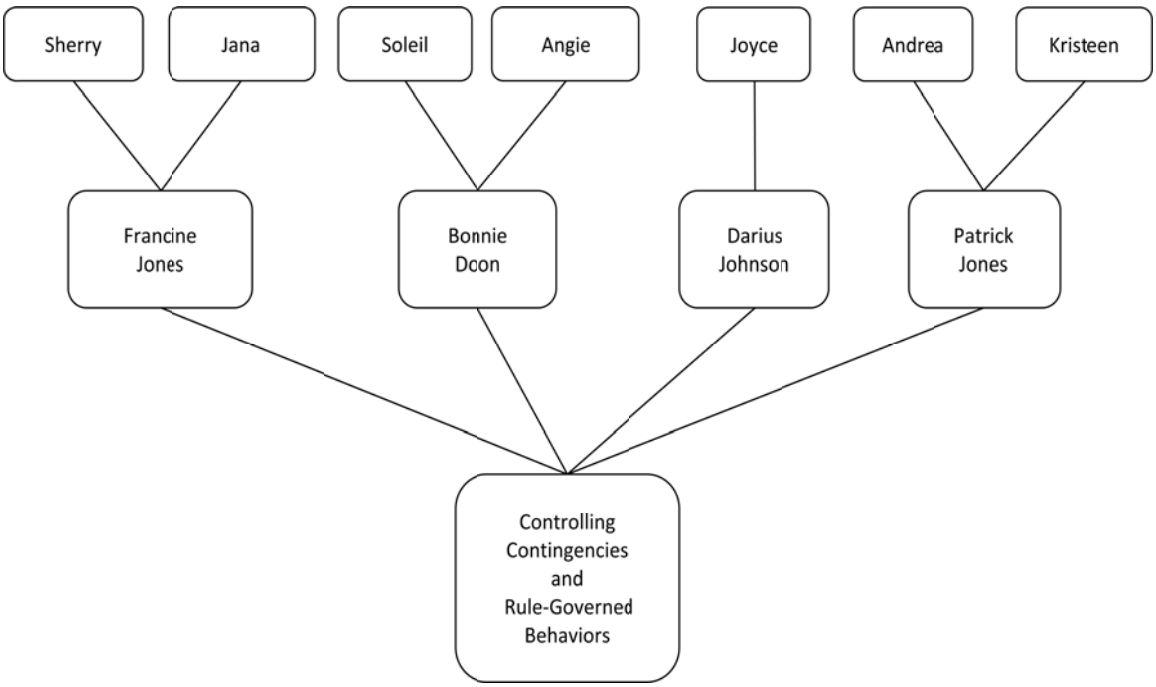

Figure 2. Tiered levels of research findings.

Antecedents

This section answers the first research question by describing the contextual variables specific to each of the seven participants in the study. Specifically, these are the antecedent stimuli which prompted each participant to become a special education teacher, and earn her degree through the distance mild/moderate special education program at Utah State University. Although handing out the course assignment was clearly the catalyst which ultimately brought about the target behavior (simulating IEP team meetings in a virtual environment), there were many other controlling factors for each preservice special education teacher which directly or indirectly affected her behavior. Since simulating IEP team meetings was an assignment for a class that was part

of a program in which the participants enrolled, focus was shifted to the antecedent variables responsible for each participant joining the distance mild/moderate program.

Additionally, the motivating operations, or value- and behavior-altering effects of the controlling contingencies, specific to each individual were discussed. In other words, becoming a special education teacher has always been an option for the participants, through either face-to-face classes are offered at state and private universities, or online classes taken from home. Even Utah State University's distance mild/moderate special education program has existed in some form since 1996. So what changed in the lives of each participant to suddenly make becoming a special education teacher more valuable, prompting them to join the 2010 distance cohort?

Due to the magnitude of the unit of analysis, each participant was asked to identify the variables she found most relevant. Four themes emerged across the verbal statements of all participants. These are: (a) background in special education, (b) distance program selection, (c) familiarity with technology, and (d) prior experience with IEPs. To get a better understanding of the environmental context (both the motivating operations and antecedent stimuli) unique to each preservice teacher, the findings in this section are stratified by both participant and theme.

Four themes emerged from the discussion of antecedent variables responsible for students enrolling in the mild/moderate distance special education program, and, ultimately, taking part in IEP team simulations. The first was each teacher trainee's background in special education (see Figure 3). The participants all had prior involvement with people with disabilities, but their experience in special education

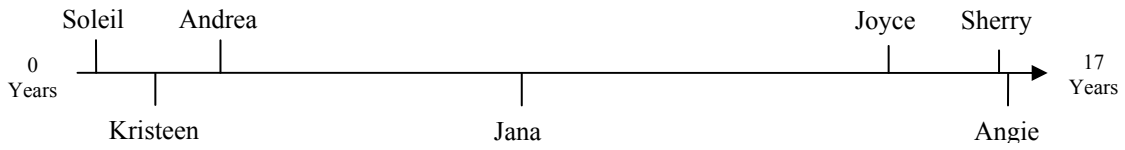

Figure 3. Continuum representing the relative duration of each participant's tenure in special education, from shortest (left) to longest (right).

ranged from none (i.e., Soleil) to several years (i.e., Sherry and Angie). Six of the seven preservice special education teachers who participated in this research had worked as a paraeducator in a special education classroom before deciding to become a special education teacher. Five of the respondents were working in a special education classroom while taking special education coursework. Many of the participants who were working in special education felt they were already fulfilling the requirements of a special education teacher on a day-to-day basis. This prompted them to enroll in a degree completion and certification program, which, upon completion, would allow them to take over their own special education classrooms.

Length of time in special education did not necessarily correlate with previous experience conducting IEP team meetings, however (see Figure 4). Although Andrea had spent only a couple of years in the classroom, she was the only participant on an emergency authorization to teach special education. Therefore, she had conducted several IEPs over the prior school year. Sherry had also once conducted an IEP meeting in the past. She stated, however, that she merely filled in for another teacher, and thus considered herself inexperienced in regard to IEP development. The mere fact that she had sat in on and participated in a meeting however, ranked her second amongst the

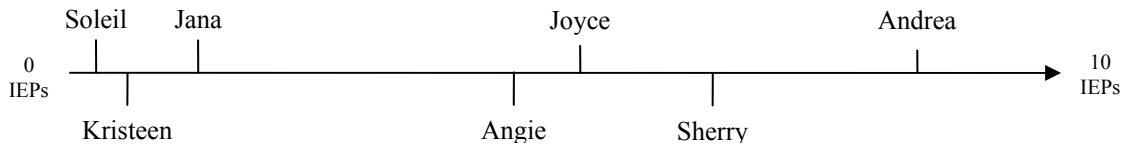

Figure 4. Continuum representing the relative amount of each participant's experience conducting IEP team meetings, from least (left) to most (right).

the other participants, who had either no previous IEP experience, or had only been able to observe throughout the meetings.

The self-reported level of each participant's level of proficiency with technology was also examined as an antecedent variable (see Figure 5). The preservice special education teachers in this research spoke of a variety of technologies they used in either school or personal settings. Soleil and Kristeen were by far the most competent with the use of technology. Others, like Joyce and Sherry, used Skype to communicate with family members on a regular basis. Jana and Angie expressed the least amount of familiarity with technology.

Additionally, participants cited a variety of reason for choosing to enroll in a distance undergraduate degree and teacher certification program, rather than a more traditional on-campus, face-to-face program. Figure 6 shows the relative distance from each participant to both Utah State University's main campus in Logan, as well as each other. These were primarily due to ties to the local community which prevented them from relocating. Those who lived close enough to commute—Angie, Jana, Sherry, and Soleil—cited other barriers, such as dangerous driving conditions and difficulty parking on campus.

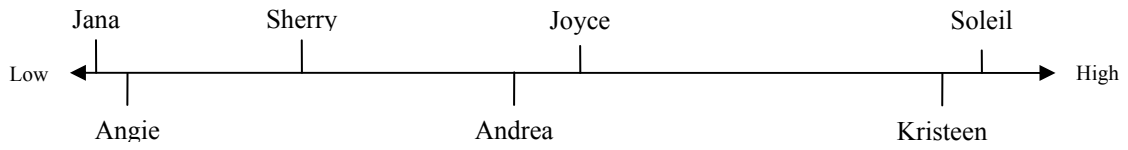

Figure 5. Continuum representing the relative level of each participant's technological proficiency, from low (left) to high (right).

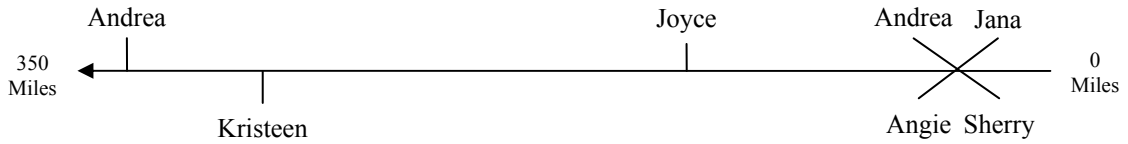

Figure 6. Continuum representing the relative distance between participants, as well as their proximity to the main campus, from furthest (left) to closest (right).

Although it was not identified as a theme from participant responses, each participant's age was also taken into account (see Figure 7). All of the preservice special education teachers were old enough (i.e., out of high-school long enough) to be considered nontraditional undergraduate students. However, their age ranges varied from the early 20s (Kristeen and Soleil) to the senior level (Sherry and Jana). Further information about the nontraditional characteristics of each participant can be found in Table 1. Three of the preservice special education teachers were classified as highly nontraditional (four or more characteristics). Another three of the participants fell into the moderately nontraditional category (two or three characteristics). Only Kristeen fit the minimally nontraditional standard of just one nontraditional characteristic. It should be noted, however, that these are not fixed classifications, and it is possible to become more or less nontraditional throughout one's school career.

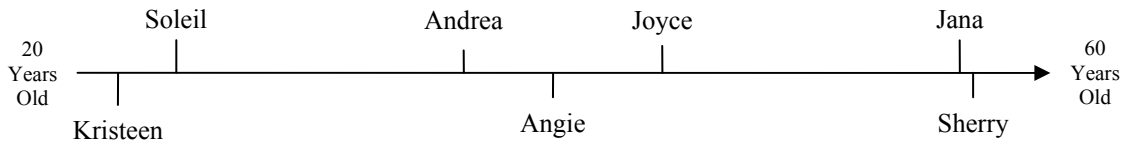

Figure 7. Continuum representing the relative age of each participant, from youngest (left) to oldest (right).

Table 1

Nontraditional Status of Participants

Status	Andrea	Angie	Jana	Joyce	Kristeen	Sherry	Soleil
Delayed enrollment	X	X	X	X	X	X	X
Employed full-time	X	X	X	X		X	
Financially independent	X	X	X	X		X	X
Dependents	X	X		X			X
Single parent	X						
Nontraditional status	High	High	Moderate	High	Minimal	Moderate	Moderate

Additional antecedent variables specific to each participant are described below, according to the four themes.

Sherry

Sherry, who lived in Brigham City, was assigned to Francine's case. She took classes at the Brigham City extension campus.

Background in special education. "It's funny how my life has changed, and I finally got into education," states Sherry, an older student in the distance mild/moderate

special education program, who initially started her college career in accounting. “In high school, [I] never wanted to be a teacher. Ever! My grandma was a teacher...and I thought I’ll die first before I become a teacher! But now, that’s what I’d like to do!”

In 1990, Sherry moved with her family to Brigham City. She was a stay-at-home mother until a friend who was working as a paraeducator for children with severe disabilities suggested she become a substitute paraprofessional. Sherry recalls:

> My kids were all in school during the day, and so she says, “Why don’t you come and substitute?” And so I did. And...I guess it’s really hard to get people to come back as substitutes in severe [special education], but I really enjoyed the kids. So I ended up substituting quite a bit that year!

Working as a substitute initially appealed to Sherry because it fit her schedule and allowed her to be close to her children during the day. However, she quickly found it rewarding to work directly with students with low incidence disabilities, and filled in as a paraeducator every available opportunity.

The following year a full-time paraprofessional opening came available, and Sherry was hired to fill it. She worked as a paraeducator for students with severe disabilities for 16 years. During this time, her classroom teacher urged her to get her teaching certificate. Jana recalled,

> I really, really liked [working as a paraeducator] and my teacher said, “You need to become a teacher.” And, he had said that to me for several years, but I still had [responsibilities for my] kids. You know, putting my daughters through college and weddings, [subsidized at least in part by parents]. And my son was going on [an LDS] mission [requiring ongoing financial support]. So it just wasn’t a good time. But the last couple of years that I had taught I was really getting bored. It just wasn’t a challenge to me, and I thought I needed something else. And so when, the year my son came home from the mission, I did decide to go to school, and I was going to be a severe teacher.

After working as a paraprofessional for several years, Sherry decided it was time for her

to get a teaching certificate and take over her own classroom. She had witnessed firsthand the classroom responsibilities of her teacher on a daily basis for years, and felt that these activities would provide her with more of a challenge. In a severe classroom, the daily activities of a paraeducator typically include personal care and delivering instruction. The classroom teacher, on the other hand, is responsible for educational programming for each student, including behavior management and setting goals.

Sherry enrolled in a local teacher education program that would lead to certification in teaching special education for students with severe disabilities. Unfortunately, however, her educational plans were once again delayed when she accidentally broke her leg. Working in a severe classroom can be quite physically demanding. For instance, some students in wheelchairs need assistance with transfers. Other students exhibit severe physical aggression towards others, and require physical intervention. Sherry explained how this was a primary factor in transferring to a mild/moderate special education certificate.

> Well, after I [started] school, I ended up breaking my leg and my ankle. And in severe, we have kids that are quite violent. After that, I couldn't get kicked in the leg. And I have titanium in there. I have two plates and 15 pins. And it just hurts to touch that area. Just to touch it! And so I didn't want to get kicked in it anymore, and I couldn't run away as fast as I could before. And I was right at the part of my education where I needed to decide, severe or mild/moderate. And so I thought, you know, I'd better change to mild/moderate. And I felt like I would be teaching more...doing more teaching there. Because in severe, just teaching kids to write their names sometimes is about as much as you can get. And so anyway, I switched.

As much as Sherry enjoyed working with students with severe disabilities, she thought she would be teaching more in mild/moderate special education. She also found severe special education physically exhausting. "If I were growing younger, it would work. But

no, you grow older. And I just didn't see myself doing that at 65," Sherry explained.

After transferring her studies to mild/moderate special education, Sherry soon began working as a paraeducator in a resource classroom as well. Here she describes how her view of special education changed along with her responsibilities.

> I needed to make a decision to be a para in mild/moderate. And so I switched, and the first month I was quite surprised, because the kids could talk, they knew their first and last names and could write them, and they could read, and you could carry on a conversation with them. And, you know, I started teaching. Because a para does a lot of teaching. She teamwork's with the teacher, and I absolutely loved it. I love it! I love it! I love being able to see the light turn on. You know, you try to explain it in the most simple terms until they get it. And this is just wonderful! You just open the door for them. And I just really like that!"

Sherry never really thought of herself as a "teacher" in the severe classroom. In mild/moderate, however, she saw the students' progress at a much faster rate. And Sherry found this very reinforcing. Transitioning to mild/moderate special education was not easy for her, though. "I totally loved...I loved the [severe] kids!" she exclaimed. "It was hard for me to make that decision."

Sherry felt that her leg injury also allows her to empathize with her students more, since it gave her the brief opportunity to understand what it was like to be physically challenged. She recalled:

> Well, and because I was in a wheelchair for about two months, and I actually went and toured some countries in Europe while I was in the wheelchair, I was so grateful for the Americans with Disabilities Act in America. Because I came back with a greater appreciation, and I felt so sorry for anyone—you know the old people—in Europe. They just, I don't know how they get around. Their people get old and feeble just like ours do. They've got to! And yet to get around in their country, you know it's old and all that. I feel so bad for them because I struggled just going to the restroom everyday as a tourist! I was grateful for [the ADA] in America. I was glad to get back...it was just so much more accessible!

Although certainly not the same as having a permanent disability, or being intellectually

impaired, Sherry found this experience eye opening. “And you know, I think it really helps me with the students I’m dealing with,” she explains. “It gave me more empathy for them. So, I was glad actually that I had that experience.” This firsthand knowledge of what it is like to be disabled changed Sherry’s approach to working with students with both mild/moderate and severe disabilities. It gave her a better understanding of how disabilities are socially constructed, and how environmental supports can decrease the extent to which people with disabilities are marginalized.

In her 18 years of experience in both severe and mild/moderate special education, Sherry has noticed a large disconnect between federal and state policies and procedures, and what goes on in the classroom. She elaborated on this.

> We think our people at the district office have no idea of what it’s like to be in the classroom. Some of the things that they tell us they want us to do are just...you know are like, are you kidding me? You want him to stop and count to ten? You know, that does not work!

Sherry found that it is difficult for classroom teachers and paraeducators to live up to the ideals of special education legislation. The contextual variables associated with each individual student make it difficult to translate research into practice, and she is often more concerned with helping the student with what is functional to him or her rather than meeting mandated criteria.

Additionally, Sherry finds it difficult to keep up with changes in the law as a paraeducator. She recalls that she was given basic parameters of special education law, but not much beyond that. Sherry comments, “One thing I’d like to say is, I don’t think they explained the law to us very well.” She continued:

> Our teacher knows it, I’m assuming, but laws change all the time. And basically,

> the only law we really know is that you don't hit the kids back, you don't talk to parents—even on the phone. If they're asking how Johnny's doing, you give it to the teacher. You don't talk to them in the grocery store, and don't use first and last names.

Sherry's understanding of the law was limited to only what was directly functional for her on a day-to-day basis as a paraeducator. She knew that when she became a classroom teacher, she would have to broaden her knowledge of special education policies and procedures. For Sherry, this was a cause for concern.

> I have a girlfriend that, her and I worked together for years, and she was actually going into social work, because she doesn't want to work with parents in the school program. She did one of her theses on No Child Left Behind, and she told me what a nightmare that was. So I never, ever wanted to get close to that one! Just know what I need to do!

Sherry was intimidated by the No Child Left Behind act and is depth and breadth, especially in regard to working with students with disabilities. As an aspiring teacher, she felt like this was a lot to take on, and worried about how it would affect what she did in the classroom. "And [the law] changes a lot," Sherry remarked. "And I'm sure that the teachers are as frustrated with that too. I mean, I think it's something that you have to know every year. Keep up on the updates."

Prior IEP experience. Unlike most paraprofessionals, Sherry once had the opportunity to conduct an IEP team meeting.

> I found out [later] that we weren't supposed to be one, but several years ago when I was in severe, we had a teacher dumped on us who was just—well, they ended up firing her after the year with us. But I had to conduct one of the IEPs, and I had never even been in one! And, of course I knew what they were, but I totally did everything wrong!

When asked, Sherry does not consider this isolated instance as experience conducting IEPs. She acknowledges that she was unprepared, did not adhere to procedures, and was

out of compliance with special education law.

"We have four or five teachers at school that have IEPs, and so I don't know who's having an IEP. And there's kind of one classroom where they all go in and out," Sherry observes. She explains that "we [paraeducators] have to clean the classroom, all the planning stuff when they're conducting [an IEP]. So I've seen the people come in, and all that. And my teacher tells me things after." Sherry considers these indirect experiences as more valuable than her one direct IEP team meeting. However, the debriefings her classroom teacher provides after each meeting do little to prepare her to conduct one on her own.

One of the primary differences Sherry noted as she transferred from severe to mild/moderate special education was the frequency with which she interacted with her students' parents. Here she describes the difference.

> Some parents we see quite a bit, especially in severe I did. The only time I've met some parents in mild/moderate is just as they're coming and going. But in severe, we had parents having to come and bring clothes because their children had an accident, or coming to get their student because they needed a doctor's appointment. Our students were such that they couldn't go to the office and wait for mom and dad. So I had a lot more experience with parents in severe.

Due to the needs of the student's in Sherry's severe classes, the parents of these students played a much more active role in their daily school schedules.

In contrast, Sherry feels that she rarely sees the parents of her students in mild/moderate special education. "In the last two and a half years, I bet I've met two parents and know who they go to. I mean I've seen parents come and go, but I haven't been where I was introduced," Sherry explains. "And if I happen to be walking in the hall or something, I'll see a parent. Because I know the people from the district office and so I

know which ones the parent." Sherry found that she only saw the parents of her mild/moderate students in passing, while the parents of her severe students were at school on a more frequent basis.

Sherry has observed that in both severe and mild/moderate special education, some parents will carry out their student's IEP at home while others won't. "But, I think the worst thing that I've learned in mild/moderate," she states, "is how some of these kids are at school in survival mode, because it's the only safe place they have. And that just breaks my heart. Just breaks my heart!" Sherry explains that she understands why some of her students refuse to participate and others misbehave. One of her students spends several nights a week sleeping in a car, while another lives in a shed. Although she empathizes with her students, Sherry has more difficulty relating to their parents.

> I just do not know why children who live in America have to sleep in a car? The only time they get food is school breakfast, school lunch? They might not be able to take a bath? This is America! And you know, well Brigham City. I just don't understand it. So that's my take on mild/moderate. I do not associate with the parents. My teacher does a lot, talking on the phone and stuff, but not me.

For Sherry, your children are the most important thing that you have in the world. Being moth a mother and a grandmother, Sherry has trouble understanding why someone cannot care for their own children, other than to note that perhaps some of these parents were raised in a similar environment.

"When I do know of a parent who supports their child, I'm so grateful [because] they're the minority," Sherry emphasizes. She illustrates:

> I had one student who, he reminds me of my son. He's tall and lanky, and just a cutie. Just a cute kid! And his parents are just right on him every day. And if his teacher doesn't post is grades every day, she gets a phone call. And [the teacher] says, "Oh this bothers me!" And I'll say, "But isn't this so wonderful?! Don't you

wish every student had Joey's parents?"

Even though the parents of this particular student required more work on the part of the classroom teacher, both the teacher and Sherry were comforted by the fact that his parents has such concern for his wellbeing. "Those are the parents that you wish every child could have!" exclaimed Sherry. "And I like to think I'm a good parent, but you'd have to ask my kids!"

Although Sherry was never provided explicit training on special education law, she had years of experience in the classroom, which continuously shaped her interactions with parents and students. "But that's basically all I knew of the law until I really got into the program," she noted. "And now I'm learning it, and I certainly want to keep up on that."

Selecting the distance program. Sherry's decision to return to school was ameliorated by the extension service offered to Utah State University's Brigham City campus. She explained that,

> I knew I'd have to go to school at night. And driving through the canyon, I just wasn't going to go there. And, for one thing the drive time. That's another 45 minutes to get there, and then you have to add that both ways. And then, at my age, I'm really tired when I get done with work. So to figure an hour and a half drive time either way. And then the parking over at Utah State is a nightmare. Well and you know, because I'd be going at night and in winter time most of the time, walking on the icy sidewalks.

Sherry identified a number of barriers that kept her from taking face-to-face classes on USU's main campus.

On the other hand, it takes her 10 minutes to get to the Brigham City campus. In fact, she explains that "had it not been for the extension, I would not be going to school. I

didn't have enough gumption to do the driving." This was not simply Sherry postulating about how difficult the drive would be. She had firsthand experience.

> I actually had to take one class on campus. It was a math class, and I wanted to take it from a certain math teacher. And so my girlfriend and I drove over twice a week. And we drove together and everything, and we survived, but I never would have done that again.

One semester of driving back and forth from Brigham City to Logan was enough for Sherry to know that she didn't want to do it again. Sherry also had the option of taking classes at Weber State, which would eliminate driving through Wellsville Canyon. However, this would also be a lengthy commute, and "if I had my druthers, my druthers would be Utah State," Sherry stated. Although she confesses that had it been any other university's extension, she probably still would have enrolled, Sherry admits that she was excited that it was Utah State's education program because of its excellent reputation.

Another variable that made it easier for Sherry to return to school was that she knew someone else in the program. Sherry started taking classes with a friend who also wanted to become a severe special education teacher. However, after completing all their general coursework together, Sherry's friend decided not to apply for the special education program. "She said that she'd just been thinking and thinking and just did not want to be a teacher," explained Sherry. "So she went into social work, and she's going to work with the severe children as a social worker." Up until that time, they had taken every class together, and Sherry admits that she needed that crutch. She explained:

> Frankly, it's hard to be the oldest kid in the classroom every time! And, when we did break away, that was really hard for me. It was hard for me to go into the classroom by myself, and get to know everybody…. And making friends is kind of important for me.

Since Sherry was a nontraditional student in terms of her age and full-time employment, she was nervous about fitting in with the other distance special education students. However, she soon found that many of the other students in her cohort came from a similar background, and she was pleased to find that these same students were in all her classes each semester. "It's so nice to [ask], 'Now what did he say?' Because sometimes you don't hear something. And, 'What do you think of this?' And to get together in a little study group," explained Sherry, preferring to have others with which to collaborate.

Familiarity with technology. One variable that was not a factor when Sherry decided to return to school was her familiarity with technology. This was primarily because she was not aware of the technology she would be using. "A lot of us are older, so the computer stuff is really foreign to us," she remarked. Here she describes how her use of technology evolved over the past several years.

> Pac Man came out on the computer—it's been a long time! We actually didn't get a computer until my oldest was probably about a junior in high school. My husband and I, neither one of us ever worked with them. But then his work evolved into he had a computer. So then we saw the need to get one only as a word processor. And that what we used it for, so the kids could write their reports. And, my girlfriends kept trying to get me to communicate with them on email, and I didn't even want to do that.

As the need arose, Sherry gradually began to incorporate computer technology into their daily lives. It was primarily her husband's work and her children's school that evoked the need for a computer, but soon Sherry's friends were also encouraging her to get online.

However, it was not until she began the distance program that forced Sherry to bring computing into her repertoire. She describes how she caught up with technology upon entering the program.

> The very first class we took was the computer class. And I'm actually glad we did. Well for me, because I learned all the programs and that actually helped through all my [courses]. Because I thought, well I know how to turn on my computer and get my email, and I can get on the Internet. What else is there? So, I learned a lot through that class!

Sherry was able to quickly get up to speed with the technology she would be using throughout the program by completing a basic computer course. However, this did not ease all of her fears when it came to applying her newly acquired technology skills. "I can't tell you how many times—well, probably for the first three assignments—putting stuff into Blackboard just scared me to death," Sherry recalls! Initially, after submitting an assignment through the Blackboard drop box, Sherry would email her professors to make sure they had received it. However, once she realized her assignments were going through, her confidence to turn in future assignments was reinforced.

Sherry still stayed away from entirely online, asynchronous courses for the first few semesters. She liked having a professor there to whom she could ask questions, even if it was through broadcast satellite. "I didn't take any [asynchronous classes] until I absolutely had to!" she exclaimed, still a little wary of her ability to go it alone.

Although it took a while for Sherry to fully embrace the various types of technology she encountered in the distance program, she is now much more self-assured.

> Now that I'm in satellite classes, and I'm familiar with Blackboard and stuff, my computer is my best friend! I take it everywhere, and I think what a miracle it is! And I just couldn't imagine going to school without it.... My husband got me [a laptop], and then I just don't know what I ever did without it. And then, a flash drive! You can just carry it in your purse or around your neck! My writing paper, my research paper is right here in this little deal. And I can take it to any computer, and I am just so totally thrilled with it. And then, Skype! I can talk to my son in Qatar, and I love it! I love it now! But I think it's like anything. I was so totally afraid of it because I didn't know how to use it. And now, I mean, I've totally come out of my comfort zone. Now I just love it! And now I'm not afraid

> to take an online class or satellite class. Because I totally did not ever want to go there. So, it's totally changed 100%!

Once she realized how various technologies could benefit her education, Sherry quickly embraced them. While she may have been a little hesitant at first to step out of her comfort zone, Sherry eventually adopted a variety of new hardware and software which she found to be beneficial.

Sherry notes that since starting the distance mild/moderate program, her use of technology now extends far beyond the classroom. In my church, I teach a Sunday school class, and I'm always doing everything on my computer," she states. Sherry also frequently web-conferenced with her daughter in St. George, and her son who was stationed in Qatar. "When we talk on the phone we have to wait a couple of seconds, but not on Skype," she explained. She also finds it fun to see her grandchildren on the computer screen.

Sherry even began playing computer games, but cautions that it's easy for her to get carried away.

> I play Pac Man just a little bit when I'd go to my friend's house, but it tends to make me swear. And I don't like to do that. Now I'll play a game on my laptop called Klondike Forever, it's a solitaire game. That one, I'll do because you don't have to have speed involved. I can't do speed. I just can't! I play the piano, and I type really good, but I cannot play those games. I turn into a different person! I just get kind of crude, and I don't like to do that. So it's best I just stay away. Nope, I don't like them.

Since starting the distance program, Sherry feels like, "I've done a total turn around on technology." Though she admits that she still don't know how to take a picture or send a text message with her phone yet. "But I'm doing better on my computer!" she exclaimed. "You know, you can only teach an old dog so many new tricks!"

Jana

Jana lived in Willard, a small town in Box Elder County. She attended the Brigham City extension campus, and was assigned to work on Francine's case.

Background in special education and prior IEP experience. Jana has worked as a paraprofessional in an emotional disturbance (ED) unit at Box Elder Middle School for the past seven years. She recalled, "When I first went to work at Box Elder middle, it was for specifically one young lady. And she needed some extra help, and that was me." This student's IEP dictated that she would benefit from the services of an individual aid, which is how Jana began her career in special education.

Despite working directly with students with disabilities for the past seven years, she notes that she's has only had the opportunity to review two IEPs. As Jana explained:

> You know, I've asked for five solid years if I could come and see one of these, and they always say, "Oh, sure. We'll pick a good one." And then, it never ever happens. So, no. I have never seen an actual IEP [meeting].

Although she has tried to take a more active role in her students' educational planning, her role as a paraeducator is not essential to the IEP development process. As a result, Jana has repeatedly been omitted from the IEP team.

Although she has not previously taken part of the IEP process, Jana has interacted with the parents of her students on a number of occasions.

> I answer the phone a lot. I've chatted on the phone a lot with our parents. I wouldn't say an awful lot. Usually, I just take messages, answer questions, and then if there's something that's really happening I turn that over to the teacher.

While Jana was not active in the planning process, she was able to frequently interact with parents to bridge the gap between school and home. Additionally, Jana had the

opportunity to collaborate with teachers to develop an after school program for struggling students. She describes this experience here.

> Well, the past year, I got a scholarship from the Women's Center. And to do my service hours, I volunteered at the Stingray Academy at the middle school. It's an after school program for tutoring, and I collaborated a great deal because they were starting a new program for the Stingray Academy. And I collaborated with the teachers that were working on that new program, and then we were working with—I think there were four special ed students that were coming to Stingray Academy. And so I collaborated with the teachers and our one special ed teacher that was doing the program to make sure that things happened for them the way they needed to.

Jana may not have been able to take part of the IEP process in her role as a paraeducator, but—as outlined above—she has found other ways to work with both parents and teachers to benefit her students.

Selecting the distance program. Jana's decision to go back to school was largely based on her personal life.

> Back in the olden days, when I actually when to college the first time. I was in special ed, but then I met my husband, got married, left school...did a whole bunch of other things in between. Anyway, that fell apart after 25 years, and so I decided to go back to school. And because that's where I wanted to start, that's where I picked up again. I had enough time to...you know, not all my credits from the olden days counted. But I had enough time to make all those up and get into the cohort that I'm in now.

Although the mild/moderate distance program was not in existence 25 years ago when she first started school, Jana found several benefits to distance education. Jana lives in the small town of Willard, and drives into the Brigham City satellite campus. She has several ties to the community, including family, friends, and her job as a paraeducator, so Jana was not interested in relocating. Furthermore, the lengthy commute to the main campus in Logan prevented her from taking traditional, face-to-face classes. "I didn't want to

drive the canyon in the winter," noted Jana. "The canyon's scary in the winter." Inclement weather conditions lengthen the commute and are often cited as a barrier to traditional higher education (Rural Students, 2006). Because of this, Jana found the idea of working from home and submitting assignments online very appealing.

Her decision to begin the distance program was made easier by the fact that she knew someone already in the program. Jana explained how having a friend in the distance mild/moderate program contributed to her decision to join.

> There's another paraeducator in our room, Jan, [who] has been working on this a lot longer than I have, and she had talked to me about where she was going, how she was getting there. And as she talked about it, I thought, "You know, I could do that. That would be a good thing for me to do." And so, the two of us—and it's been very nice—you know we can go to school and compare notes on our lunch hour. And she's been able to help me, and I've been able to help her. It's been nice to have a friend in the program.

Having someone show her the ropes of distance education was beneficial to Jana. Not only did she have someone to help her with her school work, but she also had an invaluable resource who already knew the ins and outs of distance education.

While knowing someone else in the program certainly eased her decision to go back to school, Jana believes that she still would have joined if she were on her own. "You know, I would have done it," she states. "I would have done it, but it would have been more scary!"

Familiarity with technology. Jana's biggest hesitation in returning to school was her worry that she did not have the technological background of other students. She explains how she was able to overcome this fear by consulting with her coworkers at Box Elder Middle School.

> Well, I was really scared when we first got started with all of this. I was terrified that I wasn't going to be able to keep up with everything. But I did take a computer class, which has helped a lot. What helped me more is that I'm friends with the computer teacher at the middle school. And anytime that I've had a question, I could go to Carly and say, "Now why is it this way? And what do I do next? And what did I do wrong?" And she was a great help.

Jana sought out resources to assist her in utilizing technology to help her succeed in the distance program. She found a computer class to help her master basic skills, and consulted the computer teacher at her school for help with specific technical questions. Jana acknowledges that technology is "a huge part of my learning today. I've made progress. I'm still not really very good at it, but I've made serious progress at being able to use technology."

When asked to rate her proficiency with technology, Jana replied, "I'm 51 years old.... On a scale of 1—10, probably a 2!" Compared to many of the younger preservice special education teachers in her cohort, Jana feels less comfortable using technology for educational purposes. "I don't play video games," she stated, also noting that she had never taken part in web conferencing before.

Jana described how her technological skills have evolved since beginning the distance mild/moderate program.

> We owned a computer, but it was mostly for my children. And, I knew how to turn it on. That was my computer skills at one point. And everything I had to do, my kids either set it up or did it for me. But, I can do what needs to be done now on my computer. I know there's still an awful lot that I don't understand, but, you know, I'm comfortable. Well, at least I'm comfortable trying. I always thought that when I got on the computer, I was going to break it. It would be destroyed because I touched the keys, you know? I don't think that anymore. I'm pretty confident in being able to try something, and if it doesn't work, try something else. And for me, that's progress.

Prior to starting the distance program, Jana did not have much use for a computer. As she

explains, technology became something to fear rather than facilitate her day-to-day life. Joining the special education distance program forced Jana out of her technology comfort zone. Although she admits that she is far from proficient with a computer, she worries less about breaking it, and is now more confident to try something new.

Angie

Angie lived in Willard, just outside of Brigham City where she attended courses through Utah State University's extension program. She was assigned the part of general education teacher on Bonnie's IEP team.

Background in special education. Before joining USU's mild/moderate distance program, Angie was working part-time as a special education paraeducator.

> Since back when my oldest son was a kindergartner, I worked as a paraprofessional in a Title One setting. Just as a classroom reduction teacher—back in the day when the economy allowed that for school districts...But after that, I worked in the Weber School district for six years as a paraprofessional, and I've been with Box Elder School District for 10 years. And for all of those years, I have worked in special education mild/moderate.

Throughout her career in education, Angie had taught students with a wide range of ability levels in various placements. "And I really liked it," she stated. "I liked being in the classroom setting. I liked having the same time off as my children did. And I thought I'd go back to school, being a single-mom." In 1999, Angie enrolled at Weber State University, but quickly found that it was too much to handle along with work and raising two kids. "My children were smaller at the time, and I couldn't have my kids be in daycare all day, and then Mom be gone all night," she explained. "So it just kind of put my education on the back burner again."

In 2005, Angie was working in a mild/moderate classroom for the Box Elder School District when one of the certified teachers unexpectedly retired in the middle of the school year for medical reasons. A general education teacher was quickly hired to fill this vacancy, but the new teacher had little knowledge of special education practices. "So still as paraprofessionals, we were helping her out and basically running the classroom," says Angie. Despite her role as a paraeducator, during this time Angie felt like she was performing the duties of the certified classroom teacher.

The school district quickly hired a certified special education teacher to replace the general education teacher who had temporarily been assigned to Angie's classroom. This is how Angie described how her job changed once the special education teacher was hired:

> And then at that time, they had hired a teacher, just newly graduated from college. And yes, she was certified special education mild/moderate, but she didn't know anything. She didn't know how to run a classroom; she didn't know how to put things together. So again, as paraprofessionals, we were supporting her as well. And that was the time that I just had decided that this is it...I was tired of doing the role of a certified teacher, and having the background, and having the knowledge to help students and help these other adults better themselves.

Although a certified special education teacher was now working in the classroom, Angie continued to feel like she was performing the job duties of the classroom teacher. She enjoyed her job as a paraeducator, supporting the classroom teacher. However, if she was going to take on the major responsibilities of a certified special education teacher, she thought she deserved credit for doing so. "I was more or less ticked off because I was tired of being treated...just as a second hand kind of person, instead of what my background knowledge was proving. So I decided to better myself," Angie recalled.

"And in 2006, that's when I bit the bullet so to speak, and enrolled." Even though she had previously take classes at Weber State University, Angie selected the mild/moderate special education distance program at Utah State University to earn her bachelor's degree and teaching certificate.

Selecting the distance program. Angie lived in Willard, just a few miles to the Brigham City satellite campus. Although she still lived within driving distance to Weber State University, where she had previously been enrolled, Angie chose the distance program at Utah State University primarily because of its flexibility. "It just kind of fit into my schedule being a working mom of, at that time, pre-teenagers," she said. "And so it just kind of fit, being able to have the distance ed program come to me, so to speak, within proximity of my home." Unbeknownst to her at the time, Angie had become good friends with the director of the mild/moderate special education distance program while their children played in the same hockey league. Here, she recounted what she now refers to as a life lesson about being kind to strangers.

> When Nancy was very first a hockey mom, I was vice-president of the hockey association up in Logan. And she came to me and she was, you know, a deer in the headlights. And with hockey, it's like getting your child dressed in the gear is a feat in itself. So she came to me and wanted to know about payment and this and that and the other. And how to put a mouth guard in, and how to lace up, and just the basic stuff. I could have been the type of person who just blew her off, because she was a new hockey mom, and I was a veteran hockey mom. But that's kind of not my personality. So, of course, I helped her...and she and I became friends. My daughter, and [her son] skated on the same little hockey team for a couple of years, and then it came time for me to apply to the program. And...I didn't know who she was. I didn't know her job background when she and I were just hockey moms. And then I saw her name on my application to the special ed program, and she was the woman who made it or break it if I got into the program, so to speak! And so I tell my children, my own teenagers, you need to be nice to everyone, because you never really know when that person may affect your life!

In addition to knowing the director, a professor in the special education department was one of Angie's "hockey dads." This knowledge of who she would be working with and taking classes from helped ease some of Angie's concerns about returning to school.

Familiarity with technology. Perhaps the most anxiety producing part of going back to school for Angie was working with unfamiliar technology. "I didn't know what to expect from satellite broadcasts," she explains. "I like to raise my hand and ask questions...and it was interesting to be able to talk to the person over a speaker, rather than have my professor right there in the room with me." Angie quickly found that most of her distance education fears were assuaged. Despite being geographically separated, she was still able to ask questions and communicate with her professors in real time.

Angie acknowledges that she did not have much of a background with technology prior to joining the distance program. She knew how to log onto a computer and access the Internet to check her email, but had never really played video games or attempted to web-conference. However, Angie still felt that she had an advantage over many of her cohort peers simply because she owned a laptop. "And then I found myself...having my laptop in my classroom," she explains. "My laptop—bought it way back in 2006. It was before webcams were actually put into the computer itself. Some of my peers didn't have the luxury of even having a laptop." For Angie, owning a laptop proved to be very beneficial in the distance program, both for completing assignments and communicating with classmates.

Although she now feels more comfortable using technology in the classroom, Angie admitted:

> I'm a little bit timid still...but, you know, you play with it, and you sort of entertain yourself with it when you have time, and you practice a little bit, and then it becomes more familiar to you. I don't think I would have stepped outside my box had I not had—not that I say that I was pushed into the experience, but I guess it's more the opportunity was given to me. And over the years, since 2006, it seems like the technology has just gotten better and better. Being a non-techy person, technology has made things easier of course, and it's made it better. And every experience that I've had with the technology...has really helped me grow as a person, and get outside of that box.

When she started the distance program, Angie hesitated to use technology. Her willingness to try new things and ask for help when she needed it allowed her to step outside of her comfort zone. Now that she has become more comfortable telecommuting and working online, Angie reaps the benefits of embracing technological enhancements.

Prior IEP experience. After starting the distance program, Angie transferred to a smaller setting where she became a teaching paraprofessional. "There just never was a big enough caseload to hire a certified [special education] teacher," states Angie. "And they just assigned me a mentor from the school district, and she would oversee the IEPs, you know, because that was a legality thing that, as a paraprofessional, I could not do." Angie was responsible for collecting student data, and then she would collaborate with the district mentor who would complete the IEPs. "I was able to attend those IEPs, but my voice was mute," she exasperated. However, she admitted, a lot of the IEP procedures were beyond her understanding. Occasionally, she wasn't sure if what she wanted to say was right or wrong. "And then there were situations where something was said and I knew that what was said was wrong, because that's not what I had observed as the data collector—as the paraprofessional working directly with those students!" Angie exclaimed. This was particularly frustrating because she worked so closely with the

students.

In addition to her prohibition from speaking to her students' abilities, Angie found it difficult not directly interacting with their parents during the IEP meetings. Angie elaborated on this point.

> Another frustrating point to that is that the parents trusted Mrs. Day, you know, with their child on a daily basis. But then, when we would sit in these meetings, my mentor, or whoever was explaining the data, heard that I was just a paraeducator and couldn't really have the expertise that this other person did. The parents didn't know these people. They were just district people coming to the people. But they knew Mrs. Day, because I was the one who took their child to lunch, or took their child to the restroom, or wiped their nose. You know? That kind of thing.

Angie saw many parents on a regular basis when they dropped their kids off in the mornings and picked them up in the afternoons. She was the one they spoke to about changes in routine or anything else that might affect the child at school each day. Because of this, she felt like she had established a strong report with most of the parents in her classroom, which trusted Angie to care for their students.

However, when it came to the IEP meetings, the parents were required to work with a district representative who they hardly even knew. "But as you know, going through my schooling and knowing that I am close to being my own certified teacher, I've also found those experiences good, because I was able to see how those kinds of things work," remarks Angie. "So I am thankful for those experiences...they were just often frustrating!" She elaborates on what her background as a paraprofessional has meant to her in the following comment.

> I've always said that, when I finally graduate and get into my own classroom and that kind of role, that the paraeducators, if I'm lucky enough to have any, will be the best treated paraeducators probably ever! Because I've dealt with different

> situations and different personalities for so long that, yeah, it has made me a better person, because you learn to deal with other people's characters, and that kind of thing.

Despite being stifled throughout her previous IEP experiences, Angie feels that observing these meetings has been beneficial. Though she doesn't think they have benefited her much in her ability to conduct IEPs as a special education teacher, she does have firsthand knowledge of what it is like to be a paraprofessional in those situations, and believes she will have a better relationship with her own paraeducators because of it.

Soleil

Soleil lived in Brigham City, and attended the extension campus there along with Sherry, Jana, and Angie. She worked as the LEA representative for Bonnie's IEP team.

Background in special education and prior IEP experience. Soleil was a 23-year-old female in the mild/moderate special education distance program. Although she had no prior teaching experience, Soleil was drawn to special education after three of her nieces were diagnosed as deaf. Prior to beginning the distance mild/moderate program, Soleil had worked at a juvenile correctional facility for sex offenders, and at a summer recreation program for children with developmental disabilities. Additionally, one of her best friends in high school had Down syndrome, so she considered herself experienced working with people with special needs.

Never before working in special education, Soleil was unfamiliar with educational policies and procedures. Concerning the role special education law will play in her future position as a classroom teacher, Soleil predicted that, "it's going to affect it all the way. I mean, they're very specific. You have to follow them or else you get in trouble. You

don't have a job anymore." The scope and depth of special education law makes it difficult to summarize. Federal and state legislation dictate everything from the eligibility process to placement in the least restrictive environment.

Having not previously participated in an IEP team meeting, Soleil had no firsthand experience with developing individualized education programs. In her prior employment she was allowed to read individual service plans (ISP) to help implement the programs that were written for each consumer. It is important to note, however, that the goals within these ISPs were not the same as academic goals traditionally written into IEPs. The summer program provided respite care and recreational services, while the correctional facility focused on relapse prevention.

Although Soleil had some involvement with parents while working in juvenile corrections, her role was supervisory. "I had to monitor parent phone calls, and monitor parent visits. You know, so I'm in the room, but I'm not interacting," she stated. "I'm more watching for abuse and things like that from the parents." This inherently creates a disproportionate balance of power between parent and professional, and is incompatible with the collaboration required for successful IEP team meetings. However, Soleil was not concerned with how this experience would affect her ability to work with parents in an educational setting. "I always guess [that] telling the parents, and involving the parents, and all those things seem natural," she postulated. While the interpersonal aspects of working with parents and other IEP team members may come more naturally to some people than others, according to the Individuals with Disabilities Education Act there are also certain mandates and procedures that must be followed.

Selecting the distance program. Soleil cited many factors for joining the distance program at USU. She lives in a neighboring town, about 30 miles from Logan, and has several ties to the community which make it hard for her to relocate. Soleil considered other teacher preparation programs offered through different institutions, but ultimately decided on Utah State because of its reputation of producing well qualified teachers.

Initially starting college right out of high school, Soleil had difficulty determining a major course of studies and eventually dropped out of school to care for her ill father. From her admittance into the distance special education program, Soleil found many advantages to taking classes via satellite broadcast. To begin with, it's close. The regional campus is located in town, keeping her close to her family and cutting down on her commute time. More importantly, Soleil noted:

> I don't feel a difference in the educational value. It's the same. I think it actually is better than the on-campus, just because there's no monotony. It's straight to the point. These are your assignments; this is what you're going to learn. On campus, I feel like there's a lot of extra meetings and things like that.

Soleil felt that the distance program more effectively took advantage of class-time by offering recorded lectures and other asynchronous materials online, for students to access at their convenience. This freed up class meetings to focus on discussion and other student-centered activities.

On the other hand, Soleil also felt like she was not able to establish as strong a report with her professors in the distance program as she had in on-campus courses. "I have recommendations from [on-campus] professors, and I don't feel comfortable asking the [distance professors] I've had for letters of recommendation," she observed. On

campus, students often have the ability to informally visit with the professor or ask questions before or after class, or during breaks. Unless formally arranged by the professor, however, these opportunities are not available in distance education.

She also found it difficult being one of the youngest students in the distance cohort. Regarding the other distance mild/moderate students at her site, Soleil commented:

> I don't know if it's because I make good grades? Or because I know the information, but I haven't worked in the field? They feel like they have to know more than me because they've been paraeducators, or because they're 20 years older than me. So I get a lot of friction when I answer questions and things like that. They haven't learned about BIPs and FUBAs, or IEPs even. They haven't participated in those even though they've been in the classroom. And I have gained the things they have through [my] experiences. Just by being around somebody with disabilities, you gain those experiences. You understand how they learn. You understand what they need. You learn about autism through experience. It doesn't make me a special educator. It makes me somebody who's good with kids with disabilities. I get frustrated with that as well.

In terms of age, Soleil would typically fall within the majority of students in an on-campus teacher education program. Distance education programs, however, often appeal to nontraditional students: Over 25-years-old, part-time, working, residing off campus (Eastmond, 1998).

Familiarity with technology. Another aspect of almost all distance programs is their reliance on technology. While many campus-based programs find technological innovations—such as online discussion boards, VOIP, and GPS-enabled place-based learning—to be advantageous, in distance education these are often a necessity. Soleil stated that she felt very comfortable with the technology that has been integrated into the distance program. "I don't have a problem with it," she stated. "I can install things. I can

use things. I understand technology fairly well." At least part of her familiarity with technology can be attributed to using it for social applications. Soleil noted that she used Skype to talk with her sister on a daily basis. She also used Facebook regularly, and has been on Twitter in the past. Her level of comfort with computers extends into her academics as well. This can be seen in the following comment.

> Everyday I'm on the computer: Editing photos, reading email, calling people. I need my computer. I use my computer more than books. There's just so much available through online resources, as well as programs. I have calendars, chore charts, things like that, which are a lot easier than doing it manually. But there's online books, online quizzes, papers online, you know? I'm writing my paper right now, and I'm only using online resources. I would say it's the greater part of my education...especially since I'm in the distance ed program. Ninety percent of my learning is through technology.

For Soleil, using technology for educational purposes appears to be second nature. Since she is already online communicating with friends and family, checking email, and editing photos, it just makes sense that she would also use her computer to access instruction. As noted above, it was a lot easier for her than doing it manually.

Soleil plans on utilizing technology in the classroom as well, after she graduates. Once again she notes how technology makes her life easier:

> I've been downloading applications on my iPod..... I've got a counter and I've got an observation application and it's awesome! It's got intervals, and it has percentages, praise rates. It's got all this useful stuff that I would normally have to do on paper, and it would be difficult. But I got my little touch-screen iPod, and I can count how many times the child stabs themselves with a pencil or something! And, I don't know. I'm all giddy about it! I was trying to use it last night on my husband, but...it didn't work. But in a classroom it would work!

Many tools for recording student behavior have been converted from paper and pencil to a digital format. This change is designed to simplify data collection once you learn how to use the software.

Technology, however, can be somewhat overwhelming for people who are not accustomed with it. Soleil acknowledged:

> And it's scary. My sister is one of those people. She's like, "I don't know how to email." And I'm like, "What are you talking about; you don't know how to email? You're five years older than me.... Get on the computer and type in 'hotmail.com.'" And she's like, "Well, where would I type in that?" And I'm like, "Oh, man! Just forget it. Just live the rest of your life the way you're living it. I'm not ready to teach you how to do this."

Age is just one of the factors which contribute to the successful adoption of new technologies (Lim, 2001). Additionally, this comment shows how difficult it can be for people who are on two different technological playing fields to collaborate. Soleil expects others to have roughly the same level of familiarity with technology as she does, and is easily frustrated by those who do not. Completing the IEP team simulations required both collaborating with other team members and a basic modicum of technological competence.

Joyce

Joyce lived in Salt Lake City where she attended courses through USU's extension program. For this project, she was assigned to Darius' IEP team as the school psychologist.

Background in special education and prior IEP experience. Joyce began working 12 years ago as a paraeducator in a mild/moderate special education. "I had a wonderful teacher that was my mentor and supervisor," she recalled. "She taught me the ropes and I loved working with her. Loved what I was doing." It was working directly with this particular teacher that provided Joyce with the confidence and skills necessary

to succeed as a special education paraprofessional. “She was wonderful because she taught me what I needed to know, but also, as I was ready, gave me responsibilities, and made me feel more like I was a teacher rather than just an aid,” Joyce explains. “I wasn’t just making copies. I was working with the students...and eventually was given my own groups to work with and stuff like that.” Had it not been for this initial positive experience in special education, Joyce may not have decided on it as a career. “That [experience] really kind of started me into the whole thing,” she comments. Her classroom teacher provided her with the necessary feedback, and scaffolded responsibility until Joyce was able to independently manage a small group of students with mild/moderate disabilities.

Teaching students with special needs is very personal for Joyce, who has an identical twin sister with cerebral palsy. “So I’ve always kind of had a place in my heart for those who struggle in school,” she states. Joyce recalled:

> Back when we were young, it was the situation where she was whisked off to another school, you know. She wasn’t allowed to be taught in a regular ed classroom. And today she would have been allowed to come to school with me. I remember vividly in kindergarten, I cried and cried, and cried the first two weeks. And it wasn’t because I missed my mom. It was because I couldn’t understand why my twin sister wasn’t allowed to come to school with me. So that was really what really got me interested [in special education]. And now with all the changed in the laws and stuff, I think, Wow! What a wonderful thing! It would be great to have had that when we were younger.

Joyce understands from a very personal perspective how special education policies and procedures directly impact students with disabilities. However, when she entered the classroom as a paraeducator, she acquired a new perspective of special education law.

In her 12 years as a paraprofessional the law has evolved in several ways. Joyce

describes how her classroom responsibilities changed as well.

> When I first started out as an aid, certainly kids were included in the general ed program, but typically it was a pull out situation. They would go to their regular classroom for science and social studies and those types of things, but we'd pull them out for reading and math and language arts types of stuff. So we did a lot of pull out when I first started. And now it's really more going into the classroom and collaborating with the regular ed teacher a lot more. So it has changed even in the years that I've been doing it.

When Joyce first started in special education, students with mild/moderate disabilities were often pulled out of the general education classroom during subjects in which they struggled for specialized instruction. However, recent legislation has pushed for students to receive these same services in a more inclusive environment. "To be honest, I find it much easier to pull students out," says Joyce, citing a number of reasons. "One of the biggest reasons is that a lot of times it's really hard to get the regular ed teachers to cooperate with you as far as scheduling, also with what you're doing with the students." She continued:

> When we first started doing some of the push-in type stuff and working in the classroom, I was working with a 4th grade teacher. The special ed students were considered my students and she actually, no matter what subject she was teaching at the time, she wouldn't include them. She figured they couldn't do it, they didn't know how to do it. So she wouldn't include them in what was going on in the regular ed classroom. And I sat at the back of the room trying to do reading and stuff with them, while she was doing whole group instruction with the rest of the class. And it was very disruptive to try to teach in that kind of an atmosphere.

Although this law was intended to include students with disabilities with their non-disabled peers, it was manifested as a simple changed of environment. Although the students receiving special education were physically located in the same classroom as general education students, they continued to receive separate instruction. Joyce found the change in environment to be more disruptive than beneficial.

Although this experience may have jaded Joyce's view of inclusion, she balances this with an example of when collaborating with general education worked.

> I worked with another 4th grade teacher who was very open to having me and the special ed teacher in his classroom. So much so that he was willing to take all the lower performing students in a group in his classroom, and we did reading and math with him, and we really cooperated. It was really a collaboration! For reading, he taught fluency; we did comprehension and decoding and stuff like that. And we rotated groups, and each of us took one part and taught one part of the lesson. And all of the kids, whether they were special ed or not—it didn't matter—they were all included in each of the groups. We kind of rotated that way, and it was very successful! With math, he taught the main part of the lesson, as we kind of supervised and made sure the students were following and understood what was going on. And then, when it came time for the independent work, we all rotated through the classroom helping students, whether they were special ed or not. We just kind of helped whoever needed our help. And there were three of us with a group of 25 kids, and wow, it was really successful! The kids really made some progress that year.

On this occasion, Joyce was able to find a way to collaborate with the general education teacher to create an environment where all students learned together. Although the specific law had not changed from her previous experience, the individual variables in each situation allowed for success on one occasion and led to failure on another.

While Joyce has never taken part or observed a full IEP, she has played a minor role in the IEP process. "On a couple of situations where I was working with some students, there were some questions about what was going on with this student and the progress he was making and whatnot," she recalls. "I was brought in to explain what I was doing with this particular student, but I wasn't included on the entire process." Although Joyce had actively participated in a previous IEP meeting, she admitted that she was unfamiliar with every components of an IEP and did not feel confident enough to conduct one on her own.

Selecting the distance program. Joyce lives roughly 2 hours each way from Logan, where USU's main campus is located. While there are three other universities within an hour's drive from her home, she found many advantages to USU's the distance mild/moderate program. "Well, first of all, it was convenient," she states. "I can do a lot of it from home. I only have to go to classes once a week." This also allowed her to spend more time with her family, something she did not want to compromise. Another factor that Joyce cites is Utah State University's reputation, "I've also heard that USU has one of the top education programs in the country, so that made it a plus." For Joyce, the benefits of taking classes at a distance from a top rated program outweighed the fact that she was physically separated from her the rest of her cohort and instructors.

Although Joyce had already decided to return to school to get her teaching certificate, she was somewhat hesitant about beginning a program without knowing anyone else that she could turn to for support. However, as Joyce explains, this quickly changed.

> I didn't know anyone in the program before, but when I started the first week of the program, I found out that someone else that lives just three blocks from me and lives in our neighborhood is in the program with me. So that was kind of fun!

Knowing somebody else in the program with whom she could study and compare notes was reassuring for Joyce. Not only did it calm some of her fears about going back to school, but having someone else to share the experience with made each class more enjoyable.

Familiarity with technology. When asked how comfortable she is with the use of technology, Joyce exclaimed, "Certainly much more comfortable now than I was when I

started!" But she acknowledges that before starting the distance program, she did have some knowledge of how to use computers, and she certainly was not afraid to try something new. "I would have tried it either way," she remarks in reference to the types of technology utilized in the distance program. "I'm always willing to try new things."

Overall, Joyce feels confident in her ability to learn and utilize new technology. She uses a computer quite frequently to check email and play video games. "We have a Wii, and an Xbox, and PS3, and all," she states, citing the game Myst as her favorite. "My kids laugh at me when I play video games," Joyce remarks. "I just do it once in a while for fun." Joyce noted that her children are not only more adept at video games, but they help her with other technologies, like checking her email on her cell phone. And she confesses that she probably does not use some devices, such as her computer and cell phone, to the degree that they could be utilized.

Unlike other participants, the use of technology did not discourage her in any way from applying to the distance program. "I've learned as I go, but I'm not afraid to try it," she claims. "I've learned what I need to know to be successful." As other participants stated, Joyce's use of technology reflected her daily needs for it. For instance, Joyce explained:

> I didn't know much about Skype until now. I'd used it only a couple of times to talk to my son when he was in Iraq. He was in Iraq for about 8 months or so, and it was wonderful. We were able to communicate with him on Skype and it was great!

Joyce learned to seek out new technologies as required by her daily functioning. Prior to her son going to Iraq, she had no need for teleconferencing software. However, as her needs changed, Joyce adapted and found new ways to satiate the establishing operations

in place. In this case, using Skype to stay connected with her son while he was deployed overseas.

Andrea

Andrea attended courses through USU's extension in Moab, where she lived. She was assigned to the role of special education teacher on Patrick's IEP team.

Selecting the distance program. For Andrea, the decision to join Utah State University's distance mild/moderate special education program was an easy one. She explains that it essentially boiled down to four factors: "Well I have a daughter who is in elementary school. I'm a single-parent. I live in a rural community...and Utah State University is the school down here that has the extension." Once she decided on a career in teaching, the decision of how to get certified essentially made itself.

Andrea has several ties to her hometown, so packing up and moving to a town with a local college or university was not really an option for her. "I love the community," she states. "I plan on staying here for some time." Moving to a town with a college or university was out of the question for Andrea.

While online certification programs were also an option, Andrea preferred an environment where she could interact with others and receive immediate feedback from instructors. Furthermore, Andrea received her bachelor's degree from Utah State, and felt very familiar with their infrastructure. So when she decided to return to school, Utah State was the obvious choice.

Familiarity with technology. Andrea considers herself fairly comfortable using Skype, email, and other computer applications to stay in touch with friends and family.

But she argues that she still wouldn't call herself adept when it comes to technology. "Probably not as much as a 20-year-old. They'd think I was an old granny trying to figure it out," she said. "But I'm comfortable with the things that I've learned how to do. There's probably a lot that I don't know too, but I'm comfortable with everything so far." Although the technology generation gap is obvious to her, she feels familiar enough with technology to complete her assignments, and knows where to turn for help if things get too complex.

Andrea was unconcerned with the fact that she would be taking classes via satellite broadcast and working a lot from her home computer. She explained:

> Today we're all on the computer so much doing research and producing things so it's just another extension of that. It almost, in some ways, is easier because it's all just so right there. You know what I mean? So I just, in some ways, prefer it because of the ease of it all being so accessible.

Unlike many face-to-face courses which are often blamed for underutilizing technology as repositories for distributing and turning in assignments, Andrea felt like the distance program really took advantage of it in every aspect from presenting content to collaborating on assignments. And because the distance mild/moderate program relied so much on technology, Andrea was confident that she would be provided with the training and supports necessary to succeed.

Background in special education. "I knew that I wanted a career that I could be on my daughter's schedule with," says Andrea, when asked about her career in special education. "And so, for me, that was teaching." She explained that her decision to teach was for primarily for practical reasons:

> So I guess, to be honest, it wasn't like a huge interest off the get go. I'm old

> enough I've had a couple of careers. So when I got hired at the charter school, it was as a para. And I already had a bachelors and I knew that I wanted to move up the rungs within that school.

Unlike the other participants, Andrea was already authorized to teach on an emergency certificate while she completes federal highly qualified requirements through the distance program. "Getting to be involved in teaching in this school [while] taking these classes just makes the classes so much more...applicable," she stated. Although every student has the opportunity to practice what they learn in their teacher education courses through field experiences, being a full-time teacher, Andrea has the opportunity to shape her teaching behaviors on a daily basis.

"I guess my experience was rather limited until two years ago. I'd never worked in a school system, so I was a para for a year and a few months," she confesses. "And then, when the special ed teaching position opened up, my boss offered it first to me. So, of course, even though I was sort of terrified, I wasn't going to turn it down." Since Andrea took over as the classroom teacher mid-year, she had a little less than one year of experience in the classroom.

Andrea teaches in a small charter school of approximately 60 students, which serves students from kindergarten through sixth grade. "Our school is tiny...I think right now we have under eight kids," Andrea observed. "We might be as high as 70 when we return in the fall. So I pretty much have about one or two [students] per grade." Knowing that she would have a limited number of students made it easier to step into a full-time teaching role for Andrea, who was feeling under prepared for her new responsibilities.

Prior IEP experience. While working as a paraeducator, Andrea was never given the opportunity to participate in the IEP process. Furthermore, she states, "being so new in education, I really didn't know what a para's rights were to see IEPs or to understand all the details about each individual kid." The teacher she worked under was dually licensed in special education and elementary education, and Andrea felt like the teacher's experience in special education was just as limited as her own. "As the para, I had no experience with the IEP or any of the process," she explains. "So when I stepped into the role of actually teaching, that was really a hard process for me." Although Andrea had over a year's experience in the classroom as a paraprofessional, her responsibilities were limited to direct interaction with the students. She was unfamiliar with the planning process which often takes place behind the scenes.

Once she took over as the classroom teacher, Andrea felt like she was playing catch-up, making sure that each IEP was written correctly. "I definitely thought that that was the biggest challenge for me," she argues. "Making sure that I was doing everything properly, legally, and trying to find resources in the community." Although the previous classroom teacher had briefly gone over the IEP process with her before stepping down, Andrea was not provided with any explicit training on how to properly conduct eligibility and IEP meetings.

To help ease her transition, the previous special education teacher sat in with Andrea on the first couple of IEP team meetings to help answer any questions. "But it just sort of quickly became apparent that she was too busy to really take the time," Andrea recalls. She then took it upon herself to contact the state office of education,

which assigned her a mentor teacher in a neighboring town, of whom she could ask specific questions relating to eligibility determination and IEP development. Additionally, the charter school principal attended every meeting. As Andrea put it, “It’s so awesome, because he’s ultimately responsible too, you know.” She felt more confident knowing that he was there to ensure everyone was in compliance.

One of the benefits that Andrea found of changing careers to become a special education teacher is that she has already had a lot of experience collaborating with people. “Dealing with parents and dealing with other professionals is not another thing for me to worry about,” she claims. “It’s just making sure that I’m creating the right programs and those other things that I have been most worried about.”

Andrea admits that the parents she’s worked with up to this point have been “really easy.” For the most part, they have all been very receptive, and have communicated their needs well. “I think they’re just willing to listen to you as the professional and take your best judgment for what their child needs,” she says. “So I just have not encountered the resistance or any of those other factors yet.” Although she knows that is liable to change at any minute.

One challenge she has faced in working with parents has been getting them to follow through at home. “Parents might say one thing and in actuality not follow through at home and not sort of pull their end of the bargain,” she states. But her biggest obstacle to overcome has more to do with other factors. She explained:

> There are a few parents that I’ve dealt with, where they’ve come to our school because at the other school—the only other school in [town]—the Department of Child and Family Services has been called. So it’s kind of like wondering, OK, I can sense that there are some underlying things going on with this child. You

> know, and how do you broach that subject when you know it's not just like, let's say, a specific learning disability. That there's a lot more going on and the parent really doesn't want you to know what's really going on. But it's manifesting in the kid. What do you do? That's been my biggest thing, but it's kind of not really an IEP thing. You know, that's a whole other issue.

Andrea recognizes that for some of her students, their special needs are environmental rather than organic. These students have a difficult time succeeding in school because their basic needs—such as food, shelter, and safety—are not being met at home. For Andrea, this is the hardest part of special education.

Kristeen

Kristeen lived and attended classes in Vernal. She worked as the school psychologist on Patrick's IEP team.

Background in special education. Before beginning the mild/moderate distance program, Kristeen worked for 2 years as a paraeducator in Germany for the Department of Defense Dependents Schools. Kristeen described this experience.

> It's the Department of Defense schooling systems, that they do for [military] bases and things like that oversees. Anyway, I worked for them as a teacher's aide. And I worked with a special ed/pre-k teacher, and a speech therapist, and a reading recovery teacher. I kind of floated between the three of them all day.

Although she is currently working towards both her mild/moderate special education and elementary education certificates, Kristeen said that her ultimate goal is to become a speech-language pathologist. "I really loved the way that the speech therapist did her lessons, I guess," explains Kristeen. "She just made it so much fun, and it was bright, and she used different colors, and toys, and games, and all of that stuff."

While she was working overseas in Germany, Kristeen did not have the

opportunity to take classes. It was not until she returned to the United States and moved to Vernal, Utah that she "finally kicked myself in the butt and decided to do it!" Having just settled down, Kristeen was not ready to pack everything up again and move to a town where she could take face-to-face classes. So she enroll in the distance degree program at Utah State University, admitting that, "if I knew then what I knew now, I'm not really sure that I would have not been scared!"

Kristeen missed the initial orientation which outlines the scope and sequence of each course throughout the program. As a result, she explains that at the start of each semester:

> I get into the classes, and it's just like jumping from the pot to the fire! Just flying by the seat of my pants, and I'm just like: I don't know what I'm doing! So, it's fantastic!

However, by the end of the semester Kristeen has a better understanding of how all the pieces fit together. She explains that she is able to look back and say to herself, "Oh! That kind of makes sense now!"

One variable that made it easier for Kristeen to jump into a distance undergraduate program was that she already knew someone in the program. A friend of Kristeen's had enrolled in the previous cohort of distance mild/moderate students, and encouraged Kristeen to sign up two years later. Unfortunately, however, because they started at different times, they rarely had classes together. Furthermore, while Kristeen was typically one of three students in her cohort, the other two preservice teachers had failed the previous semester, and therefore could not move on in the program. This left Kristeen as the only student at her extension in the Special Education Policies and

Procedures course.

Prior IEP experience. Although Kristeen had never participated in an IEP team meeting, she did have some experience collaborating with parents. She explained:

> The school that I worked at before—the special education class that I worked in was pre-k. So parents would come in, but it was more along the lines of parenting advice. You know, potty training and stuff like that versus getting into the actual schooling and the habits at school.

Kristeen felt comfortable offering advice to parents on specific interventions and techniques that they could use with their children to strengthen developmental skills. However, she acknowledged that this would be much different when designing an individualized education plan based on meeting academic standards.

Familiarity with technology. Kristeen rated her computer skills as "average, I suppose." She had a Nintendo Wii, and played other computer games on occasion. She also regularly checked her email. Several of her family members used Skype to communicate with one another, and they had recently convinced Kristeen to begin web-conferencing as well. When it comes to technology, Kristeen explained:

> I can navigate it if I have to. If I have to figure it out, I'm good...I can do things like that. But if something breaks, then I just stare at it and go: Oh, crap! As long as I have a cool tech guy on the other end, I'm good. If I don't, then things just go bad. Bad! My computer does not love me! But I've learned a lot of things and I've learned how to do a lot of things throughout going to school and doing all of this distance ed stuff. It hasn't really gone super high-tech until this semester. This is the most computer oriented that I've been.

Although Kristeen considered herself fairly competent with a computer, she admitted that the distance mild/moderate program pushed her to step out of her comfort zone and explore new technologies. It is important to note, however, that while Kristeen—who was in her twenties—considered her use of technology average to that of her friends and

peers, other members of her cohort—especially those belonging to an older generation—might have considered her much more technologically proficient.

Behaviors

The second research question asked how do preservice teachers define the behaviors they engage in while conducting IEP team meetings in a MUVE? To answer this question, participants were asked to reconstruct the simulated meetings in which they participated and discuss various aspects of the simulations. This section focuses on the events of the IEP team meetings, as described by each participant.

Francine Jones

Francine was an 11th-grade student at Fargo High School. Although she had previously qualified for special education services, she had opted not to receive them for the past five years. Therefore this was an initial evaluation for her. Francine's referral to be evaluated for special education services came from her parents, who indicated that she had previously received services in a resource room throughout most of elementary school. However, after sixth grade, Francine no longer wanted to be in special education, though she still qualified for services. Her parents complied with Francine's request, and she stopped going to the resource classroom. Francine struggled in school ever since, primarily making Cs and Ds in her classes. Now, as an 11th grader, Francine is planning to go to college to become a nurse. Her parents have convinced her to be re-evaluated for special education to see if she can get help studying for the SAT. Francine's IEP team consisted of her school's principal, a school psychologist, her 11th grade English

literature teacher, the special education teacher, and her mother.

Roles and responsibilities. For this assignment, Jana played the part of Francine's special education teacher, and Sherry, the school psychologist. Jana was relieved to have been assigned this role, as it was exactly what she was in school to learn. Sherry willingly took on the part of school psychologist, although she was less familiar with what this person's responsibilities were as part of the IEP team. She found the role of the school psychologist "difficult, but not terribly so." As she explained:

> I mean it was do-able, and so I learned a different side of things a little bit. But I'm glad I don't ever have to do that role again, because I still struggle just a little bit with the test scores when [Mom] asked a question I didn't know! But, yeah, I realize we all could not be the special ed teacher. There's just no way we all could have been. But I had input from everyone to help me on my part, and everybody inputted to everybody's part. So it was still a team effort.

Sherry embraced the group aspect of this assignment. Though she was unfamiliar with the role of a school psychologist, she relied on her teammates to direct how she contributed to the IEP team meetings. Specifically, Sherry was responsible for testing the student, compiling the test results, and explaining them to Francine's mother. "And essentially explain it to my team too" she added.

Determining eligibility and developing the IEP. Jana stated that determining Francine eligible for special education services was a more difficult task than she initially expected. She explained:

> Francine just turned 17 on July the 4th. She's headed to the 11th grade. She has a real deficit in her ability to read. She [started] in the special ed program in the second grade. In the sixth grade she decided that she didn't want to do that anymore, and her parents let her kind of drop out. Her mom's real laid back, you know a "whatever Francine wants she can decide" kind of mom. She has some really odd ideas about acupuncture and acupressure and special diets. She's an interesting woman. But [Francine has] always struggled since she's been out of

> special ed with her reading. She's an 11th grader this year, and she wants to be a nurse. So she's going to have to take SATs, she's going to have to get into college, and she would like accommodations to do so. So that's the reason that Francine chose to talk about coming back into special ed. We're trying to convince her that she needs help in school before she has to worry about SATs and going to college. It's going to be interesting to try to talk Mrs. Jones into allowing us to help Francine the way she needs.

Jana and her teammates quickly found that the most difficult part of this case would be working with Francine and her parents to provide them with appropriate services in a manner that was acceptable to all invested parties.

Upon receiving Francine's referral, Jana's initial reaction to the parents' request for an evaluation was, "I know we have thirty days in which to get Francine tested." Utilizing the course discussion board, she wrote to the other members of her team:

> We need to get with our school psychologist and arrange for that to happen. When the testing is done, we will see if there is a discrepancy between her ability and her IQ. It would be interesting to find her old file, if it is still available, and see what was happening in grade school. Things might be the same, but things can change as a student gets older. Then we would determine her disability. I am thinking it is probably a specific learning disability. Then we would meet as an IEP team and determine what kind of services she needs to be successful.

Jana immediately referred back to her knowledge of special education policies and procedures to make sure that her team was in compliance with the law regarding the time frame for completing an evaluation of the student. She also noted that the team may be able to benefit from reviewing Francine's records, although Jana clearly had already begun to postulate about which category she might qualify under.

Sherry commented that "Francine's continued struggles with school grades shows that she certainly needs to receive help." She also observed that certain establishing operations are now in place for Francine, stating, "Because she wants to attend college

and be a nurse, good grades have now become very important." This is likely to alter the value of special education services, which Francine previously refused. Additionally, Sherry noted an increased "maturity" in Francine, based on her willing to accept help with her academics.

Jana found that Francine's referral for special education services did not include much detailed information about the student. "Well, after we panicked—because we all had just a massive moment of panic—we started requesting more information about Francine," Jana recalled. "And then talking to Mom really focused things, I think. We got a better idea of where Francine was coming from, and why she is the way she is a little bit. So, those were all very helpful." As the team collected and reviewed Francine's records, test scores, and personal background, they got a better picture of what needs they needed to address.

As the special education teacher, Jana encountered some unique barriers when working with Francine's mother. She explained:

> I requested information—well I requested a parent interview and some information from her. And, because Francine's mom doesn't want anybody to know that she's in special education, I don't think that she was really eager to talk to the special educator at Fargo High School. So, after being unsuccessful a few times to get a hold of her, I turned that over to our principal, and the principal was able to get her to agree to an interview, where I wasn't able to. So, I think...you know, we've had some nice conversations since then, but I still don't think that I'm Mrs. Jones' favorite person. Just because of what I do.

Despite several attempts from Jana to contact Francine's mother, Mrs. Jones was unwilling to speak with the special education teacher. Jana presumed that this was because Francine's mother had an unpleasant history of working with special education teachers in the past. Jana explained how this sensitivity altered the way the IEP team

approached Francine's mother:

> I guess, for her, second through sixth grade was not great. She felt like her daughter had been labeled [as one] of "those kids," like "those special ed kids," "those wacky, special ed kids." And she didn't appreciate that. So we're being very careful handling her so she knows, in a high school setting, special ed isn't a place, it's not a label, it's just a way to get help.

Although Francine's mother believed that her daughter would benefit from special education services, she was leery of the stigma that they harbored. She did not want Francine to be singled out from her peers by receiving instruction in a separate classroom. In response, the school's faculty and administration worked to assuage her fears by letting Mrs. Jones know that Francine could discretely receive services without necessarily changing her placement.

For Jana, working with Francine's mother to develop her high school curriculum was equally the most important, challenging, and beneficial parts of the assignment. As she explained:

> Well, the purpose of the IEP is to make sure that we all really are on the same page. So the parent and everyone involved on that team understands where Francine's coming from, where she's been, how she's gotten to where she is. And then, very specifically, what she needs to do if she's going to be successful. Especially, Francine. She's a junior this year. We've got to get her ready for transition. And so there are things that we really need to focus on if she's going to be successful at whatever she decides to do after high school. And I think the IEP meeting is where we can say, "If she really does want to be a nurse, then we need to really focus on her ability to read." Which she's got an attention problem. And we need to find some ways to help her, that she'll be able to focus once she moves on to bigger and better things. Because if she can't focus, if she can't keep her attention to where it needs to be, it's going to be horribly hard. So I think for us, it's just a way for us to say to Mrs. Jones, "She needs help. We can help. This is how we're going to do it." So for us, that's what our IEP is really going to be focused on.

Jana found that she learned a lot about Francine by speaking with her mother, and

listening to her concerns. Although everyone on the IEP team had Francine's best interests in mind, there was some discrepancy as to what would be best for Francine. Sherry and Jana found it was their job to advocate for Francine's academic success while incorporating Mrs. Jones' desire for social acceptance amongst her peers.

Simulating IEP team meetings through TeacherSim. For Jana, the hardest part about using TeacherSim to simulate IEP team meetings was creating an account and logging in for the first time. "I had some real problems with that!" she exclaimed.

> When I first tried to log in, I missed a step.... Very frustrating! I could never get them to understand where I wanted to go. I was ready to chuck the whole thing! Say, "OK, I'll just fail the class and get out of here!" So, yeah, that was not good. Once I got the right directions instead of wherever I headed off, got in, got very comfortable. Yeah, it was good.

Jana had mistakenly created an account in Second Life, a commercial MUVE located on a separate grid from TeacherSim. Upon logging into Second Life, there was no way to teleport to TeacherSim, which led to her initial confusion and frustration. However, once this error had been corrected, Jana found her way to TeacherSim and quickly adapted to her virtual surroundings.

One of the features Jana noted that facilitated her acclimation to TeacherSim was the walkway tutorial which demonstrated how to use several of the tools within the virtual environment, such as flying and customizing the avatar's appearance. "You know the sidewalk with the big billboards—very helpful!" Jana exclaimed. "Really, once I was there, figuring out how to make it work was a piece of cake. Even for someone who has absolutely zero technological skills it was easy." The integrated tutorial prompted users to access many of the primary features of TeacherSim that they would be using

throughout their IEP team meetings. This way they were not struggling to use a particular tool in the middle of a simulated meeting.

"TeacherSim was great, because we didn't have to do anything fast!" Sherry commented. She noted that this was particularly helpful for her because she struggled so much with technology. Sherry recalled that it took her a few trials to adjust to the TeacherSim environment. She also found the tutorial helpful in learning to interact with her virtual surroundings. In particular, she remembered:

> Well, the first day was hard, because I walked through the alligators instead of flying through them. But I didn't get eaten, so that was good! But just after playing with it for even just a few minutes, the only trouble I really had was, every time I had a meeting, I forgot how to sit down. But somebody would tell me. Other than that it was great!

Despite this tutorial, however, Sherry noted that she always had trouble sitting. She explained that, "I'd try to sit, and that was a little bit out of my comfort zone! I could walk her and fly her, but sitting was hard for me." Unlike walking and flying, which could be done by pressing particular keys on the keyboard, sitting down was a multi-step task which required right clicking on the chair and selecting "sit down" from a menu.

"Once I got over that initial 'I hate this and I'm never going to do it' attitude, it really has been a pleasant experience and very effective I think. So once I got in there, I've quite enjoyed it." said Jana. Both Sherry and Jana agreed that they learned a lot by arriving early to spend a few minutes readjusting to TeacherSim before each meeting. "Before we got the meeting started we all got to laugh at our clothes and body parts," said Jana. "Yeah, and it was a nice way to open a conference because sometimes people sat on you instead of beside you! And so it would always start out with a good chuckle," Sherry

agreed. Jana recalled that for one particular meeting:

> Nancy was just a little bit late, so we did have a little bit of time....We walked out of the room, we looked at another eligibility practice meeting that was going on. And also, we walked around the building together. Like I said, we teased about clothes and found out that we all weren't wearing the same thing on each screen. And, the whole thing just kind of gave you the feeling that we were really there! I was much better looking on TeacherSim than I am in reality! [My avatar is] way taller than I am. But, yeah. The whole thing of going from room-to-room, watching another meeting in progress. The whole thing just gave me the feeling that we were in that room.

Spending a few extra minutes exploring TeacherSim not only gave Sherry and Jana better control of their avatars, but it also increased their level of presence in the environment. Having the freedom to walk around the virtual school building and peek in on other meetings helped the team members feel like they were actually in the virtual environment.

Before one meeting, Sherry spent a great deal of time customizing her appearance. She modified her body type, face, and clothing to meet her specifications. Unfortunately, however, these changes were not saved the next time she logged in. "Well, I picked out an outfit and I never wore it! It always said I was in a skirt," she lamented. Furthermore, the third-person view in TeacherSim always showed the back of her avatar's head, so she could not see the detail she put into customizing her face. Despite her lost efforts, Sherry enjoyed using her avatar to interact in TeacherSim. She explained:

> It was nice in TeacherSim that you could at least look at your little people. You know, so you weren't looking at a blank screen. And it was then, like one time Nancy was talking and I guess I fell asleep—only on my person—and she goes, "Sherry, you've got to hit your person, you fell asleep!" And I thought, "Okay. So you really have to watch that!" I mean, I was listening and everything and commenting, but my person fell asleep. So I thought that was funny!

Sherry found that her avatar's behavior did not necessarily reflect her own behavior throughout the simulated meetings. She realized that if she did not move her mouse every few minutes, her avatar "fell asleep." Although this feature was designed to indicate to others that the avatar's user was away, Sherry's avatar fell asleep while she was actively participating in the meeting rather than moving her mouse. "And that's why I kept falling asleep," said Sherry. "Anyway, it made for light conversation."

Once everyone had logged into TeacherSim and made their way to the conference room, everything ran smoothly. "We just got hold of everybody, picked a time when we could all be there," said Jana.

Sherry commented that "we always knew when everybody was there, because you can see them." This is not always the case with phone teleconferences, in which members must vocally announce their presence. "And, you know, setting up wasn't hard, it was just different," she added. "I'm like that with anything new that I do. Until I learn how to do it really well. But it was easy. Even I could do it, which means quite a bit...So it was easy!"

Jana described how all the different parts and the previous work they had done came together in the eligibility meeting:

> We started our eligibility meeting. Well, our principal talked about what our meeting was for. We all introduced ourselves, and then our school psychologist went over the testing material. When she was finished, she turned it over to me and I talked about specific learning disability, how you qualify. I talked about how we thought that was still Francine's problem, because that's how she was classified in the second grade. So we went over eligibility qualifiers. How that was going to work and why that was important. And that's when Mrs. Jones really talked about how she didn't want her daughter to be "one of those kids." So we spent a lot of time talking about how the only people who were going to know

> were the people on the team who were sitting right here. Plus we were going to give accommodation sheets to her teachers so they would know. But we're not going to put a sign on her, we're not going to put her in a group with special ed kids and make her walk around the school. We just pretty much told Mrs. Jones that she was going to have to trust us; that we would do what we could for Francine without advertising.

Communicating back and forth to complete the required components of the eligibility process was not a problem for Francine's team. Additionally, the IEP team was able to specific concerns of Francine's mother within the virtual environment. This included discriminating how she felt about Francine being in special education, and appeasing her worries before moving forward with the meeting. Both of which are often indicated by subtle variations in voice inflexion and body language.

Jana explains how working in TeacherSim facilitated communication across a large number of people:

> In TeacherSim, you can tell who's talking. And if you're telephone conferencing, even Skyping sometimes...we kind of run over each other when we're talking, because we can't tell who's speaking. But in TeacherSim you can tell when somebody wants to say something. And it makes the communication much easier.

Jana discovered that using TeacherSim provides visual cues as to when somebody would like a turn to speak, such as another avatar suddenly turning their head towards the current speaker or an avatar getting jittery because her user was rapidly moving her mouse back and forth. These non-verbal communication gestures were apparent in TeacherSim.

One of the tools which facilitated the eligibility process was the integration of a slide projector into the virtual meeting room. Jana explained:

> It went very smoothly. We came up with a PowerPoint, and that worked. It would have been nice to be able to go backwards [through the slides], but you know

> what? We could fast forward fast enough to be able to get back to where we needed to. I just thought that it went really, really well! Just easy! And I thought very effective. You know, we were all sitting around a table and we could see the PowerPoint, and talk about what it meant. I thought it went really well!

Within TeacherSim, the avatar's head automatically orients to the location of the user's mouse. This allows other users to follow the gaze of an avatar to specific objects or locations within the virtual environment. Sharing joint attention on their PowerPoint presentation within TeacherSim allowed the team to better organize their data, and more easily present their findings to Francine's mother.

When asked whether she felt the slide show presentation was necessary, Jana stated, "Absolutely! If we were just sitting there talking, I don't know if it would have been as effective."

Sherry agreed, saying "Yeah, we were able to see the PowerPoint's. Yeah, everything was good."

"Yes, yes. Especially communicating with our parent," replied Jana. "Being in TeacherSim with our parent, having the PowerPoint up where she could see what it is that we were trying to communicate to her: Very, very helpful! Very helpful!"

Sherry found that the virtual slide show enhanced her level of presence within the environment. She felt like she was actually there at an IEP team meeting with the exception of the paperwork. She added that this would have increased the fidelity of the simulated meeting.

> You know, other than maybe somebody showing me a paper. But we all had copies of the same paper, so they just had to refer to their [own] paper. But that was the only thing really different than being there.

Sherry found that it was difficult to imagine a paperless IEP team meeting, which

detracted from authenticity of the experience in her opinion. In terms of the content of the meeting, however, Sherry explained that "everything that I wanted answered, any questions that I had, we were able to do that. So it was just like we were there!"

Additionally, both Jana and Sherry felt it was necessary to comment on the convenience of using TeacherSim to simulate IEP team meetings. Jana explained that her teammates were spread out across the county, and thus inconvenienced everyone to meet face-to-face. "If we had all had to drive every single time, it would have been quite frustrating to have to meet at the extension, because that's probably our most central [location]," she said. "Anyway, it's been much easier to be in TeacherSim, than to have to drive and get together." Jana was relieved to cut down on the amount of time she spent driving back and forth across town.

Sherry agreed, stating:

> It was so much better than having to go and meet, because you've got travel time in there. You usually have to get ready, you know put on your make-up, whatever. This way we could just alleviate all of that!

Furthermore, she commented that there were additional conveniences to meeting in TeacherSim aside from eliminating her commute.

> It was so nice that we could just meet in our pajamas basically, anytime day or night. And two of the ladies were tending their grandchildren at the time. And so their grandchildren were just able to go watch TV, and they didn't have to bring them to the meeting. And so, yeah, it was great! It was great!

Francine's team was able to overcome many of the traditional barriers to distance education by working in TeacherSim.

Overall, both Sherry and Jana felt that the simulations they took part in through TeacherSim accurately replicated the demands of an actual IEP team meeting.

Additionally, they found many benefits to working in a MUVE. As Jana explained:

> Oh, we had a lot more fun! We laughed a whole lot more! Being in the same room, even in the virtual world, is different than being on the telephone. It gives you, I mean at least for me, it gave me more of a sense that we were really together. That we were a team. It was so much more real to be in TeacherSim and sitting around a conference table. And it was just more real! It was more real, and it was a lot more fun!

After mastering the learning curve and working through the initial frustrations, Jana and her teammates grew more comfortable working in TeacherSim. The virtual environment helped them feel as though they were all in the same room, and the team was comfortable enough using TeacherSim that they began to find it more entertaining than frustrating. "Just tell the next group that they don't need to work so much on their face! You don't get to see it," advised Sherry. "I spent a lot of time on my face!"

Collaborating with other team members. Sherry explained how her teammates helped shaped her role and responsibilities as part of the IEP team.

> Oh, yeah! I couldn't have done it without them. Just could not have. And I hope that I inputted for them too. I mean, I did, but I hope they were able to use it. I used everything my team gave to me, you know? They gave me an idea; I ran with it. They were invaluable to me.

Sherry was grateful to receive feedback from her team members regarding what she should be doing throughout each meeting.

On the other hand, Jana noted that Francine's IEP team ran into the typically difficulties of group work. "Well, our team has had some problems," she elaborated:

> Betty was our principal and her mother passed away, so she dropped out [of the course]. Carma, who is our mentor, agreed to step in on that role. So that's been very helpful. Chris, who's playing the part of the language arts teacher at the high school, is taking a math class which is just kicking her butt. I guess she took the final last night, but she's been very occupied with other schooling and that's been kind of hard. So, you know, we've had some busy team member problems.

Jana observed that many of her teammates had other events going on in their lives which competed with this assignment for their time and attention. Here she recalls one specific example.

> Well, we wanted to do a PowerPoint. Sherry was going to do that. And then, when we got together to finalize things, she told me she can't do PowerPoint's. And it was like, "if that's what you want to do Jana Peterson, then you'd better just get started and get it done." And so, with everything that's happened this summer, I've kind of had that feeling. That if I want it done, I'd better just do it. And, sometimes that's a little irritating, but I think that's more my style anyway. So, I just do it.

Jana found that it was easier for her to take charge and complete some of these tasks herself than to delegate work to other team members. She also recognized the strengths and weaknesses of her teammates. "I think everybody has done what they can do, but what they can do is varied," she explained. "So, have we divided it up equally? Absolutely not. But have we divided it up fairly? Probably." She noted that each team member took on responsibilities based on the role they were assigned and what part that person would play in the meeting.

Despite all this, however, Jana found that the most difficult member of Francine's IEP team to work with was her mother. Throughout the process, she felt like Francine's mother and the rest of the IEP team were on different pages when it came to what was best for Francine. "Yeah, we had to talk her into it," said Jana. Here she describes the school's perspective.

> Well, because of Francine's problem with reading, we've come up with a fluency goal for her. Given a 6th grade—because that's where she is—basal reading passage, Francine will read the passage at a rate of 100 correct words per minute, on three consecutive weekly passage timings. And hopefully, that's an objective, we're hoping to get her up to 180 words per minute. So we're working on fluency with her, for her reading...You know, my daughter-in-law is a nurse. I've seen the

> horrible books that nurses have to be able to get through to be successful in nursing. If you can't read, you can't do this.

Jana and the other school members of the team knew that Francine's end goal was to become a nurse. The team agreed that this was a reasonable goal for Francine to accomplish, and they wanted to address her reading difficulties to help her succeed. Jana describes the plan they came up with to convince Mrs. Jones to agree to special education services for Francine.

> What we're going to try to talk her mom into: Bridgerland has a program for perspective nurses. They'll actually give you the classes that you need to become a CNA, a certified nurse's assistant. And that is something that you have to do before you can even apply to a nursing school here in Utah. So, we're going to try to talk Mrs. Jones into letting her go to Bridgerland for a couple of hours here in her junior and senior year. And our purpose is really two-fold. We'd like Francine to get in there. One of the classes is medical terminology. It's awful! I think, Francine, if she gets into that class and takes a look, will either decide, "Yes, I'm really going to have to buckle down and figure this reading thing out," or she's going to decide, "I don't think I want to be a nurse. Maybe we should go a different direction." But we're trying to get her to agree to spend a couple of hours to do that. Either to let her see that it's going to be really tough, or to get her on her way. Because that has to happen!

The team hoped this would appeal to Mrs. Jones because it would put Francine well on her way towards her career goal of becoming a nurse. They also hoped it would increase motivate Francine to do well in school and focus on her academics. "That's one of our plans," noted Jana. Sherry commented that Francine's mother "was definitely the one that we needed to please, so we conducted our IEP basically for her." She elaborated:

> If we could get her on our side then we knew we could get our student on board too. And, I liked what one of the [other] groups said. They said that their parent was one of the first members of the team. And I liked that and I'm going to use that in my own teaching. Because the parent is the one. If you can't have them on your side, or understand what you're doing, then it's not going to work. You have to have their help. So the parent is like the most valuable person on the team.

Sherry recognized the importance of the role played by the parent on the IEP team. However, she and Jana both responded to the parent as an antecedent for persuading her to join the rest of the IEP team, rather than listening to the parent's concerns.

Jana explained that partly due to Mrs. Jones' history of working with the school. She explained:

> Well, I can't remember where the information came from, but her counselor at school—Francine's counselor at school—had suggested [special education] to her, and they refused. So, I don't know if they're going to take it any better from us or not.

Mrs. Jones had previously refused special education services for Francine in the past. This led Jana and Sherry believed that she would continue to deny services for all future attempts. As Jana explained:

> I think that she doesn't understand what Bridgerland is. She's very sensitive about stigmatizing Francine as "special ed" or "not smart enough." She's got some problems there. And somehow in her mind I think she thinks Bridgerland is a program for people who can't make it at college or can't make it in the real world. So she's got some issues. We're going to have to do some re-education for her.

Rather than working to collaborate with Francine's mother on her IEP objectives, Jana responded to her presence on the team as a series of obstacles to be overcome.

Role of the parent. Both Sherry and Jana agreed that the parent plays an important role in the eligibility and IEP meetings.

"Very much so! Very much so," said Sherry.

"Oh, huge! Huge!" remarked Jana.

"Like I said, we needed to please our parent, and it sounded like everybody did," Sherry commented. She recognized that it is difficult for the special education process to proceed without the consent of the parent.

> Well, you have to sell it to your parent. That's just what it is. If the parent's not interested in it, it's not going to sell. The parent has to know that their child's needs are going to be met...We need to sell it to the parent because it's their child! And because I'm going to be a teacher, I want all my students to learn, and I want to help them succeed as much as possible. I don't know if you do this as a teacher, but I kind of think it would be my oath to make sure that I have every student learn to their capacity. It's kind of like being a doctor. You know, they want to make sure they get every person well, or save their life or whatever. I want every day that my student comes to me in my classroom, that he's learning. I don't want it to be a waste of time for him. I don't want it to be a waste of time for me! But I really don't want it to be a waste of time for him! Because he only as so many years that he can learn! And I want every day to be important to him. So that's just how I feel.

Sherry felt strongly that she was the child's best advocate for special education services. So much so that she needed to convince the parent to go along with the plan developed by the other members of the IEP team.

Jana admits that she was surprised how much influence the parent has over the direction of the IEP team meetings. "After all this is their child, and...for the most part their parents have their best interest at heart. Or at least they think they do," she explained. "And to try to focus on that parent and really help them understand what's going to be helpful as far as school goes—oh so important! Parents have to be taught too." Similar to Sherry, Jana's statements reflect the opinion of the school personnel as the experts telling the parent what is best for his or her child.

Role of the student. When asked what role the student plays in the process of determining special education eligibility and developing the IEP, Jana replied:

> Now see, we really should have had Francine there. She's 17 now, and she needed to be there to sign the paperwork because she'll be 18 before the next IEP is conducted. And, I have a picture through her mom, and through her test scores, and from what I've heard about Francine of what she is, but I don't know who she is. It would be interesting to see what she was like. And then to actually put her in the mix, I mean we talked her mom into it. I don't know if we would have been

> able to talk Francine into it even so. So it would have been nice to have Francine there.

Jana noted that, having put all the time and effort in to developing her plan, she would have liked to have actually met Francine. Her presence at the meetings would have given Jana a better understanding of who Francine is, and whether or not she would be willing to go along with the plan developed by the team.

This was not just the case with Francine. Jana commented that to have any child there at the IEP meeting would be interesting. "And especially for the older kids. The younger kids, I don't know? Well, it'd be interesting to meet them, but I don't know if they'd have that much to contribute," she said. "But a 17-year-old, I know has a lot to say about where they think they're going to go and how they're going to get there."

Sherry reiterated this, emphasizing that the amount they contributed depended on their ages. She explained:

> I know that that will change the way things are, and I don't know how early the student goes. I know they're always supposed to be invited, and I've been working just on a high school level. But do kids go when they're only like in first grade? I mean I can just see how all this just flies over their head. You know? So, I think it will depend on where I teach. If I teach at a high school level, or even a junior high level, I can see that their input would be very important. But if I'm at a young, elementary age level, I don't think they'd have a lot of input. So I think that depends on where I teach at. But, I think it will be very important to have them there. Especially at the upper levels. I mean, if we want them to take a laptop to take notes on, and they're totally against that, that's not going to fly. So we have to find something that's going to work for them. So, their input will be very valuable.

Both Jana and Sherry felt that the involvement of the student varied depending on his or her age. For younger students, the curriculum is less flexible. This is a time to focus on academic skills outlined in the state standards. However, at the secondary level, special

education services must help to prepare students to transition to life after high school. Whether vocational training or post-secondary education, Sherry and Jana believed that the student's involvement was much more important during this stage of the curriculum development process.

Bonnie Doon

Bonnie was a 10-year-old going into the fourth grade at Hope Elementary. Her mother had passed away at the beginning of the previous school year, and her aunt was now her legal guardian. Over the past several months Bonnie's grades had suffered. Her aunt requested a special education evaluation towards the end of the last school year, but her request was denied. She decided to move Bonnie to Hope Elementary for a fresh start in the upcoming year, and immediately put in a request for special education services.

Roles and responsibilities. Both Angie and Soleil were assigned to Bonnie Doon's group, along with other members from their site. Additionally, they were each assigned roles of various IEP team members, specific to their case. For this project, Soleil was assigned the role of principal. "I just had to facilitate the meetings, basically. Make sure that everything that was on the agenda was being covered," said Soleil. "My job was making sure everything flowed during the meetings and that the goals were appropriate, and also making sure if the parent had any questions that they were addressed appropriately. Kind of just making it professional, I guess." Each team member was encouraged to research their role by talking to the professionals in their practicum placement about their responsibilities in IEP team meetings.

Angie was given the part of Bonnie's fourth grade regular education teacher. "But

being the regular ed teacher and having to find a piece in the eligibility meeting and the IEP meeting so that I could participate, was a little bit difficult," she recollected. For the class assignment, each team member was required to actively participate in both the eligibility determination meeting and the IEP meeting. This requirement does not always validly reflect many actual IEP team meetings; while all attendees are encourage to participate, some will not speak up unless they are directly asked for their input. From her experience observing IEPs as a paraeducator, Angie noted "that the classroom teacher often just sits and listens, and waits for maybe some accommodations to be said—how it's going to affect that student in the regular ed classroom." She used her prior IEP experience to help the team figure out what came first, second, third, and so forth. "Had I just been a regular ed teacher and not had the experience that I've had in the past as a paraeducator, I probably wouldn't have been as strong of a support to my other teammates," said Angie. Here she elaborates on how she perceives the role of the general education teacher.

> So I've been in different situations where one of the roles was stronger than the other. But in all of my prior experiences...the classroom teacher basically just sits there and listens, and maybe has some present level data to discuss with the parent. But other than that the general ed teacher usually just sits and listens and takes notes.

Given what she had previously observed, Angie had a difficult time determining how the general education teacher contributes to each meeting. She admits, however, that this "was a good role for me to play," as it forced her to research this position and brainstorm how else this person might participate on the IEP team.

Determining eligibility. The first step in the information gathering process was to conduct a parent interview. Bonnie's biological mother had recently passed away from a drug overdose, and Bonnie had moved in with her aunt during the previous school year, when Bonnie was in third grade. She had always performed well in school, but her aunt observed that soon after moving in with her, Bonnie began to fall behind her peers in terms of academics. "Just having that brief summary that very first or second night of class was kind of interesting," Angie recalled. "And, so I started in my mind just sort of drawing a picture of what that situation was going to look like." Not having any other information about Bonnie at this point, the IEP team had to act as detectives to build a case for this student.

Bonnie continued to struggle throughout the school year, and although her aunt had pushed for a special education evaluation, the school declined her request. She ended her third grade year with failing grades in all subjects. This year, hoping to get a fresh start in fourth grade, Bonnie's aunt moved her to Hope Elementary in a neighboring district, and once again requested a special education evaluation.

Upon receiving her referral, Bonnie's team noted their initial thoughts on her situation. Soleil recorded the following in a discussion board post.

> It sounds like Bonnie might have some emotional disturbances that are contributing to her lack of interest in school since her mother died recently and she has had to change her home environment completely by moving in with her aunt.

Soleil observed that the changes in Bonnie's home life may have something to do with her declining performance in school. This is in agreement with Marzano (2003), who states that each individual child's background and home life are the greatest student-level

factors regarding academic success, because the home environment is outside of the classroom teacher's direct control.

Angie, who was assigned the role of fourth grade general education teacher, had this to say about her initial impressions of Bonnie.

> This student has been through a life changing experience. She has support from her family. Bonnie's aunt has seen the need for extra support and wants the best for Bonnie. Through evaluations, interviews and data collection we will be able to get a better look at what will help Bonnie be successful.

Clearly, Angie and Soleil were in agreement that Bonnie's home life may be contributing to her academic struggles. "The parent interview for Bonnie was a very important piece," noted Angie. "It's [establishing] that parent report as to whether you're going to get the truth or not the truth. And I think that's really important. And so, as a team, we were compassionate with Mrs. Jones." Angie also observed that Bonnie's aunt, Nancy Jones, appeared committed to supporting Bonnie's school needs, which they would be better able to determine through evaluations and classroom data.

One of the steps in evaluating a student in need of individualized services is determining the issue of *can't do* versus *won't do*. When a student fails to complete a particular task, the school must figure out whether the student *can't do* it (i.e., they have not mastered the component skills required to successfully perform the target behavior), or *won't do* it (i.e., the motivating operations are not in place, or the student has not been reinforced for completing the task in the past). To help determine this, the IEP team administered a variety of standardized educational tests, including the WISC-IV Intelligence Test, the Woodcock-Johnson Test of Achievement, and the Achenbach System of Empirically Based Assessment (ASEBA).

Because Bonnie Doon is only a hypothetical child, the IEP team was not able to physically administer each of the tests. Instead, they first received informed consent from Mrs. Jones—Bonnie's legal guardian—and then emailed the course instructor asking for the results of each assessment. The team then received raw test scores back from the instructor, which they would later be required to interpret and explain to the parent at the eligibility determination meeting. Soleil noted that Bonnie's test scores were "very good. You know, in the average range, and some in the high-average. Except for her Achenbach." The ASEBA is an adaptive behavior scale completed by both parents and teachers, which asks them to rate the child's competencies and deficiencies in a variety of areas.

Since Bonnie's tests showed that she performed at or above average in intellectual and achievement domains, the IEP team decided to focus on addressing her social and emotional needs. After collecting all the necessary data to make an informed decision, Bonnie's team described her present levels of functional performance in the following way.

> Bonnie, a fourth grade student, has a disability that affects her behavior performance in social and emotional areas and requires specially designed instruction, according to a parent interview dated June 26, 2010 and testing recently given by a school psychologist. Bonnie can [contain] her aggression and does not break school rules, but is challenged by social problems and becoming anxiously depressed. She initially responds to classroom instruction and finds the school environment comforting and reinforcing. Bonnie needs social and communication skills in order to participate and progress in the regular education classroom.

In determining her eligible for special education services, Soleil described how the team was quickly able to "narrow it down to the Emotional Disturbance definition." There was

some brief debate amongst team members as to whether she could be classified under Specific Learning Disability, "but we read through the definitions and she fit into emotional disturbance for sure," notes Soleil. The Utah State Board of Education recognizes 13 disability categories supported by federal and state funds. These are: (1) Autism, (2) Deaf-blindness, (3) Developmental Delay, (4) Emotional Disturbance, (5) Hearing Impairment/Deafness, (6) Intellectual Disability, (7) Multiple Disabilities, (8) Orthopedic Impairment, (9) Other Health Impaired, (10) Specific Learning Disability, (11) Speech Language Impairment, (12) Traumatic Brain Injury, and (13) Visual Impairment. Each disability category is operationally defined, specifying the criteria and evaluation procedures for determining eligibility for a student with disabilities under Part B of the IDEA (Utah State Office of Education, 2010).

Here Angie further describes the decision making process of classifying Bonnie for special education services.

> Once we accessed the magic testing center and we got the scores back, and her IQ and the WISC and everything came back that she can learn and...her letter grades show that she was doing poorly, but her actual scores, one on one with the psychologist, they looked good. The Achenbach showed that social skills and those kinds of things were highly escalated. So, then of course the eight and half months of this happening, of the aunt seeing these behaviors happen was another deciding factor. So as a team, we looked at all of that and we were looking at the data versus the considerations and all that kind of stuff. And that's why we decided that Bonnie fit in that Emotional Disturbance category.

In addition to looking at test scores and classroom performance, the IEP team heavily considered what they had learned about Bonnie through the parent interview when making her classification determination.

Simulating IEP team meetings through TeacherSim. All IEP Teams were encouraged to practice for their meetings in TeacherSim. To help acclimate everyone to the virtual environment, an in class orientation was conducted, in which each special education preservice teacher accessed TeacherSim and completed specific objectives. This demonstration was designed to help orient preservice teachers to using an avatar to interact with their virtual surroundings. Some individuals caught on right away. "It was easy. Once I just looked at the screen and played around, I was able to do things," Soleil recalls. "The only thing is...I pushed something, I don't know what it was, but it made my little "fly" button go away. But I'm sure there's a manual somewhere, I could have figured it out." Others needed more time to adjust to the TeacherSim interface.

Afterward the orientation, each team was asked to independently schedule practice meetings in TeacherSim. Most teams took advantage of this opportunity to schedule multiple practice opportunities in TeacherSim. Bonnie's team was the only one that did not. Instead, they chose to meet physically in-person. Soleil commented that she would have actually preferred to meet in TeacherSim for the following reasons.

> My group members were not as technology excited, so they were like, "Let's just meet here." It's actually more difficult to drive the seven miles to the school and find a baby sitter for my son, when he could be taking a nap at home and I'm at the [computer] table. I think it's personally easier to use TeacherSim if you're able.

However, not all of her team members were as eager to embrace this technology. For a group to practice in TeacherSim, all team members had to be willing to meet there. Therefore, if one person on a team had difficulty accessing the environment, or simply did not feel comfortable enough with the technology, the entire group had to find an

alternative way to practice.

The preservice special education teachers on Bonnie's team were all physically located within a few miles of the Brigham City satellite campus, which is where they agreed to convene for their practice meetings. However, the course instructor, who played the part of Bonnie's aunt, was located on the main campus in Logan. To bridge this 30 mile gap, the team elected to use Skype. "I think TeacherSim would be great if you could work it for everybody to do it," Soleil lamented. With Skype, "you can't see everybody. You don't know who's talking. And you can't do the video with everybody." On the other hand, she noted that many of these obstacles can be overcome by using TeacherSim.

> I can see that it would help. I think it would help.... Advantages were: You could have everybody there. It wasn't difficult to use. Physically it just looks like everybody's there. You can hear their voice; see who's talking when they are. And so, it's just that...I don't really see any disadvantages except for people who aren't savvy with technology. And technology...if you can use it, I think it's easier.

The team members who attended the Brigham City campus physically met there so that they could contact the course instructor via Skype. By arranging the meeting in this way, only two web cameras were used. Therefore, the group could still access the video conference function of Skype.

Collaborating with other team members. Overall, Bonnie's group agreed that they functioned well together to complete the assignment. However, Soleil felt that she and Angie picked up some of the other group members' slack, which is represented in the following comment:

> I think I had the brains and she had the organizational skill. It was a little bit

> frustrating because, [the instructor] would say to other members of our group, "Don't say normal," and they couldn't get it. So I told them to write it on your paper in bold letters: Say *average*, not *normal*!

Aside from dealing with an abundance of technical jargon in the field of special education, teachers must also be aware of the language they use when speaking with parents. Using words like "normal" when referring to other children automatically gives the parent the impression that their child is "abnormal." This creates a binary between general and special education, further marginalizing students with disabilities. The unit of analysis shifts from the student's impairment to the child as a whole. Whether this was her own personal soapbox or she believed it was part of her responsibilities as the principal, Soleil felt it was necessary to emphasize this point to her other team members.

Angie agreed that the team functioned well together as a whole, but felt that "my other teammates got into a comfort zone, because they could count on me to know the answer." This was not only the case while doing the background work to prepare for the IEP team meetings, but became prevalent during their team's eligibility determination meeting as well. As Angie recalled:

> There was a situation where we were going through [the meeting], and the special educator role person was doing his part, and he didn't know the answer to a question that Nancy, as the mom or the aunt, was asking. And he turned to me, and he says, "Well, Angie, do you know the answer to that question?" And he totally threw me under the bus! Anyways, our roles...we worked together good as a team, and everybody found their part. But towards the end, some of us slacked more than others. I guess, is a nice way to say it.... And I embarrassed myself because I didn't do very good at it. It was a testing question, and had I been a general education teacher, I probably would have known exactly what CRTs a 4th grader would take. But being a special ed para, working with kindergartners and first graders, I didn't exactly know what CRT piece a fourth grader took. So, my other peers in Brigham City said, "Oh, you handled it well." But I felt very down on myself, because I just basically said, "You know. I don't know the answer to that right now. I can get back with you." And as soon as we got out of character I

> did ask her. I said, "Well, OK. What is the answer to that?" And she gave me the answer. So I did feel down on myself, but then I was just angry because my teammate—I had his back, because I aligned it for him, and yeah. So it was a learning experience: To have people's back, and maybe cover your own back, because they may not have yours.

Angie felt that the question was unfair because, had she actually been a fourth grade teacher, she would have known the answer to the parent's question. However, she was more upset with her teammate deferring to her, rather than telling the parent himself that he didn't know the answer. However, she continued:

> And people are just in general, either easy to get along with or can be very difficult and you can take it however you want to make your own self feel.... You know parents love me and they love my personality and how I work with their children, but then, I also have a very strong personality, and I've very assertive. And I've had principals before say, and I don't know if I'm a threat to them, because they're more of an authority figure than I am because they're a principal. So maybe, me being an assertive person, it's hard for them to accept me. So I find myself often having to swallow my pride so to speak, and just knowing my own personality, and knowing my own strengths, and then trying to find that person's strengths, just to even it out and not be mad all the time.

Angie acknowledged that because she is an assertive person, people tend to rely on her. For the most part she thought of this as a good personal quality, and one for which she was proud. However, as stated above, her assertiveness also had its drawbacks.

In addition to working with her other cohort members, Angie also emphasized the importance of the rest of the IEP team working together with the parent, noting:

> Well, as a team, we felt very lucky, because our parent or guardian, the aunt, was very smooth. The background was that the school before didn't feel like there was a need. It was more because of the situation that Bonnie was going through at the time. And so we knew that the aunt was frustrated with the prior school. And that she was very helpful.... So, as a team, we were thankful, because our parent was easy going. She was helpful. She gave lots of information, and her contact back with us was pretty flexible back and forth. So we felt pretty fortunate.

Aside from taking part in their own simulated IEP team meetings, all class members had

the opportunity to watch each other's meetings acted out. Depending on the case, and the parent's previous experience with special education, some parents were easier to work with than others. By the end of the semester, each preservice special education teacher had taken part in two of their own IEP team meetings, and witnessed eight other groups. This exposed them to a wide range of parent personalities.

Role of the parent. Although the eligibility determination and IEP meetings which took place in this course were only simulations, Soleil stated that she felt like she was conducting an actual meeting with Bonnie's mother. This was at least partially attributed to the performance of the instructor in taking on the role of the parent. "Acting is difficult, I have found. And I think Nancy did a good job making you feel like actually you needed to approach [the meetings] in a way that you would with a parent," recalls Soleil.

One of the greatest challenges to successful development of an IEP is effectively collaborating with the student's parents (Boyd & Correa, 2005; Lake & Billingsley, 2000; Mueller, 2009). Soleil differentiated between the role of the parent in the eligibility determination meeting and the IEP meeting.

> I feel like they have a lot of influence in the eligibility meeting. They know their child really well, and the parent interview, especially in my case was crucial. They have to do the Achenbach; administer that survey or whatever. And they have to just really be involved. Especially for the eligibility. Once you get to the IEP, I think the IEP is more for teachers.

In Bonnie's case, her aunt was the primary source of information for allowing the IEP team to appropriately classify her under emotional disturbance. Therefore, her involvement on the eligibility meeting was directly beneficial to the other team members.

By providing the IEP team with Bonnie's background information, she allowed them to make a data-based decision.

On the other hand, the aunt's involvement in the IEP meeting directly benefited Bonnie rather than the rest of the IEP team. If anything, this created more work for Soleil, making sure that the parent agreed with the rest of the team's recommendations. She did go on to note, however, that "if you can get the parents involved in the IEP, I think it'll be more successful. Just because they will understand the goals, and they'll implement those things at home." From these remarks, one can easily infer that the function of the parent in the IEP meeting is not to help establish goals and objectives as a contributing member of the IEP team. Instead, the parent's role is to listen to the other team members, and assist them in carrying out the program modifications that they deem appropriate.

Role of the student. One aspect left out of the IEP team simulations was the involvement of the student. However, to get a better understanding of the importance of this person's role, Bonnie's team members were asked how the present of the student would have affected the nature of the meeting. Soleil indicated that it really depends on the child. In some ways it could be really helpful to have the student's feedback on planning to meet certain objectives within a particular amount of time. Though she was also concerned that a lot of children might get bored sitting through an entire IEP meeting, which could become a distraction. The following comment specifies the primary advantages that Soleil sees in including the student as part of the IEP team.

> Well, it's personal. It's not third person. I mean, you're going to have to watch what you say a lot more in front of the child. But, I think just having them there would reinforce any kind of testing that was done, or any type of eligibility. You know, just putting them in the right category. I think it would be really helpful

> having them there, saying, "Yeah, I agree with that," or, "No, I don't." And just hearing a first person perspective is a lot different than somebody else's.

Since Bonnie is going into the fourth grade, her attendance at the IEP meeting is not mandatory. Although she may have difficulty sitting quietly throughout the duration of the meeting, allowing Bonnie to express her own wants and needs is invaluable in the planning process. This can often be done by consulting with the student briefly before the IEP team meeting begins.

Darius Johnston

Darius was a 12-year-old student going into the fifth grade at Sunrise Elementary Charter School. He was a foster child in a new placement, and little was known about his prior school history. Darius' mother believed that he had previously received special education services, but wasn't entirely sure. She opted to send him to the local charter school because of their small class sizes, but still wanted Darius evaluated for services.

Role and responsibilities. Joyce admitted that she was very interested in Darius' case right from the start. "It's been interesting because I really do think of him more as a real kid," said Joyce. Towards the end of the assignment, Joyce stated that she found herself feeling that she really wanted things to work out for Darius, and had to remind herself that he is not a real kid. "Two months down the road we're not going to meet again and discuss his [progress]," she stated. Having put so much time and effort into this case, Joyce said she felt obligated to follow-up on Darius to make sure he was progressing towards his IEP goals.

In addition, Joyce noted another reason she was so heavily invested in Darius'

case. She explained:

> But I think mostly, I was really interested because I have three very gifted children, and two of those three highly-gifted kids have ADHD. So, I'm like, OK. This is like my kid. My own real kid! So, maybe that's why it's been so real to me!

Joyce found many similar characteristics between Darius and her son, and as a result, she began responding to Darius' needs as if she were responding to the needs of her own child. Furthermore, Joyce indicated that her role as the school psychologist kept her very invested in determining his functioning level and designing his IEP. "This kid, he's very gifted but his behavior is what's preventing him from learning," she said. "So as the school psychologist, I really got involved in, 'Wow, this is what's going with this kid. And what can I do to help this kid?' And that kind of thing." Playing the part of the school psychologist, Joyce felt primarily responsible for ensuring Darius received the individualized services he required to make adequate educational progress.

For this assignment, Joyce was assigned to the IEP team at hypothetical Sunrise Elementary Charter School. To research her role, Joyce ended up speaking with her own school psychologist at length. "Most schools only have a social worker, but we happen to have a school psychologist at our school that I've worked with for so many years," Joyce explained:

> So I was actually able to communicate with him and he was really good. And he was really willing to help me. I asked him, initially, "What is the school psychologists' role?" And then, when it came down to it, I said—when we started talking about, "OK, what are we going to...what eligibility—Are we going to determine him as Other Health Impairment? Are we going to go with ED?" I discussed that with him, and asked him what his thoughts were. So he was really willing to help me. And that's how I got to know more about what a school psychologist does.

Joyce said that she felt fortunate to have a school psychologist on site at her school, with whom she could consult about his job duties and responsibilities as an IEP team member.

Determining eligibility and developing the IEP. Darius' initial referral for special education services came from his foster mother, who commented:

> Darius came to my home in Feb. of 2010. He attended the neighborhood elem. school. He had a very difficult time and I want to try Sunrise [Elementary] because of the small class size. I believe he was in special ed when he lived in Colorado but we do not have school records.

Joyce observed that Darius' mother was looking to give him a fresh start by enrolling him in a local charter school. Additionally, she wanted him re-evaluated for special education services to address the behavior problems he had exhibited at his previous school. However, evaluating Darius was more complicated than the IEP team had expected. As Joyce explained:

> We actually communicated with [Darius' mom] a lot. It was difficult because she's foster mom, so she could only really tell us what she knew, so we had to kind of keep digging and asking her for more information, and how we could get more information about his history and stuff. Because after we started delving into it, we realized that this kid really did have a serious behavior history that went back quite a ways. So we wanted to make sure that we really could get a good picture of what was going on with him.

Joyce stated that the initial step for her team was deciding what information would be relevant to determining Darius' eligibility, and how they would go about collecting this information. Each group member approached this task from her role on the IEP team. For instance, the special education teacher asked the mom about the previous interventions that had been tried with Darius. The general education teacher was interested in his present levels of functional performance, and how he was performing academically. "So we each kind of took our own role and tried to get whatever information was pertinent to

what we needed to know about the kid," Joyce explained. "And then we met several times as a team, putting everything together." By breaking down the eligibility process into its various component parts, Joyce found ways for each group member to better delineate her role on the IEP team. Of course, this also helped the team develop a better picture of Darius' needs in the classroom.

As the IEP team continued to collect and share information about Darius, it became clear that he best qualified for services under one specific category. However, Joyce was concerned with the stigma associate with this category, so she decided to double check before concluding the evaluation. As she explained:

> In particular, I was really concerned because I didn't like the idea of being labeled—labeling him Emotionally Disturbed. And, so I really had a hard time with it at first. But, we contacted Mom, we contacted [the course professor], and I also talked to the school psychologist and some other people I knew. And it was determined that because of the nature and the severity of the problem and how long it had been going on that really it was the best choice. And I'm always willing to listen to other people's viewpoints. So it didn't take us long to come together.

Ultimately, the IEP team decided that Darius would receive the best services to address his disability under the emotionally disturbed (ED) category. Meeting his educational needs outweighed any potential negative associations with carrying the ED label.

Joyce felt that her hesitation to classify Darius as Emotionally Disturbed also helped her to focus on the discrepancies between each special education category. "We really had to look through the different laws...to make the classification," Joyce explained. For each one, she found herself asking, "What are the criteria?" She describes how her team worked to narrow down the selection.

We really did go through all of that criteria, and made sure we followed and had

> everything in place before we made a determination. We just really checked each of the criteria elements off, and made sure that we had all of our data and had followed the protocol really closely. So, it did make me aware that that's important to do in a real setting. If that were a real kid, I would want to make sure that I've done all the right testing, I've collected all the necessary data, and everything is in place for the right classification.

Understanding the impact this will have on the child's educational future, Joyce put a lot of thought and care into categorizing Darius for services. Even though he is only a hypothetical child, Joyce acted as if he were a real student to strengthen the validity of the simulation.

Simulating IEP team meetings through TeacherSim. Joyce noted several pros and cons to working in a MUVE. "There were things that I liked, and things about it I didn't like," she stated. In favor of TeacherSim, Joyce commented:

> I think for distance ed, as far as distance ed, it was great because we were all able to sit in the same room as though we were in a school. So it was more familiar to what I've seen happen in the school system. In fact that rainbow shaped table was perfect, because that's where almost every IEP that I've seen be held was held. And so, it made it seem like it was more in a real setting.

Joyce felt that the details of the virtual environment accurately replicated a school setting, all the way down the shape of the table where IEP meetings are held in her school. She also liked utility of TeacherSim, allowing users from around the state to convene in the same room.

"But...in other ways it wasn't as real," stipulated Joyce. In particular, Joyce noted that during one of her team's meetings, other TeacherSim users kept dropping in which disrupted the simulation. She explained:

> Towards the end of the meeting all of a sudden we had a bunch of people popping into our meeting. And some of them were changing their appearance, and [some were] not dressed. That bothered me! Even though they were just avatars, it just

> felt uncomfortable! And then we had one person kind of standing off to the side. I think she left when she realized we were having a meeting, but she didn't close out of the meeting, so she was standing there, asleep, with her head down. So that part wasn't too realistic.

Directions not to disturb other meetings in progress had not been given to the class, which might have enhanced the simulation experience for Joyce. This may have been avoided by placing a *Meeting in Progress* sign outside of the conference room door.

Additionally, Joyce preferred the third-person view of TeacherSim over the first-person mouse-look. "That was harder for me," she explained.

> As far as the technology goes, I think it would be difficult. And, if you had to do IEPs over a distance, in some ways it would be good, but in other ways it would be bad. Because you would have people with different backgrounds with the technology and some would be able to use it and some wouldn't. So you might not be very successful at having the meeting that way, just because everyone's experiences will be different.

Joyce recognized that a certain level of technical proficiency was necessary to functionally replicate IEP team meetings in TeacherSim. This required that all team members have sufficient practice in TeacherSim to use it fluidly. Otherwise, one inexperienced user could dramatically slow down an entire meeting to the point that its utility as a training tool is nullified. This was the case for Darius' group.

Although Joyce's team members were all physically located at the same site, they still chose to take part in the virtual simulations. "We actual met at the school, and we got on TeacherSim together," she recalled. "So we were all in the same room together, still using TeacherSim." The only IEP team member not physically located in the same room was the course professor, who played the part of Darius' mom. Of the four team members located at her site, Joyce observed the following.

> Yeah, I didn't have too hard of a time. I found that I had to follow the directions exactly the way you gave them. And as long as I did that it worked well. I think others had a harder time, but as I was talking with them, I don't think that they followed the directions closely. So there were some bugs that needed to be worked out....And they were a little bit frustrated about that. But I didn't have any problems just because I've used technology enough to know that if you follow the directions exactly the way they're given, typically it will work out. As long as you have a knowledgeable person giving you those instructions!
>
> I think one other person was probably equally as comfortable with it, and the other two really had a harder time. And one of them didn't like the whole thing at all. In fact, she really didn't want to participate in—she wanted to participate in the meeting, but she didn't want to do it in TeacherSim at our last meeting. And she was actually getting very frustrated with the whole situation and her computer. So she was to the point of tears.

Joyce noted the disparity in technology usage among her team members. While she was comfortable accessing TeacherSim, this was clearly not the case for some of the other members of her group. In addition to the technological difficulties, Joyce's team member's frustration was compounded by the fact that they did not need to be using TeacherSim at all. Since only the parent was at a distance from the rest of the team, she could have easily been conferenced in through Skype, which allows videoconferencing for up to two web-cams.

Joyce explained that the more her team accessed TeacherSim, the more problems they encountered accessing the environment.

> The first time we met with Nancy, I thought it was great. I thought it went really well. Then, we had another practice meeting with her, and one of the persons got their computer started but couldn't make TeacherSim work. So that didn't work very well. And then, this one time we had the same type of issues. Not everybody has a laptop that they can bring that has the program on it. And it's just that some people are more familiar with the technology than others. So, it works if everybody can access and experience it, but it doesn't work great when not everyone has that same access or experience with the program.

Darius' team ran into several technological barriers that impeded their IEP team

simulations. And because this was a group project, it required the virtual presence of all team members. Therefore, even though Joyce personally had no trouble accessing TeacherSim, she collaterally experienced the difficulties of her teammates.

In general, Joyce adapted to the TeacherSim environment quite easily. "I've seen my son do stuff like that, and he's tried to create some of his own little environments and games and things like that," she explained. "So I was pretty familiar with what to do, and how to do it." Joyce described TeacherSim as a type of video game, saying that "it took me a minute to get used to flying, and what each control did—how to control it. But once I figured it out I did okay." She found that her previous experience with computer games eased her learning curve in TeacherSim.

Here Joyce describes how she approached the flying tutorial within the TeacherSim orientation path.

> When I came to the alligators, I kind of thought, "Oh, this is a video game type of thing. I want to fly over them because I don't know if they're going to attack me or not!" So I tried to avoid them, just because I wasn't sure what would happen if I didn't! They seemed like pretty friendly alligators though. I decided to try it just for the fun, and they didn't bother me too much!

Joyce initially found the alligators aversive and decided to fly over them. Ultimately, however, her curiosity got the better of her and she went back to see what would happen to her avatar if she did not fly over the alligators.

Although she transitioned well to moving and interacting within the virtual environment, customizing her avatar presented an obstacle for Joyce. She explained:

> But, the thing that I had more difficulty with at first was changing my appearance. I found that I wanted my avatar to represent me. And I know it's weird because it's just an avatar. But I wanted it to represent me. And so, I wanted to change its appearance.

Joyce felt that her avatar was an extension of herself, and wanted it to appear as such. However, she struggled with the controls to customize body type, facial features, hair and skin tone, etc. Eventually she settled on a close enough approximation.

Joyce also liked the voice over Internet protocol TeacherSim integrated through Skype. She noted the following about communicating with her teammates in TeacherSim.

> If you're using both Skype and TeacherSim, at least with Skype you can hear the tone of the voice. So that would still help you get a feeling for how the parents, or how other people are feeling about the way the meeting is going. If you were just using typing, I think it would be harder to be successful and really get a true idea. So, certainly Skype helps. I still don't think it would be the same as if you were all right there physically together. If everyone is physically together, you're going to get a lot of the body language and tone of voice, and all of those things that go along with being able to interpret how someone is feeling and thinking. So you would miss a lot of that if you were doing it totally in TeacherSim.

If not for limitations Skype placed on the number of people who could video chat at one time, Joyce thought that using Skype without TeacherSim would have been a better option. "Personally, the Skype thing I liked better. I liked the Skype part of it better," she argued. "But it's harder to get people from various places together at the same time with Skype."

For Joyce, however, neither Skype nor TeacherSim is the same as physically sitting in the same room as the rest of the IEP team. She recalled:

> During the eligibility meeting, I felt like we were really right there. But then the other one or two of my team members couldn't be in there. And then, it's tough when we have people popping in on us. So, it just really didn't feel the same.... The TeacherSim thing was good to a degree, but again you didn't get the body language. And then, like I think I mentioned before, I didn't like the people popping in on our meetings and changing and everything in front of us! That bothered me!

Though she initially felt like TeacherSim accurately replicated the physical appearance of

an IEP team meeting and the immediacy of responding back and forth with the other members of her team, Joyce found that the difficulties experienced by her teammates and the interruptions throughout the IEP meeting reduced the fidelity of the simulation.

Collaborating with other team members. Aside from the course instructor, who played the part of the parent, all of the other members of Darius' IEP team were located in Salt Lake City. This allowed the group to meet face-to-face before and after class at the Salt Lake City extension. Darius' team also communicated through email and telephone. "I found that some people don't check their email, so I always follow it up with a phone [call]," said Joyce. "Even if they don't answer their phone, I leave a message."

Joyce acknowledged that while each team member really took on their own responsibilities according to the roles they were assigned, Joyce also played the part of team leader. As she explained:

> I was the school psychologist, and this was a kid with some pretty serious behavior problems. So I kind of tended to be the leader, but still tried to allow the principal to conduct the meeting. But Mom also only seemed to respond to my emails and stuff. She didn't always respond to the other emails from the other students. So I did most of the communication with the parent. I don't know if that's because she felt more comfortable [with] me being the school psychologist, and the nature of the student. So I ended up, just kind of by default, becoming more of the leader of the group. So, when Mom had questions, I answered most of the questions, but I did try to make sure that others participated. And if it was something that was their responsibility, I made sure that they answered those questions rather than me. I didn't want to take over the whole thing.

Joyce felt that, due to the severity of Darius' behavior problems and her role as school psychologist, she was the best person through whom Mom could interface with the rest of the team. This kept all the relevant information about Darius funneling through Joyce for

disbursement to the other team members. She explained:

> For the most part we all tried to fulfill the responsibilities pertinent to our role. But it seemed like Mom was communicating mostly with me. And because of the nature of the student, I did quite a bit of the work. But, [the other team members] really tried to be a support and help whatever way they could. So, like I created the behavior intervention plan, and I initially wrote the goals. They did need to be revamped, so we all got together and revamped them. And I always tried to make sure that anything I did, I made them aware of, and forwarded anything to them and asked them if they felt like changes needed to be made and stuff like that. So we all really did our part and contributed.

Although her each of her team members contributed towards the outcome of the assignment, Joyce admits that the way she filtered information coming from Darius' mom did create a disproportionate amount of work for her. However, this helped streamline the process for Joyce, who had the following to say about how her team functioned together:

> For the most part it was really good. We had a really good group. We worked together. Like I said, we each tried to fulfill the responsibilities pertinent to our roles. There was one point where we had a little bit of a difficulty because each of us couldn't agree on the classification. Some of us were going with Other Health Impaired, and some of us were going with Emotional Disturbance. Just because Emotional Disturbance seems like such a harsh label to give a kid. And some of us really wanted to avoid that. So that was the only time when we had a difficult time. But when we met with Mom, and she was okay with it. As we communicated with Nancy, she also agreed that Emotional Disturbance was the way to go. So that made it easier for us as a group to come together on that.

Joyce felt that the team worked well together to classify Darius for special education, aside from a small debate about under which category he would best qualify for services. This turned out not to be a nonissue, however, as Darius' mother did not share some of the team members concerns about the stigmatization associated with the Emotionally Disturbed category. "We had a really great parent," Joyce explained. "She was a foster mom, but she really wants to be involved with Darius." Joyce felt that this made things

easier, because the team was all on the same page, “and Mom seemed to really be open with whatever we were doing.”

The only other problem the team encountered was coming up with a way to present their work to Darius’ mom and the rest of the class who observed their IEP team meetings. Joyce explained:

> That was the one thing that made it more difficult, I felt. In fact, it wasn’t until maybe about three hours before the eligibility meeting, that someone said, “Here are the PowerPoint’s for tonight’s meeting.” And I said, “Duh, PowerPoint’s!” Because I was really thinking, “How can we make everyone be aware of what we’re doing, and have these documents to look at so that everyone knows what’s going on?” And then it occurred to me when I got that email, “Oh, that’s what I need to do.” So I hurried and threw together a PowerPoint presentation. I think it was Sherry who suggested it, and I went, “Oh, thanks for the idea!” I didn’t think about it.

Once again Joyce took on the responsibility of creating a slide show in which to display the results of Darius’ eligibility assessment and the IEP documents which his team put together.

Role of the parent. Joyce used one word to describe the importance of the parent as part of the IEP team: “Extremely! If you don’t have the parent on board and get their perspective, you don’t really understand the kid and know what you can do to help them,” she explained. “If you don’t understand the expectations of the parent, and what the parent’s perceptions are, you’re not really going to be as successful as you could be with that kid.” Joyce looked to Darius’ mom to better understand his background and the context of his behaviors. She also explained that many of the interventions for Darius’ problem behaviors that have been implemented in the classroom could also be generalized to the home with help from his parents. She described how this might work:

> We're setting behavior goals for him at school, but it's really helpful if we can get Mom on board and have Mom help reinforce those things at home. We'll send home a behavior contract, and if Mom sees a bad behavior contract, Mom can give reinforcement or consequences at home, and that would really help reinforce what is going on in the school setting. So if you get Mom on board, and parents on board, you can really be a lot more successful in what you're trying to do, I think.

Joyce outlined a hypothetical scenario of collaborating between the school and home environments. Consistently implementing a behavior intervention plan across both settings would likely help with the efficacy of the intervention as well.

Joyce found that Darius' mom agreed with everything the team purposed throughout the IEP team meetings. However, through watching the other groups work with more difficult parents, Joyce was able to reflect on how the parent variable can affect the nature of these meetings. "I think it would actually change it a lot," she noted. Here she elaborates on how the meeting would be different.

> And as I watched the other teams...I think you would have to really try to—especially with a difficult parent—I think sometimes parents are difficult because, maybe they don't have the whole picture. So to make sure that the parents truly understand what's going on, not only what you're trying to do to help their child, but maybe they don't really understand how much their disability is affecting their student in the school setting. So maybe trying to help them get a better picture of what's going on. And really trying to work with them to get them on board. Offer them educational services that might help them maybe learn some parenting skills, or learn more about the disability so that they can understand it better, would be really helpful.... The Salt Lake group, whose parent wasn't very cooperative, I know they had a lot harder time even knowing what to do and what direction to take. They struggled more, I think, as a team. And I think part of that was because the parent wasn't as helpful and cooperative. So, I think the parent plays an incredibly important role in all of it.

Joyce commented that extra time would need to be devoted to making sure that the parent understands the needs of the student, and how the student's academic performance is affected by his or her disability.

Overall, however, Joyce felt that the IEP team benefited from Darius' mother's participation. "I think parental involvement is incredibly beneficial. And, I know with our group the parent wanted to be very involved and wanted to help us every step of the way. She was very cooperative," Joyce explained. Having a cooperative parent helped the team quickly and easily complete all the steps of each IEP team meeting.

Role of the student. Joyce thought that Darius' presence at the IEP meeting would have benefitted the team. "Especially with a kid like ours," she elaborated. "He's in 5th grade, and he's gifted. He's very bright." Joyce explained that Darius was needed for one procedure in particular:

> And we're trying to figure out what kinds of rewards and consequences, yet I don't have an actual student, so I can't do an actual preference assessment on him. So that is one of the things I put in his behavior plan that I would do, a preference assessment with him to find out what he really likes. But without the student, I can't determine that. So having him there to ask him and being able to communicate with him would have been very helpful.... We had a student with severe behavior problems. So we wanted to get that behavior under control, and trying to figure out what kinds of rewards he would most be motivated by. It would have been beneficial to have him there to let him have some say in that. And also to even conduct the, what do they call it, FBA type of a thing? So that we could try some of the rewards and see which ones he really was motivated by. And I think also being able to learn more about the student—about their strengths and weaknesses—so that you could utilize their strengths to build on their weaknesses, you know? And that kind of thing would have been really beneficial to have the student be a part of it.

Darius' IEP team had already determined that his low performance was an issue of him not wanting to complete his work, rather than him not having the ability to complete his assignments. Darius was able to keep up on academics with the rest of his peers, but he is not motivated to do so. A preference assessment would identify potential items and activities to reinforce Darius' academic work.

Patrick Jones

Patrick was a rising 10th grader at Carson High School. He had been receiving special education services under the specific learning disability category since the second grade. Although Patrick's triennial evaluation was not scheduled until next year, his parents had requested a complete reevaluation, as they no longer felt that his classification was accurate

Roles and responsibilities. Throughout the IEP team simulations, Andrea and Kristeen played the roles of special education teacher and school psychologist, respectively. As the school psychologist, Kristeen was responsible for conducting the educational assessments and putting together the data, with the exception of the Woodcock-Johnson Test of Achievement, which Andrea first administered and then presented to the parent. For her role in the eligibility determination meeting, Kristeen explained:

> I was mostly just an explanation. For like the test scores, and why we categorized him that way. Why we picked the goals that we picked. Kind of answering questions and assuring her. Comparing him to other kids his age. Kind of like, "This is where Patrick is. This is where normal—not "normal" but other kids his age, peers, are." And things like that.

Kristeen felt like her primary responsibility throughout this meeting was to explain to the parent whether and how her son qualifies for special education services, using the data collected from standardized tests. She was excited to have this opportunity, as she explains below.

> It was really interesting to me, just because in a school district where they didn't have a school psychologist, that's what a speech therapist would have been doing. So it was kind of nice for me because it was actual stuff that I possibly would have been doing. It wasn't like, you know, most of the classes that I'm taking

> have absolutely nothing to do with what I will be doing. But they're just kind of classes that you have to have. And so, it's really nice for me to kind of start doing things that I'll actually be doing. Learning things that I actually will need. You know, like math practicum and things like that, I won't ever actually use those. And so, to be doing things and to be put in a role that I actually could be doing at some point in the future was really interesting for me.

Kristeen felt like simulating the responsibilities of a speech therapist was much more applicable to her long-term goals than many of her other courses. This included her field experiences, which she considered more of an assignment than preparing her for the classroom.

To research her role, Kristeen contacted the school psychologist for her local school district. "I know him, and so he gave me his email address, and it was nice because I could just email him back and forth," she said. "And he was more than willing to help me and answer questions, and kind of put it into a real world place for me." Kristeen found her school psychologist to be an invaluable resource, who helped her understand his daily job functions and what he would actually do with a student like Patrick.

Andrea, on the other hand, felt there was something of a discrepancy between her experience as a special education teacher and the course simulations. She found it difficult to divide up the responsibilities to give each team member an equitable part. For her assignment, Andrea was in charge of writing the IEP goals. "But we did it in collaboration," she clarified. Specifically, her role in the meeting was to explain the IEP document, the bulk of which consisted of Patrick's goals and accommodations. Regarding Kristeen's role, Andrea observed that "we have a speech pathologist, and she is definitely an active part of the meetings for those kids." However, "it was a little tricky

to try to figure out where to give [the general education teacher] some equal time in the meeting too," she explains. Eventually, the team decided to hand over the discussion of Patrick's accommodations to the general education teacher, because these would also be relevant in her classroom.

Overall, Andrea found the simulation experience very beneficial. "It was so different, and it was so awesome!" she exclaimed. "And I think Nancy gave me that role on purpose, which was really cool of her." Despite having already taken part in several IEP team meetings, Andrea found that taking part in educational simulations to be a valuable experience. She explained:

> At my school, it's kind of like I'm in charge, and no one's told me that there was another way. The principal will be in his office, and he'll sit there and not say a thing. And so I'll be the one to make the introductions and explain what's going to happen, show the form to Mom, and just systematically explain everything that we're thinking about doing and ask for her feedback. While the general ed teacher sits there. And that's an area where I've realized that I want so much more collaboration.

Although she was already somewhat familiar with the content of an IEP team meeting, Andrea was new to the collaboration aspect incorporated in the virtual simulations. In her classroom, Andrea felt like she was doing the majority of the IEP work on her own. She had never received any explicit instruction on conducting IEP team meetings, and simply didn't know any other way. "I don't think there was really much collaboration going on," said Andrea, "but that's something that I really want to incorporate." Andrea primarily pulls her students out of their general education classes to provide individualized services. "I loved the idea of trying to get them back in the classroom," she remarked, stating her objective. "I just totally love that idea. And I want to incorporate it so that will

work its way into the IEP meetings, because I really want the teachers' inputs and I want them to be active in the meeting."

Determining eligibility and developing the IEP. Andrea and Kristeen agreed that upon receiving his referral, not much was known about Patrick, who had just recently transferred in from another school. The referral came from Patrick's mother, who stated that he had been receiving special education services since he was in the 2nd grade under the Specific Learning Disability category. Patrick was now going into 10th grade. His family had moved to a new town in an attempt to distance themselves from the small town mentality that they felt was keeping Patrick labeled in a disability category that wasn't accurate and therefore wasn't serving him correctly. "But when we tried to contact the past school, they gave us nothing. And Mom wasn't surprised," stated Andrea. "She thought it was because they knew that they'd messed up and they didn't really want to give the evidence away." Even though his triennial evaluation was not due for another year, his mother thought it would be beneficial to have him re-evaluated now.

"The last school wouldn't send us any information," Kristeen confirmed. "So our cumulative file consisted of half a paragraph." Both Kristeen and Andrea observed that Patrick's mom was very cooperative and helpful in determining his eligibility. As Kristeen stated:

> So then, most of what we got—most of our information and stuff like that—came from Mom remembering past test scores and telling us his features and his interests and stuff like that.... But it was just going through his eligibility and things like that. It was kind of piecing together the puzzle pieces and filling in gaps. There was a lot of guess work, but at the same time, we had some stuff.

Although his previous records could have been used as an additional source to help

determine Patrick's eligibility for special education services, Andrea noted that the IEP team was able to turn the gap in his educational history into an advantage: "Basically, it was like we were starting from scratch, which was kind of nice. A clean slate."

With the help of Patrick's mom, the IEP team was eventually able to classify Patrick for special education. "His mom was way super willing to help," said Kristeen. Andrea agreed, adding:

> Mom was totally cooperative. You could tell she was really concerned about her son. She wanted the best for him and she was going to assist in any way she could to help make that happen. And at the same time she'd been through enough with the past school that she was not going to put up with something that didn't feel right and didn't fit for Patrick. So I thought she was the ideal parent to have to deal with.

Both Andrea and Kristeen agreed that Patrick's mom was a wonderful resource for determining his eligibility. She was very forthcoming with information, which helped the team function together efficiently.

Ultimately, the IEP team classified Patrick under Intellectual Disability (ID). They briefly discussed the possibility of a Specific Learning Disability, although the evidence clearly ruled this out. According to the Wechsler Intelligence Scale for Children—fourth edition (WISC-IV), Patrick has a full-scale IQ of 67. However, the rest of the IEP team wanted to hear Mom's thoughts on the matter, "because of the stigma sometimes attached with ID," said Andrea, who explained that when it came to determining Patrick's eligibility for services:

> It was totally cut and dry because of his test scores. Just because there was no discrepancy between his cognitive ability and his test scores.... So he couldn't have fit into any other category. And I mean he was almost like the perfect child because he didn't have—there were no behavioral issues. Even though he had an Intellectual Disability that put him several grade levels behind, he was very

> persistent and diligent at completing tasks, and would just get to work and not stop until he's done, which doesn't always happen.

Although Andrea and Kristeen determined that Patrick fit best under the Intellectual Disability category, they felt it was important for his mother to have a voice in this conversation. To "make the parent feel like they are included in that process and the decision making there," said Andrea.

Kristeen was also proud of the way that their group embraced Patrick's mother as part of the IEP team, stating:

> All the other groups pretty much just verbatim read word-for-word what was on each paper. And it was pretty much the same meeting over, and over, and over. But in our group, we referenced back to the paperwork. It wasn't, "This is the paper and this is what it says." It was, "This is what we picked for him. These are the goals that we picked, and these are how they apply in a real world situation. This is why we chose to do it. We're giving him these goals, and this is where we're going to pull the information from, and this is how it fits into his transition services and life after high school." It made it a little bit more real. And we didn't just explain, "This is what we're going to do for him." It was, "This is why we're going to do it for him."
>
> And also, from what I noticed, we were one of the only groups that was really adamant about, "This is how we are going to work with you at home, as a mom. And we want to be able to correlate between his school life and his home life." And things like that. I mean, I learned a lot from the other groups. One of the groups had parent counseling, and all of this stuff. But as far as bringing his home life and his school life into kind of cooperating realms, I really love how we did that, and how Mom felt more included. Mom felt like she actually had a choice and an opinion, and she had an influence over what was happening. So, that was kind of nice.

When working together to determine eligibility and develop an individualized education program, the parent often feels like an outsider to the rest of the team. Many times the school professionals end up explaining their decisions to the parent, who plays a passive role. However, as both Kristeen and Andrea explained, they felt that it was important to

include Patrick's mom in the decision making process.

Simulating IEP team meetings through TeacherSim. Kristeen and Andrea both found logging into and adapting to TeacherSim to be fairly straightforward, although each had a few small issues to work through. "I don't play a lot of video games, but one of the video games I do play is called ToonTown Online," said Kristeen, which she described as "kind of the same thing. You have this little avatar, and you walk around and you do goofy things in ToonTown. So, as far as moving around and using the keypad and stuff like that, I can do that." Kristeen found that having some background experience with another virtual environment allowed her to easily generalize these skills to TeacherSim.

Andrea also found the TeacherSim environment to be engaging, and she quickly adapted to the interface. Overall, Andrea expressed:

> [TeacherSim] was super easy! It was awesome! I thought it was so much fun! I thought it was so cool, because I've never done anything like that before. So getting in there and creating your own little avatar, I thought it was great! I thought the environment was awesome. I wondered if it is going to evolve over time. I thought it was really easy to use.

Andrea found the environment very motivating and she enjoyed the experience of collaborating with others in a virtual environment. "I definitely found myself walking around by myself sometimes, just because it was kind of cool to check out," she stated.

However, the third member of Patrick's IEP team had more difficulty accessing TeacherSim. "I'm not sure in what way," Andrea stated. "I think one time, one meeting she wasn't able to get in. But she could talk on Skype, so we just sort of pretend that she was in there. That was OK." On other occasions, this person forgot she was supposed to

be in TeacherSim altogether, holding up the start of the meeting. “But once the meeting was going, it seemed pretty fluid and everybody seemed comfortable with what they were doing,” noted Andrea.

Andrea and Kristeen also liked the option to personalize her avatar’s body structure, facial features, and wardrobe. Kristeen, however, repeatedly ran into a stumbling block, which she explained:

> The first couple of times that I would log on to TeacherSim, my avatar was naked. So that was fantastic! I was just running around TeacherSim land naked! I was like, “Sorry about that! My apologies! No control.” But it was OK. Again, I’m not really a videogamer; I’m not really big into that stuff. So once I figured out how to dress my avatar and do all that stuff, it wasn’t too bad... The first night that we went into it, I went in and I set everything up and I got it all ready. And when I came in the next day, again, my avatar was naked. And half of the stuff that I set up the night before was locked. So, like the hair, eyes, face, I couldn’t change any of that. And so, it was interesting.

On slower Internet connections, it sometimes took longer for certain graphics, such as clothes, to load. This often created an embarrassing situation for the user, as she felt like the digital avatar was an extension of herself.

On the other hand, Kristeen found that one of the primary benefits to working in TeacherSim was:

> You didn’t actually have to be dressed up. I’m sitting in bed in my p.j.’s. I could be clipping my fingernails, or painting my toenails, and no one would ever know. But as long as you sound professional and sound like you’re paying attention, it’s all gravy!

Each team was encouraged to practice in TeacherSim prior to the final course production. Kristeen felt like she could be more relaxed during these practice meetings. However, she found that “during the actual meetings when we were in class, it felt a little bit more realistic for me. And even though we all really weren’t at the same table, it still felt like a

meeting to me." Kristeen felt like the basic environmental stimuli within TeacherSim were sufficient to represent an actual face-to-face meeting.

She and Andrea agreed that TeacherSim was a useful tool for collaborating across geographic distances. Kristeen noted the following:

> In reality, it's just how it goes! I mean, one of the groups, Soleil was in California. So she was on a laptop for the IEP meeting, and she was just on Skype. It's just so realistic in this day and age, because people aren't all in one place anymore. It's just how it goes. And another thing that I loved was the cameras. You could actually see who was talking and you could see all of that stuff. As long as people move the cameras, you know back and forth, as long as they were talking it made it realistic. Because you could see that person and you could see what they were doing, and things like that. And so, that aspect of it was really quite realistic to me.

Kristeen found the overall utility of TeacherSim to be beneficial in reconstructing a field-based experience. She found many of the features of TeacherSim, such as the camera controls, to enhance this experience. Andrea also found the fidelity of TeacherSim to accurately resemble a live meeting, though for her it was not quite the same as gathering around a conference table. She explained:

> I thought it was great! Given the fact that we're all distance, we're not able to simulate a meeting experience in person, I thought it was a great tool, even though it does separate you a little bit because you're a little character. It's not like *you* sitting down with other real people. But still, I thought it was really a good introduction to what it was like to sit down with other professionals and the parent, and what's expected. Yeah. I thought it was such a cool tool for us!

For Andrea, TeacherSim served the function of simulating IEP team meetings for preservice special education teachers who were unable to meet face-to-face.

However, Andrea stated that, to her, the virtual simulations in TeacherSim were a little contrived. "I didn't view it as all interconnected; I viewed it as segmented. Because Nancy is the teacher and Nancy is the parent. And you know even when Nancy is the

parent she's also the teacher!" she exclaimed. In addition to the competing roles of the course instructor, Andrea had difficulty connecting the flow of the meetings as she moved between real world and virtual applications. She noted:

> So for me, it almost felt like TeacherSim was its own separate environment, where contacting the parent was all done through emails. Or we would send out letters via email, and make phone calls, and when we would show up in TeacherSim, it felt kind of segmented, like now were all in TeacherSim. But I never felt like I was contacting the parent. I guess I never connected that part of it.

Although the virtual simulations took place in TeacherSim, other aspects of the eligibility determination and IEP development process took place through different media, such as email, Skype, and telephone. Because of the various virtual and real life supports that led up to the simulated meeting, Andrea found these to be somewhat disconnected from the TeacherSim environment. For instance, she would call a teammate on the phone to discuss eligibility categories, send an email to the parent for consent to evaluate, and then meet in TeacherSim with the IEP team while talking over Skype. "But I don't know how you would mitigate that, because it's a separate environment," Andrea stated. "I think it would be, if there were any way to get voice [over Internet protocol] in there that would make it more fluid." Unfortunately, these could not all be incorporated within the MUVE, which took away from the realism of the experience. Andrea further explained:

> I think in a real meeting, in some ways it's a little bit more fluid, just because the personalities are much more obvious. You know, you can see what people's eyes are doing. What the mom's expression is. I think it might help you anticipate a little bit more what somebody, you know, their body language. So it's just a little bit more dimensional in that way. A little more personal. But, for what it represented, I thought TeacherSim was great. And you could hear everybody. I think maybe using the technology might slow down a natural pace just a little bit until you get comfortable with the setup and having to look at what you're [doing]. When you're conducting a meeting in TeacherSim, you're all kind of sitting there. But you might be reading your document in a different application.

> Unless you're holding on to your mouse and kind of wiggling every so often, your avatar will go to sleep.

These aspects helped make TeacherSim feel a little bit flat for Andrea, pulling away from the flow of the meeting. Kristeen agreed, noting:

> It just seemed like I had a lot going on. Because I was at a distance site the whole meeting, and even during the IEP meeting and the eligibility meeting, we were all texting back and forth with last minute stuff. And emailing back and forth. So I had my email up, I had my Skype up, I had the PowerPoint presentation with all my notes up. I had TeacherSim up, and I had all these different windows to take care of. And that's why Nancy kept yelling at us for our avatars falling asleep. Because we would kind of just forget they were there. And they would fall asleep and it was like, "Oh, yeah! That window too!" So, it was just, on my computer we just had a lot going on.... And towards the end there, I kind of figured out how to make my window small enough that I could space them out a little bit and see bits and pieces of them. So that I kind of remember a little bit better to click the mouse on the avatar a little bit every once in a while. But, as far as that goes, I didn't really pay attention to the actual screen very often, because I was doing so many other things.

Had the students been able to work with documents and PowerPoint slides within TeacherSim, it may have enhanced the fluidity of the experience for them. As it was, however, all of these other applications continuously pulled them away from the virtual environment.

Despite this, Andrea recalled that "using Skype to hear when my team member was speaking, it seemed really cohesive to me. And when the parent would speak, it felt like we're there. We're in a meeting." Once all the supports were in place and all the equipment were up and running, TeacherSim became an effective virtual meeting place.

One feature of TeacherSim that both Andrea and Kristeen preferred was the ability to project slides on the conference room wall. "I thought it was awesome! Nancy liked our eligibility PowerPoint enough that she asked if she could post it in one of the

rooms for the other students to look at!" exclaimed Andrea. "So I went in there after that and clicked on it and found out how to advance the slides, and just admired how it looked taking up one whole wall of a room!" The ability to share joint attention within TeacherSim made it very valuable for presenting information through a slide show. "I loved how we put the PowerPoint's up and we could click on the PowerPoint," agreed Kristeen. "That worked really well for the practice meetings, because you can go through it and see how it moved, and see how it felt, and see if your slides are in the right order and all of that stuff." The opportunity to rehearse different aspects of the meetings helped team members feel more comfortable presenting their piece to the parent. Kristeen explained that she personally relied heavily on the slides:

> We were one of the only groups that used PowerPoint presentations for both meetings. Which, I thought was fantastic. I haven't received the feedback yet on what everybody else thought about it, but I liked it, just because, if I don't have something visually to stare at, I end up in La La Land!

In addition to keeping her focused, the slide show gave Kristeen something to look at during the meeting. Although the conversation moved around the virtual room as each team member provided her input, the expressions and body language of each avatar remained the same regardless of who was speaking. "In TeacherSim, once you sit [the avatars] all down around the table, they really don't do a whole lot," Kristeen elaborated. "Like you can move your little person to face the person that's talking, but they're not really talking." In fact, the only way to know who is speaking is to recognize the sound of their voice.

To make matters worse, the avatars would fall asleep if the user did not move her computer mouse every few minutes. "Nancy yelled at us every time for our avatars

leaning over and falling asleep," recalled Kristeen. Andrea added, "But then you wake up and you do this weird shaky thing! There were a couple of times when I did that!" Both team members found this interruption to be frustrating when they were trying to attend to the concerns of Patrick's mother.

Collaborating with other team members. "For this particular semester I think I was initially worried, because it's just not as easy as sitting down after class and hashing things out," said Andrea. "I feel like our team dynamics have been not ideal for me." Patrick's IEP team members were spread out across the state, which made collaborating as a team significantly more challenging. "Each of us was at a different location," Andrea stated. Additionally, Kristeen noted that "Heather's the only one at her site, Andrea's the only one at her site, I'm I was the only one at my site." Not only were the team members collaborating across hundreds of miles, but they had no one to turn to for support or assistance at their respective extensions. Thus, the team was forced to rely on technology to connect them. Andrea explained how the team overcame some of these obstacles:

> I mean we spent a lot of time on the phone. A lot of time on the phone. A lot of time on Skype. Lots of emails back and forth, and I guess that's when you really learn about group dynamics and personalities. And that's what Nancy said would happen. We ran into a situation where our fourth person couldn't be a part of the group, so there were three of us, and, it being summer, there were people going out of town. I'm pretty assertive, I really like to get good grades and I want to know that I did the best work that I could, so I'll work as hard as I can towards something. One of the other gals in the group [Kristeen] was just like me, probably even more assertive than me. So we were like, "Alright, let's get this done." The third person was much more passive and would wait to be contacted, and didn't really put herself out there. So that was a dynamic that was hard to figure out what to do.

Adjusting to working collaboratively at a distance came easier to some group members than others. These technological differences made it difficult for the team to function as a

cohesive whole. “I think it was a little bit of a challenge to one person,” said Andrea. She placed Kristeen on the opposite end of the technology spectrum, however: “I think she’s way better than I am. It was just super easy for her.”

Andrea observed that it was the technology in particular that caused their group to struggle. “As far as the sheer distance, I didn’t think it mattered” she stated. “The three of us were so use to being isolated anyway.” The problems came with “using the technology to reach out and make connections and get work done.” Kristeen confirmed this, describing how the team functioned:

> For some of the people in the group, it wasn’t really hard at all. You know, me and Andrea, we would get on the phone and probably talk four or five times a day. And we would email back and forth, and we were constantly sending files back and forth and updating them and emailing them back, and updating them and emailing them back. And talking on the phone about different things, and bouncing ideas around and just kind of brainstorming and stuff like that. But it was really difficult working with Heather because she was never around. We would set up conference times, and she would pick the time, and then she would never show up. We would call her and she wouldn’t answer the phone. She was constantly out of town. And it made it really difficult from that perspective, because then, when we would meet with [Patrick’s mom], all three of us weren’t on the same page. So, it was really difficult that way.

Technology generally makes it easier for people to connect. However, as Kristeen and Andrea found out, it is much easier to ignore an email than it is to ignore somebody knocking at the door. Additionally, the team had difficulty functioning cohesively because they were unable to plan ahead for the meeting with Patrick’s mom. Kristeen explains how this increased the work for the other group members.

> We couldn’t get a hold of Heather. She would respond to our emails.... It got to the point where, in the PowerPoint presentation, word-for-word we were typing in Heather’s notes and what she was supposed to say at the meetings. And so, we’re supposed to have a four person group, but we had a three person group and Heather had two roles. She was supposed to be the LEA representative and the

> regular classroom teacher. And so, we, Andrea and I, felt kind of jipped about that, because she had 50% of our roles and she wasn't doing anything. And so that kind of made it frustrating.
>
> And it's not something that wouldn't happen in a non-distance setting either. I mean, it's going to happen anywhere in any situation. Granted, it made it a little bit harder to get a hold of her, because we couldn't just show up on her doorstep and be like, "Knock, knock. Guess what?! Get busy!" So, it made it a little more [difficult], because we were kind of dependent upon her answering her phone or her email.

But both Andrea and Kristeen primarily attributed these problems to issues of technology rather than geographic location. "As far as the distance thing, in the beginning we kind of had some issues and worries about it, but it's just like if they were all in Vernal," stated Kristeen. "You know, we wouldn't be meeting and running into each other, we would be picking up the phone. So, being able to call back and forth made it easy. It made it nice." Kristeen and Andrea agreed that the team would have had the same difficulties connecting if all three members had been located in the same town.

Andrea felt grateful that she already had some working knowledge of the eligibility and IEP documents prior to beginning the simulations. "With the team that we had, I just felt so thankful that I'd already seen all of these documents before," she said. She had a general idea of the order in which to present the documents, and how the meeting was supposed to go. However, she noted that, "I did find that there are some things which we were doing differently [in the simulations], and things that I probably should have been doing that I wasn't [in the charter school]." Andrea observed that one of her team members had difficulty learning the paperwork on top of the rest of the IEP process. "One of the girls that I worked with in particular just could not sort of conceptualize what it was really supposed to look like...and the meaning behind [the

documents] when you present them to a parent," she said. "So for me, I was so happy that I already had that experience."

Additionally, Kristeen and Andrea were please to find that Patrick's mother was agreeable and easy to work with. "Oh, she was fantastic! It was fantastic," recalled Kristeen. "And I was like, "Whew! This is awesome!" Having already observed other team meetings, they both knew that some parents presented more of a challenge. Kristeen noted that this was not just the luck of the draw, however. Her team worked hard to ensure that Mom's voice was heard throughout the eligibility and IEP process. Kristeen explained:

> Throughout the whole process, we had a lot of contact with Mom. Since the last school didn't send us anything, we were basing everything on what Mom said and what Mom felt. And so we had a lot of emails back and forth with Mom, and a lot of contact with Mom. And it was funny because we would set up for practice meetings with Nancy, and she would be like, "Oh, by the way, Mom says...." Or, "Oh, I forgot, Mom says...." You know?
>
> And so, it was really nice because Mom helped us to see the categories, kind of what was needed and not. Because we chose a reading goal, which he was really, really behind on his reading. And for reading it wasn't just, "We're going to sit a book in front of you." It was, "We're going to pull stuff from informational texts and job applications." And stuff like that. And, we're going to explain to him how those words fit in, what the paragraph means. Kind of how that relates to him. And then, a math goal because he was working on his math. And then we did a study goal, which we had talked to Mom quite a bit about how once you set a concrete system down, Patrick could do it. And he was very adamant, and he was very motivated to keep doing it. So what we did was we took that goal and kind of expanded on it to where we set something up for Patrick that he could use in everyday life.
>
> We gave him a planner, and we said, "Write down your homework by your due dates and by your subjects, and take it all home. And as soon as you're done, have Mom look over it once a week to make sure you're actually doing it, and sign it." And setting up a system like that is something that he can use in a job. It's something that he could use for college if he's up for the future. He's really organized about stuff. So enabling him and giving him study skills and strategies

> to kind of set up his own organizational system in the future helps that. And so, a lot of what we built and a lot of what we did was based on the information that Mom gave us.

Patrick's team concluded that it was important to include his mother throughout both the eligibility determination and IEP development process. This was not simply a courtesy to the parent; the team gained valuable information from keeping frequent contact with Patrick's mom.

Overall, Andrea and Kristeen agreed that their meeting simulations went well, although both stated that their difficulties collaborating with Heather reflected in the final production. "If you knew what you were looking for, and you were looking for it: Yes," Kristeen said. "But if you were just walking into the normal IEP meeting and you didn't have a history or a background on it, then the meeting went fantastic." Before the IEP team simulations, she and Andrea decided not to mention their difficulties to Nancy simply because they did not want to direct her attention to any flaws in the meetings. Kristeen stated, "We wanted her to be looking at the whole meeting, and how it went, and how things were presented, and things like that." Once they had completed the assignment, however, they wanted to disclose to Nancy the issues the team encountered throughout the semester.

Role of the parent. By observing the range of parents who participated throughout the IEP team simulations, Kristeen determined that the role of the parent influences the outcome of the eligibility and IEP meetings quite a lot. She stated:

> Just looking at all the different groups when you had parents that were willing to help and parents that were willing to kind of cross teach, and apply what their learning at school at home, and have the teacher do the same. It benefits the student more. But then when you had parents that were just like, "Ugh! I don't

> want to do this. My child is not like this." It just made it really difficult for the school district and the IEP team, because they're really things that the child needs.

Kristeen observed how parents can increase or decrease the difficulty level of an IEP team meeting from the school's perspective, noting that "it just makes everything harder for all the teachers and the staff involved." To Kristeen, the role of the parent appears to be a confounding factor which invariably affects the process and outcome of a meeting, and cannot be controlled.

Andrea, on the other hand, posed a different perspective on the role of the parent. In her experiences as a special education teacher, Andrea observed that for the parents with whom she has had the opportunity to collaborate:

> The basic thing is that they just want to make sure that their child is being given the best education that he or she can, and that you're out for the best interest of their child. And when they feel that they are, I think most of them become pretty comfortable.

For Andrea, one of the most important steps in working with parents was helping the parents feel at ease. She attempted to do this with all her students' parents by establishing a sense of trust that their student's individual needs are her top priority. Andrea reflected that in education, it is sometimes difficult for parents to really understand why she made certain decisions. As she explained:

> And that's probably an area that I haven't spent as much time explaining as we do in these meetings. So that's was an area where I was like: Wow! That makes a lot of sense. To go in and explain the program and explain the steps that you're taking. And we haven't really been doing that that much in our meetings.

Andrea found that she was able to establish a better report with the parent when she provides them with the justification for making instructional programming changes of applying particular interventions.

For the most part, however, Andrea had found all of the parents that she has worked with in the classroom to be very cooperative. The primary difference she has observed across parents is that some of them "love to just chat on and on and on and on. And you kind of have to redirect back to the meeting so you can all get out of there and go have dinner or whatever!" However, Andrea acknowledged that she has only collaborated directly with a few parents up to this point, and gaining their trust in the future will not always be so easy. "There's always that unpredictable fact that when you add somebody that you don't really know, and who you're trying to build this working relationship with, anything can happen," she warned.

Role of the student. Although Patrick was not able to attend either of the IEP team meetings, Andrea thought his presence would have been valuable to the team in developing his individualized education program. She explained:

> I think it would be cool! Especially for the older students, because that's something that you have to have experience with. Because, if they're capable of attending the meeting and participating then you need to invite them. So that was an element for our team that we had to leave out and sort of just brush over.

Patrick's team was able to practice collaborating with the parent of a student with special needs to develop an IEP, but they did not have the opportunity to practice collaborating with the student himself. Andrea noted that adding this element would have made the simulations much more complete, since factoring in the student's perspective is "definitely going to add [additional] wants and needs and desires and concerns."

Kristeen also thought that having Patrick at the meeting would have been a valuable experience, but disagreed that it would have changed the end result of the meeting. She argued:

> I don't think it would have influenced the overall outcome, but I think that it would have been a little bit nice. Just because he was older and he was able to kind of make his own decisions about stuff like that. So, it just would have been better to include him I think in the overall process, rather than dealing with him like he was a hypothetical student—which he was—in a real world similar situation.

While she did not think the outcome of the meetings would have differed, Kristeen did believe that it was important for Patrick to have a voice in planning his educational goals and objectives. Andrea postulated that even though this would have complicated the responsibilities for each team member, she would have appreciated the additional practice. She explained:

> So it may make the process a little bit more complex; trying to take into account not only what mom sees as the needs, but what the child wants too. But I think that's real life, so I think that would be a valuable learning experience.

The course assignment did not call for working with the student as part of the IEP team, but Andrea and Kristeen both agreed that this variable, while increasing their own workload, would have been beneficial as it is something they are likely to encounter it in the real world as special education teachers.

Consequences

To answer the third research question, "What do preservice teachers identify as the contingencies for conducting IEP team meetings in a virtual simulation"?, this section focuses on the consequences each participant encountered throughout the course of their simulated meetings, and what they found to be reinforcing and punishing about the simulations. This includes both the methods through which the simulations were conducted (i.e., TeacherSim) and the content of the simulations (e.g., collaborating with

other team members).

Comparing Virtual Simulations to Other Course Products

Participants were asked to compare the IEP team simulations to other aspects of the Special Education Policies and Procedures course. Five themes emerged from these discussions: (a) Application of special education policies and procedures; (b) Interpolation and extrapolation; (c) Fidelity of implementation; (d) Contingency-shaping; and (e) Increased use of technology.

Application of special education policies and procedures. Both Angie and Kristeen noted that the meeting simulations helped them attend more to the application of special education policies and procedures, and the interpersonal characteristics of teamwork. "I have learned that kind of doing it that way makes you focus a little bit better, makes you pay attention a little bit more to the little things like that," said Kristeen. Angie agreed, stating:

> That is one thing that I learned watching these IEP experiences, is your body language. When I was watching the other sites' teams present, I watched body language. And even though we were sitting at tables and chairs, there was some people that played with their pencil and clicked their pen. Some people leaned over and they had summer attire on. And as a woman, you need to kind of watch those things. And so, I took that in and I thought, 'Gosh! It is important to [ask]: Are your fingernails painted? Do you have appropriate attire on? Appropriate clothes so that you don't show all of your girl stuff!' And even for the men as well! My team, as we met, I tried to dress—yes, it was summer, but I knew we were attending a meeting—and so I dressed meeting appropriate. More professional than I would in my hockey t-shirt and athletic shorts. And some of my team members chose not to do that, which is fine. Because I think that makes you feel more professional as well, the attire that you wear. Whether you have a pen that clicks and you get nervous and you click your pen back and forth. Whether you're leaning on the table with your elbows. Even just how you gesture can make it or break it in a meeting. So that's something that I learned as well.

Angie found that the course text book did not have much to say about professional dress and behavior throughout the eligibility and IEP process. This, however, was an important part of the process for her.

Several students mentioned that one of the more obvious differences between the simulations and the rest of the class was that the simulations required group work, while everything else was done independently. “There was a lot more group participation involved [in the simulations],” Kristeen observed. “The other couple of classes, it’s kind of just been you doing stuff. But I liked this because it was more group participation, which makes it nice for people that are at sites all by themselves.” Kristeen enjoyed the opportunity to collaborate with others to complete the IEP team meeting simulations.

Angie agreed, noting that “the rest of the course is Angie independently.” This placed the onus for completing these assignments directly on her. She describes this part of the course according to her obligations:

> I had to study. I had to listen to lecture. I had to make sure I was taking good notes for my own personal learning. I had to have everything organized in the way that Angie likes things organized, for me to be a learner.

However, when it came to the simulations Angie was forced to give up some control to the other members of Bonnie’s IEP team. As she explained:

> Because then I started worrying about everybody else. But I tried to align things, maybe, and then get their perspective back on it. So it wasn’t just all about me. It was more, ‘Gosh, this is what I thought. This is how we can outline things. How do you guys feel?’ And a lot of the time, I know that my team mates were busy and maybe I had more of an edge, because I was off for the summer so to speak. And maybe they didn’t contribute as much. When it was put out there it was ‘what Angie thought, but it looked great because now I don’t have to do anything,’ kind of thing. And I only got that from some of my team mates. But as the overall, it went from Angie’s doing her individual work to actually Angie having to apply that same skill but then get her team’s perspective. And I did have

> to find myself, as we would collaborate as a team, my ideas often just pop out of my mouth. Just keeps going, going, going. And I just have to literally swallow my words so to speak. And just wait, and give my other teammates their think time. And that was hard for me. Just me as a person, to control my own behavior so my team mates could contribute. Because their stuff was valid as well, you know? And I think as a team we grew from the very first to the very end. So, it was good.

Angie was reinforced for taking the lead on certain tasks which were then under her control, but she soon found that she was doing all of the work. However, as part of Bonnie's IEP team, her name was associated with work performed by other team members—whether or not it lived up to the quality standards of the work she performed independently. Thus, Angie found it difficult to surrender control of objectives within the overall project to the other members of her team. "Yeah, it did stress me out!" she exclaimed. "I'm not going to lie!"

Jana, on the other hand, really enjoyed working collaboratively as part of Francine's IEP team. Here she describes how she benefited from working with others:

> Well, the advantage is that you get to see so much more. I mean, if you're just all by yourself, you learn what you learn. When you get to work with other people, you get to see their point of view. When you get to see other people doing what you're doing, but with different people, that just gives you six more opportunities to observe and see how somebody else would do it. I think I get really stuck in, 'Well, this is what I would do.' And it's good to see that there are a lot of ways to do it! A lot of really good ways! And I saw some things that are a lot better than what I did. So, it was good.

By working with her team members, Jana found that there are often multiple solutions to the same problem. In other words, the same antecedent elicited various operant behaviors which served to access reinforcement. Additionally, buy observing the other meetings, Jana was able to abstract from her own experiences to apply her understanding across contexts.

Kristeen observed that the simulations were an effective tool for demonstrating how the various parts of the eligibility and IEP development process function together as a whole. She explained:

> It makes it so that it's not so repetitious that by the time you're learning it you can get all out. Definitely at first, when you look at it, it's overwhelming. But at the same time, there are resources for you to go to. To be like, "OK. I don't understand this stuff." You know? But, I think it's easier to just go through it then to have to learn it, and learn it, and learn it, and learn it.

By simulating the procedures of special education law, Kristeen felt that she avoided reading the same material multiple times trying to understand how it functioned. The simulation experiences allowed Kristeen to develop her own rules to govern future IEP behaviors, rather than attempting to apply the rules from her textbook to the context in which she is working.

Joyce agreed, stating that the simulations were "more applicable and it helps you to be able to see what something is really like, rather than just trying to develop a picture through writing an assignment and making and assignment out of it." Joyce, too, felt that rules she generated for herself were more applicable than following rules of others. "If my final assignment was to turn in a hand written IEP, you know a paper version of an IEP, and that was all I had to have done, I don't think I would have gotten as much out of it," she explained.

"Well, it was real!" exclaimed Soleil. "So, it was more hands on knowledge than books and notes." Soleil stated that she preferred learning through simulation as opposed to taking notes and exams. She explained that when studying for an exam, the function is to get a passing grade. However, when preparing for the simulations, she felt like she was

preparing for her future role as a teacher.

> Well, I know that when you study for exams and things like that, it's easy to just hit the information that you need, and not remember it really. With simulation, it becomes real for the most part. You have to understand what you're doing all the way. Not just what is the answer. You have to understand what it looks like, what it sounds like, and all of the procedures that are required to do it. Rather than just knowing enough information to pass the exam.

Although she learned a lot throughout the first half of the semester by reading the textbook and studying for the exams, Soleil felt that her understanding of special education law was much more applied in the virtual simulations of the IEP team meetings.

Expressing a different perspective, Angie stated that she wished the course include more discrete trials on information from the textbook. "I was feeling that I wanted a totally separate class just on that book," she explained. "Instead of practicing...I was wanting an actual class on that book." Working as a paraeducator, Angie felt like her knowledge of special education law was limited. Furthermore, she looked to the law for directions and guidance of her classroom behaviors. She recalled:

> As a paraeducator, before I was in this class, and before even the semester before this class, I didn't know. Because as a paraeducator, often if you're not in the kind of program like I am—you know, as a junior or senior in college—it's not expressed to you. It doesn't pertain to you, so, "Don't hear it. Don't see it." You know, that kind of thing. But being in fall semester, and spring semester, and now summer semester, and learning those steps, it's great. In fact, as I was starting to take the four online tests that we took, and I had to work in that law book...I was wanting an actual class on that book, and to have Nancy lecture me on that. Because I needed more of that, I wanted more of that. And I think it comes from learning it in chunks, because of semesters. Or lack of knowledge, because I'm just a para.

While she admits that the IEP team simulations were a great application of special education law to a specific context, she would have preferred additional training on other

aspects of special education policies and procedures. “Because the sped law part, as a paraprofessional and a college student, I knew bits and pieces, but not really the meat of what’s going to need to be from me as a special ed teacher,” she said. Angie appeared to be reinforced by adhering as closely as possible to the letter of the law.

Jana also identified the textbook as a beneficial resource for the future. She found that as a paraeducator, her knowledge of special education law was also limited.

> See, before this, I knew there was a special education law. I’ve heard little bits and pieces of it. But, you know, the federal mandates are so specific and so inclusive that without an understanding of what they mean, what that says—what that really says—there’s no way that you can do what actually needs to be done and keep the government happy about it. So learning the policies and procedures has been—well it’s been another eye-opening experience for me! It’s not what I thought it was! But I’m really grateful for the book we got. I think that’s going to be a great resource. But having just this little taste—and I know it’s just a little taste—there’s way more in that book then I’ve digested in one semester. But, you know, I think I have a better idea of what the legislation has done and why. I think I know kind of where they’re going. Some of it I think is a little screwy, but for the most part, it really does lay out the ground work of what has to happen and why. So I’m glad I know more than I did.

Jana found that a thorough understanding of special education policies and procedures was beyond the scope of a three credit course. However, the combination of reading the text and simulating the IEP team meetings gave her a better idea of how the law functioned, and where she could look for additional information.

“I think that it was a good base to stand on. I think that it was a good review of like the legalities and things that you can say, things that you can’t offer,” agreed Kristeen. “I think that it’s a good base to go on, because when you go into the IEP meetings and Mom starts asking questions, you know where to look. You know where to go.”

Sherry had the unique opportunity to compare the simulation training she completed with a friend who was learning about special education law in another teacher preparation program.

> I talked to one of my friends who is a teacher, who when through a different school with a different program. And he didn't get to have the IEP meetings like we did. And, oh, he wishes he could have had that! It was just invaluable! Having never been to one, I saw how everything worked, and I'm not as scared now to have to be in one.

Sherry explained that the simulation experience gave her a better understanding of what goes on in an IEP team meeting, allowing her to examine all of the component parts. "I can't think of any other way to teach it!" exclaimed Sherry. "And I really like how she's tried so hard to give us that experience…. Anytime we don't have to come [to the extension campus] to do homework or whatever, is a plus for me!" Although the IEP team simulations required extensive preparation from each team member, Sherry did not feel like this was the same as traditional homework, in which she searches for answers in a textbook. Here she described the primary difference:

> Well, we applied [the laws]! We actually applied them, so it was more than just learning them. Like when we were hashing over our IEPs, what we were going to do and stuff, we'd say, "Now remember! You have to do this within so many days of this." Or, I mean we referred back to them all the time. And, so I was glad that I knew what I was talking about. And my student needed to transition. We hadn't done that before, and hadn't learned about that too much. But, yet, because we had had some knowledge on it from the laws—that you need to have it by age 16 and all that—it still helped. And, yeah, you know, it just really took my fears away. It really did. I feel more calm about going into it. In fact I had a conversation with a teacher on Sunday. He teaches Ag or something like that. And he says, "You know, I have special ed students in my classroom a lot. And I'm so glad I don't have to do all that paperwork. My friend says that you have to do all that paperwork!" And I've had people say to me, "Oh, you're going into special ed. You'll have so much paperwork!" I never knew what the paperwork was! And this was the paperwork. And when he told me, I said, "You know, it's really not that bad!" Because I have gone through that. And, anyway, now it's not

a worry to me.

The IEP team simulations allowed Sherry to directly apply her knowledge of special education law, conditioning her future IEP behaviors. Additionally, she felt desensitized to the fear of participating as part of an IEP team. Although she had previously worried about various elements of the IEP, such as the amount of paper work involved, completing the simulations gave her an operational understanding of these components.

"This was probably my favorite semester so far!" noted Andrea, who found the content of the course to be very relevant. "Well with me working in a school right now, and having gone through [the IEP] process before, I discovered a lot of new information through the course," she said. "There was just a lot of legal stuff that I wasn't really familiar with." Having conducted previously conducted IEP meetings in the past, Andrea identified several ways to apply the content from the textbook in future meetings. However, she also found the simulations to be beneficial, stating, "I discovered all about the team building and collaboration and sort of really what—at its ideal possibly—a meeting is supposed to run like, and what the different roles are." Andrea observed that the practice opportunities throughout the semester helped the final simulation run a bit more smoothly, since each participant had multiple opportunities to shape his or her response. In contrast, IEP team meetings in vivo are typically composed of first-trial responding.

Sherry also cited the repeated practice as a primary benefit to the simulations. "It helped me become more professional," she stated. The multiple practice opportunities allowed Sherry to shape her responses to the parent, and receive corrective feedback from

the instructor. “Because I would have went to that first meeting—if that would have been the one we were graded on—without practicing. Well, I just can’t even tell you how bad that would have been!”

Interpolation and extrapolation. Each of the preservice special education teachers felt that they gained a lot by watching the other groups’ simulated meetings. “Having the classes where you went through and you saw the different personalities, and you saw how they went about solving it and they went about doing all of that stuff was really helpful,” Kristeen commented. While they only had the opportunity to simulate eligibility and IEP team meetings with one parent, each participant was able to observe the meetings from six other cases that were developed over the course of the semester. Exposing each class member to a broad range of exemplars enhanced the generalizability of the skills they acquired in the virtual simulations. Jana describes how observing the other simulated meetings increased her own learning opportunities.

> Well, just that this was an incredible learning experience for me. And to watch those other teams in action was invaluable. I mean, it was one thing to put together stuff with my own team—which was a good thing. It was a good thing. But to be able to see that happen six other times, in six different ways, with six different moms—you know with behavior kids, and learning disabled kids, and all of the variables out there—it was good!

Although she only participated as part of Francine’s IEP team, Jana felt that she benefited simply by observing the other teams’ meetings. This allowed her to juxtapose the variables specific to her case with those of the other teams, thereby providing her the opportunity to reflect on what she would have done differently in each scenario.

“Yeah, I learned from [the other teams] as I was watching,” concurred Joyce, who elaborated:

> I learned from their presentations as I watched them as well as in the preparation for my own. Yeah, I really found that beneficial. Especially when Nancy did the one with the really difficult parent...But that was beneficial, because I'm sure that we're going to run into different problems with different parents. Maybe not to that degree. Or maybe we will!

Joyce enjoyed watching the wide range of parents who worked with the other groups, and seeing how the parent variable influenced the process and the outcome of the different meetings.

"Morris' case was such an intense thing that when we listened to the case, everybody was on pins and needles about how the team was going to react to Nancy's behavior," said Angie, citing the case of a particularly challenging parent. "It was kind of fun to watch!"

"It was fantastic, and I was like, 'Whew! This is awesome!' And then we got into the meeting on Monday night, and I saw all the different parents," Kristeen recalled. "And it was interesting to me to see Nancy portray all these different personalities, and go through all these different [meetings]. And it was really interesting just to see the different attitudes that she went through."

"Yeah, when we got "nice" Nancy, I was happy about that!" exclaimed Andrea, who observed that many of the other teams' parents were not so cooperative. "I just got to watch "aggressive" Nancy, or "worried" Nancy. We got [to work with] "nice" Nancy!"

Sherry noted how one team made accommodations for a parent who was visually impaired. "That, to me, was so valuable as to how they handled different parents. One parent was even blind. I just would never think of that," Sherry commented. "But yeah! OK. Yeah! I probably will someday!" She recognized that while many of the specific

features of other teams' meetings were not relevant to her own current case, they may prove to be beneficial in the future.

The variety of parents that the preservice teachers had the opportunity to observe not only entertained them, but also provided a wide scope of examples of parents with whom they may be working in their future careers as special educators. As Joyce stated:

> I was able to attend all the eligibility [meetings], and it really gave me more of a sense of what might really happen, and what to expect maybe in the future when I'm working. I think if it had been done a different way, just turning in assignments and stuff, rather than having this final project type thing, I think I wouldn't have been as prepared for, [and] I wouldn't know what to expect in a real IEP or eligibility meeting.

Joyce believed that the virtual simulations, including those which she only had the opportunity to observe, better prepared her to work with a broader range of parent types in the future.

Andrea agreed, comparing the actual IEP team meetings that she had taken part in at her charter school to the virtual simulations conducted in class:

> I think it really showed me that not all IEP meetings are going to go as smoothly as you think they might. Questions are going to arise—which, I mean, already has happened—that you may or may not be prepared to answer. Anytime you add a person, a parent in particular with all their needs and concerns, you're not quite sure—you know, you can't control—what they do or say. But you can be prepared to answer their questions as best you can, and include them in the whole process. Mostly, it was the different personalities and concerns. I haven't dealt with anybody aggressive, or unsatisfied with the past services. Everybody I've dealt with so far is just like super happy that you're there trying to do your best to help their child. And so, it made me realize that's probably not always going to be the case.

In her limited experience conducting IEP team meetings, Andrea had only positive encounters with parents eager to receive special education services at the recommendation of the school. The virtual simulations provided her the opportunity to

witness more challenging cases, and reflect on how these differed from her own experiences.

Other preservice teachers who had never before taken part in an IEP team meeting felt they also benefited from the range of parent types. For instance, Jana stated:

> I learned so much by watching those other teams dealing with, especially that challenging mom. I mean, poor [Morris' team] up there in Logan. Watching that team kind of tip-toe around and say what had to be said, but say it in a way that she didn't immediately bristle and shut down. Wow! What an experience that was to see things that had to get done be done, but in such a way that the mom didn't walk out of the room. Yeah, I learned a lot!
>
> It wasn't just what I learned with my 17-year-old, reading disabled person. I got to see a lot of other things. It was very interesting to watch [Morris' team] come up with a BIP. I learned a lot!

Jana attended to relevant stimuli across each IEP team meeting, noting not only how they differed, but how she would have responded in the same situation. This, she felt, increased the range of experiences she had collaborating with parents, from one to seven.

Sherry was also intrigued by the variety of cases and the particulars of each team she witnessed. However, she felt a little overwhelmed by the influx of new information on the night each team performed their meeting simulations. Sherry stated that she wished she had a record of each student's case to reference in the future.

> No, no disadvantages. By being able to watch everybody's team, and how everybody had a totally different case—you know their student. I would like to have copies of everybody's stuff, because we will, I'm sure, have parents like that or students like that. And it would be great to be able to have a copy of everybody's to see how they did, because I can't remember all that information that they did. I mean I can only remember mine, plus I'll have my paperwork. And so, that's the only thing that I would add, is to say: Let us all have copies of everybody's IEPs!

Sherry had worked all semester on developing her own student's IEP, and working with

Francine's mother, so she felt comfortable with this individual case. However, while she found the other teams' presentations to be a great learning experience, she was afraid that she would not maintain this information, as it had been presented all at once.

Kristeen also found the range of examples helpful in looking ahead towards the future. As she stated:

> Knowing how to answer your parent questions. Knowing the background information. Knowing the legal standpoint and what the schools can offer is really helpful. Like in the case of the student that I had, how she wants to take legal action against the last school for mis-categorizing him for so many years. Being able to say off the bat, "Oh, well here's somewhere I can point you." Instead of sitting in the meeting saying, "Oh, I don't know, but I'll look it up and get back to you." I'm the type of person that likes to know before I step into a meeting, kind of have some ground to stand on. So that was really helpful, because now I have places to look. I don't just not know something. If I don't know it, I at least have a starting place to look up stuff. So that's really helpful. Going through the process is really helpful, because now I kind of know what to expect during an IEP meeting, and how the process goes, and it wasn't a trial by fire kind of thing.

Kristeen acknowledges that she will not always have the answers to all of her parents' questions, but she feels that she now has a better understanding of what goes on in an IEP team meeting, and has resources towards which she can direct parents for answers she cannot immediately provide. In general, she and the other participants felt like they got a better sense of working with different types of parents by observing each other's meetings.

Angie noted that she was able to incorporate what she saw in the other teams' simulated meetings into her own IEP team meetings. For many of the other teams' simulations, she found herself responding as if she were a part of those meetings. As she explained:

> I took really good notes and, in fact I was note taking and had to stop note taking

> to look up at the screen to just see some of the people's interactions with Nancy as the parent. And I found myself often times on pins and needles with some of our meetings. And I was coaching them in my own quiet voice, "OK. Just say this!" Or, "OK remember, use 'average', not 'normal!'" And those kind of words. And I found myself [saying], "OK. It's alright. Just calm down," with some of them. And then there were some of them where—and I know with distance ed the PowerPoint thing turned into a really big presentation piece, to use the PowerPoint which was a great tool to learn from—but some of the PowerPoints were over the top! And I found myself very bored. I found myself looking out and going, "Ew!" It just made me feel—even as a college student and as one of their peers—it make me feel like I was not as intelligent as they were wanting me to be. And so I was a little bit turned off. But I still looked for the next moment and listened to their voice. And there's a lot of our team members and our peers that are very well versed; They just speak very smoothly. And I'm hoping that will be me some day, because not only do you get nervous but you have to find the right wording. So that was a really good learning experience for me as to be able to use my words, and also to be able to hear other people use the same type of language structure. Great ladies with, you know they would say things and it was so smooth! It was, I often say smooth like butter. I felt like it was great all around!

In many instances, Angie covertly responded as if she were taking part in the other IEP team meetings she observed. This not only helped her shape her performance during her own meeting simulations, but also provided her practice for working with other parents in the future.

Sherry observed that by juxtaposing each of the different meetings, she was able to better discriminate the antecedents under which certain behaviors are reinforced.

> That's why I would like to have [each other team's] IEPs, because some of them had really, really hard parents. Some had easy parents, and yet their student was hard. And the different things they did with them! I mean, one team, their student, because of the least restrictive environment, they had to go into a severe classroom for all day! And it was neat to see how all this worked! You know? How, "Oh, you can do that!" And how the student can work himself out of that by reaching goals. Because a lot of us didn't do a behavior plan. A lot of us did do it. And see, we learned that! We learned that way back in the first semester we got into teaching we learned about those behavior plans, and reinforcement, and things like that. We didn't have to do that in my group, but other groups did. And so, it was neat to see that things we've been learning are incorporated into this, how they are incorporated in. So, yeah, it was great! That's the only thing: I wish

> we could have copies of everybody's. Because I know, being in real life, no they're not going to be exactly like that, but still it gave ideas.

Being able to discriminate when a behavior intervention plan is necessary is an important procedure for students with behavior problems that are a manifestation of the student's disability. Reinforcing discriminations such as this one will, by definition, increase the probability that the same behavior will occur when similar conditions are present in the future.

Fidelity of implementation. Several participants commented on the fidelity with which the IEP team simulations were implemented. Joyce noted that the rainbow-shaped table in TeacherSim looked exactly like the one in her school where IEP team meetings were held. The use of programming common stimuli across the virtual environment and the natural environment has two benefits. First, it enhances the level of presence teacher trainees experience within the MUVE, helping them to respond to the virtual stimuli as if it were real. This is critical to simulation training which purports to shape real-world behaviors in a contingency-free environment. Second, programming common stimuli promotes generalization across environments by presenting salient stimuli in both the training and generalization settings (Stokes & Baer, 1977). That is, relevant stimuli in the training environment are carried over to the natural environment to facilitate generalization. Thus, the use of a rainbow table in TeacherSim may assist Joyce with generalizing the behaviors reinforced within that environment to the actual classroom.

Aside from the content of the virtual environment, Joyce also felt that the IEP Teams accurately represented students and parents similar to those she may be working with in the future. As she explained:

> One of the gals in our group who is already working said that she actually just now had a parent who is actually the principal at another school. And she's got his son. And he is really, really tough, and he has been for years and years. And she just took over this year for another teacher in the middle of the year, and wasn't warned about anything. And she says she's had a really hard time with that, and this parent is actually now going to sue the district and stuff. So, yeah! Being able to learn from watching others was great.

Joyce felt that the simulations were more applicable to her because they represented the population with whom she worked, and the challenges she was likely to encounter.

Sherry agreed, stating that she had heard other paraeducators at her school talk about situations similar to those she encountered in the simulations.

> Because I haven't done IEPs, that is new to me. But I listen to some of the other girls, and they've been in mild/moderate a lot as paras, and they say, "Oh yeah! We've had one of those!" You know? And so, yeah, I like the variety. And I know, to be realistic, I know I'm going to get parents like that. So, anyway, in all the years I was in severe, we had one parent who was really tough. But we had a teacher who just didn't know how to deal with parents. So I put a lot of the blame on that teacher. And she only was a teacher for two or three years, she just didn't work well with the parents. And I think that had a different teacher been in there, that parent would have been way better. And, so, anyways, like I said, I'm still learning in the resource [classroom]. When I had so many years in severe, and so few in resource, I still tend to think of my experiences in severe.

From her limited experience working in mild/moderate special education, Sherry understood that the concerns of the parents she heard in the simulated meetings would be similar to the concerns of her student's parents. She also observed that many of these concerns were unique to mild/moderate special education. Despite 15 years of service in a severe classroom, Sherry found working with parents of students with mild/moderate disabilities to be a whole new challenge, as they tend to have different long term goals for their children.

Although Sherry found the parent's role in the simulated meetings to be very true

to form, this was not the case for all of the other IEP team members. “The only one that I think really didn’t have that much part in it is the LEA!” exclaimed Sherry. “I think that one was probably farther from reality!” In Sherry’s experience, the LEA did not play as active of a role in actual IEP team meetings as they did in her simulation and the other meetings she observed.

Kristeen agreed that in some ways the simulations felt like more of an assignment than an actual meeting. She explained that a few factors took away from her simulation experience:

> But [the professor] already has the right answers, you just have to get there and accumulate it on your own. And so that’s really nice. It kind of makes it difficult, because the information you’re getting, they’re all emails from Nancy. And so it’s like, “OK? This is really it? OK?” Whereas we had an older student, there’s no communication with the student. There’s no stuff like that. You know? Just the little things that would really happen in an IEP meeting. And it makes it a little more difficult because you’re not all in the same school building. Whereas, you’re dealing with over-the-phone and over-the-internet, and all of that stuff.

Kristeen noted that she sometimes felt like she was hunting for the correct response, rather than trying to collaborate. She also found the situation contrived because all of the information about this student came from the same source. The use of TeacherSim to communicate with other team members did not make up for the fact that they were physically located hundreds of miles apart. Rather than dropping in on a team member to consult or ask a question, she had to arrange to meet in TeacherSim in advance and schedule time to do so.

Despite all this, however, Kristeen said that the worst part of the simulation for her was at the end of the semester when providing special education services to Patrick all of a sudden came to a halt. “And then you get to the end and you’re like, ‘Well let’s

schedule another meeting,'" said Kristeen. "You know it's like dot, dot, dot." Kristeen mentioned the ellipses as reference to the abrupt termination of the simulation. Upon completing the IEP meeting and determining placement for Patrick, the simulation ended. She would have preferred an update on his progress towards meeting the goals and objectives she helped design. "You know, I think it's a feeling that way," she stated. "Like, even though you're over distance ed and stuff like that, you just kind of end up feeling that way."

Jana had a similar emotional response to wrapping up Francine's case. She explains that having worked so hard to develop Francine's individualized education program it was difficult not to follow up on her progress.

> I think [the IEP] could work! But, you know, I've read through her material. After talking to her mom, I have kind of an idea of who she is, and I'm anxious to meet her. I mean, I know she's not real, but she could be real. I've run across students that kind of match up with who she is. She could be real, and I really would like to help her. I'm surprised, every time we talk about Francine, how I would really like to be in that co-taught language arts class. And I would like to be able to help her, because she's smart enough that she could make this work if she wanted to. And I'd like to convince her of that. So, I don't know. I know she's not real. I'll never meet Francine. But, yeah, I'd like to help her.

Francine participated in a relational frame of coordination, or stimulus equivalence, with actual students Jana had worked with in the past. This arbitrarily applicable relational responding accounts for the same feeling of concern for Francine that Jana felt for her other students.

Contingency-shaped behaviors. To some extent, the success of the simulations relied on each IEP team member's ability to act. Students researched roles and responsibilities that they had never before carried. However, rather than memorizing

scripts, each participant had to respond to the desires and concerns of the parent. This placed the greatest acting role on the course instructor, who was charged with eliciting responses from each student, to be reinforced or shaped accordingly. Several participants commented that from their perspective, the instructor accurately represented a variety of parent types.

"Nancy did a great job with her characters," said Angie, who explained that the detail put into each hypothetical child and parent made the simulations feel more realistic.

> And I think that it was a great experience to know that these were actual things that [the instructor] had already experienced, or that someone in her realm of life had experienced. So it wasn't like fictional. It wasn't fake. And so that was nice. And it was nice that we had the blind mom, and we had our mom that was the aunt and the mom had passed away. But that's life. That is real, real stuff! Or you have the home school mom that was really kind of nervous about what her child was going to learn at the middle school. And to have kids of my own that have already gone through that, I found myself thinking, "Oh, lady! You have no clue of what kind of language this kid's going to learn at the middle school. I wouldn't be worried so much in his class, but in the hallway or on the bus! So I found myself relating personally, and it was just a character. It was just Nancy being in character. So she did a really nice job with that.

The purpose of the simulation was to teach preservice special education teachers to apply the law to the context of each case. Thus, attending to these small details became very significant to each IEP team. Angie stated that even though she knew that the students were hypothetical, she found herself responding to their needs as if they were real.

Andrea agreed, saying that "I thought [the professor] did a really fantastic job presenting different parent's personalities, concerns, needs—most of which, at this point, I have not encountered in my job." Although she had previously conducted IEP team meetings in the past, Andrea admitted that the simulated meetings incorporated certain elements that she had not directly experienced, such as the child's needs, the parent's

personality, and particulars about the home life. Andrea felt like the simulations prepared her to work with a broader range of student factors in the future.

Soleil explained that she differentiated the way she spoke about special education policies and procedures to parents, school personnel, and her university professor. "Not that I felt like she was the parent or anything, but I felt like, because I was being graded, I had to approach it correctly. So, yeah. I think it worked," she clarified. Soleil never mistook her professor for the parent of a child with a disability, but for the purpose of the assignment, she had to modify her responding to this effect.

Kristeen shared a similar comment, explaining that although she knew the meetings were just simulations, she still felt some degree of pressure to perform well.

> You go through the process and there's no—well there's pressure because you have a grade, but there's not real pressure because it's not somebody's real kid that you have the potential of totally annihilating!

In other words, Soleil and Kristeen responded to the same antecedent (i.e., the concerns of a mother of a child with a disability) as if it were an actual IEP team meeting, because the grade they received for the assignment maintained the pressures they would have experienced in an actual meeting.

Even though she had never participated in one, Jana felt that the IEP team simulations accurately portrayed the demands of a real meeting... As she explained:

> I learned an awful lot about the IEP process through the simulation. Really and truly! You know, I've been in the school system now for seven years. I've asked for the past five years if I can attend an IEP, been told "yes," and then never been told a time to show up! So, I've never actually seen an IEP. I mean I kind of knew what was in there, but not really. Because I'd heard the teachers talking, but I didn't really know. So, through the simulation, one thing I found out is that it's not as tough as I thought! What was in my mind before is not the reality. It's more straight forward. The thing that I really learned is how important it is to include

> the parent. I don't think I realized what an important team member the parent was. I learned that the bits and pieces that make up an IEP are quite fluid. One person can do one part, or one person can do it all! I mean, it was interesting to me to see how that worked out with our group. I thought it was a more formal thing. In my mind, I had this idea that the IEP was a very formal kind of thing. And I found out that you can—as long as you get the parts all in—it doesn't have to be a strict order, you don't have to [sequence] it. It was good for me to see the reality of the situation; it was different than what I thought.

Having completed the IEP team simulations, Jana feels better prepared for future eligibility and IEP meetings, in terms of both the process of the meetings and the content to be discussed within them. She also noted that the meetings are not as formal as she had expected, and allow for quite a bit of variation.

Sherry identified similar benefits to the simulated IEP team meetings, but pointed out that the simulations appeared to run more fluidly than the live meetings she had observed:

> It was invaluable to me. Now, like I totally learned how to conduct one. You know, how important the parent was. How important everybody's job is. I had no clue! And it all starts—well first you have Mom—but then it starts with you've got to get the testing done first. Without that psychologist and testing, you really can go nowhere. You know? And then you need to get the regular ed teacher to have her input with the special ed teacher. Because special ed teacher can't do it all herself either! And then I saw how the LEA worked with the team. I don't know if the LEA works that well in reality, as our team member does! Because I don't see that at my school. I mean, my LEA will come in 10 minutes late, and I'm running the classroom, and she'll say, "Well, where is it?" You know? And so, I have to tell her where the meeting is, and so I know she didn't start the meeting because she's late. So, I still want to see if that part is real! But, as far as the other members of the team, I thought that it was just as close to reality as it could be. I definitely was sweating! As my part, and I took a big sigh when I was done! That's how I felt; I was like, "Whew! Glad my part is over!" So, anyway, no. It was invaluable to me. The whole procedure. Having TeacherSim, everything. That we were able to meet together several times with Nancy, through TeacherSim and practice, was awesome! You know, because from where we started at our first practice to where we ended up finally delivering at the real meeting, we grew a lot and learned a lot through each one of those meetings. And I would like practice meetings with all my parents!

Sherry noted that the simulations particularly reinforced for her the sequencing of events throughout the eligibility and IEP process, beginning with the referral for an evaluation and ending with the student's placement in the least restrictive environment. She also identified how team members collaborate to develop an individualized plan for the student.

Andrea noted the teamwork as well, saying "To me that part of it seemed more about learning about group dynamics and the role of each person. So that's what I learned." This differed from the actual IEPs she had developed at the charter school. "Just that the IEP or eligibility meetings are not, at least in theory, a one person show. It's all about collaboration and working with the team. And interacting with Mom as part of the team." This perspective differed from Jana's early comment about one person being able to do it all, but clearly Andrea realized that collaboration did not always happen.

Increased use of technology. Another difference between the simulations and the other course products that several participants observed was that the virtual simulations were much more technology oriented. Throughout the rest of the class, teacher trainees utilized technology to some extent. They accessed the course's Blackboard web page, sent and received email, and took online tests four times throughout the semester. However, the virtual simulations required a substantially greater use of technology. As Joyce recalled:

> They were unique! The other parts of the course were typical. You know, stuff I've done before. Like turning in a study guide or whatever online. That's not too hard. You know, typical email like stuff or whatever. This was a different approach, and so you had to be aware—like trying to make it so that Nancy could see the documents, we could all see and use the documents.

Joyce found that presenting information in TeacherSim was very similar to presenting in real life. She still had to account for how to display the information in a way that was easily understood by Darius' mother. She found the slide projector a useful tool for breaking down large pieces of information into more manageable parts. Integrating her notes into TeacherSim was critical for Joyce, who found that the more she looked away from the computer screen, the less real the simulations felt. Uploading her talking point into a virtual slide show helped her stay immersed in the environment.

"I am a learner that I need to be visual and hands on, and this has given me both," agreed Sherry. "This [PowerPoint] just opens my eyes and clears up so much stuff! This has got to work for a parent!" Sherry found that the visual display of the slide show allowed her to better explain the results of Francine's eligibility testing to Francine's mother.

Considering she was located over two hours from Darius' foster mom, Joyce found that TeacherSim allowed for effective communication at a distance. As she explained:

> Since Nancy couldn't be there, be a parent for all of us other than doing it the way she did, I think it was better; Trying to have done it just over a phone or something just wouldn't have been as good. So, I think given the constraints of not being able to travel to each one of our sites and taking that kind of time and expense to travel to each of our sites and do it in person, this was the next best way to do it. And I thought it was quite effective. I liked it anyway.

Although Joyce admits that it is not the same as sitting in the same room, talking to face-to-face, TeacherSim did appear to be effective for determining Darius eligible for special education services and developing his IEP. She elaborated:

> Well, [TeacherSim has] given me more understanding of computer technology,

> that's for sure! I mean, not that I didn't already understand the basic idea of computers. But more in the ability to utilize it for this type of—you know, being able to see someone even though they're miles away. And actually being able to utilize it with more than two people, like you and I right now. Realizing that you can actually have a whole group of people that are all from different areas. I guess I hadn't thought about utilizing it that way. I didn't know that was possible.

Although Joyce had asynchronously communicated with people via email and discussion boards, and synchronously chatted online, she had never before considered the idea of a virtual meeting space. She had not previously had a use for one, so the motivating operations were simply not in place.

Angie stated that "it brought me outside of my box to use more technology around me." Had it not been required as part of the course assignment, Angie doubted she ever would have used virtual simulations. "Not that I say that I was pushed into the experience, but I guess it's more the opportunity was given to me!" she exclaimed.

Andrea countered that the steep learning curve required to use TeacherSim took away from its effectiveness. As she explained:

> Yeah, I think it could be a disadvantage for those of us who aren't technology savvy. I think it could be a hindrance that, we're so busy trying to figure out how to work this thing that you're not in the moment of being your avatar—special ed teacher, whoever—because you're stuck on "I can't figure out what to do," or "why is my avatar standing on the table?!" You know what I mean? Just those little things. But I see that really as being the only hindrance

Rather than solely directing her attention to the contents of the IEP team meeting, Andrea felt she now had the added obstacle of learning to interact with and manipulate the environment. This divided her concentration, and lowered her level of presence in the environment.

"I'm afraid we were all pretty stupid," Jana stated. "Truly, we're just a bunch of

old ladies and we don't know what we're doing…. You know us old ladies have such a struggle with the technology. We need an awful lot of help." Jana recalled struggling with the initial set-up and logging into TeacherSim. She observed that once she figured out how to manipulate the environment, she quickly adapted to her virtual surroundings. "And that, I know for a lot of us old ladies, was a little frustrating," she commented. "But once it was working, it was a wonderful thing!"

Future Confidence

Each participant noted that their participation in TeacherSim increased their confidence to collaborate with others, use technology, and access resources to conduct IEP team meetings in the future. Andrea stated that this class was one of her favorites so far, simply because it was so pertinent to her role as a special education teacher. Although she had previously developed IEPs during her first year teaching at the charter school, she explained:

> You know, we're so little, I haven't really had all that much experience. Yes, maybe eight sets of parents so far. And seeing some of the cases that Nancy presented for us to work on this semester was really great because I haven't had to deal with really any of it...Most of last year, I spent extremely worried that I was following all of the special ed laws, and not entirely sure that I was. So, if anything, this has just given me really great resources and a better outline of the basics of what special ed law is all about; How to be in compliance.

Andrea felt that her direct experience conducting IEP team meetings did not generalize beyond each specific case. Although the parents she had had positive experiences working with parents so far, she still worried about upcoming meetings, not really knowing what to expect and whether or not she was fulfilling her responsibilities. However, these attitudes changed after completing the simulated meetings:

> I feel confident. Yeah, I'm not worried about [conducting future meetings]...I think my understanding of what you have to bring to the meeting, what you have to produce for the parent, all of that, I've gotten so many of those details filled in. Like last school year, I felt like I was really struggling to find sort of the basic information to make sure that my meetings were [correct]. And I was probably omitting something! Before, what I was doing was just going through the documents. You know? The parent had a copy, teachers, everybody had a copy, and I was just explaining them. And I really liked being more visual with it, and including even PowerPoints. Just something to make it a little bit more interesting and present the information in a way that's maybe a little bit easier to see and understand versus all these documents, some of which are pretty simply worded and some aren't. They can be pretty wordy...But I feel like now I have more tools to use at the meetings. And it's kind of exciting for me because I feel like the meetings have been going okay so far, but this is just going to make everybody feel more included, maybe more solid with what's being presented.

While she still considers herself a beginner at developing IEPs, Andrea is more confident to collaborate with others to complete them in the future. She stated that the simulations provided a framework of what is needed, and she now knows how to access additional information. "It was good practice," she said.

Jana and Sherry also commented about the additional resources the simulated meetings had opened up for them to access in the future. Jana elaborated:

> Yeah, I know more. I know way more! And I think more than knowing more than I knew, I know where to go to find stuff now. I have some resources; I have a little bit of experience. I think I have just a little grasp—not very big—but a little grasp of how to do it and where to go to look for it, and what you can pull into it, and who to ask, and I think I have some better resources to pull this off.

Jana felt that the simulated experience had given her a better understanding of the IEP process in general, and in doing so had clarified where to look for more information and who to ask for help in the future.

Sherry stated that the simulations had "just totally helped so much." She explained that they had given her a head start on developing future IEPs:

> I'm printing off everything on my computer that we did, all my PowerPoints and stuff. I'm keeping that in a locked, fire-proof, water-proof safe so that I will be able to use them, and refer back to them. Because now I have something to look at, and I feel that I'm not starting at ground zero.

The IEP team simulations had provided Sherry with a framework for conducting other meetings, including the necessary components and procedures for qualifying students eligible for special education services and developing individualized education programs. The permanent products produced from her team's simulations would act as prompts for future meetings.

"I feel pretty confident," Angie agreed, noting that in many ways conducting IEP team meetings may actually be easier in real life:

> I know that being a special educator, I will be an important piece, and I know the school psychologist will be an important piece, and the LEA will be an important piece. And having everyone be an expert in their own area will be a little bit different than what was practiced at our sessions, because everyone was just playing a role, when really their brain was focused on just special education. So I think it may be a little bit different. It was good practice. It was good experience. I enjoyed it, and for my future as a special educator, I'll be able to feel like I can become more of an expert just on my piece—instead of having to worry about the school psychologist piece, and the LEA piece, and team members.

Throughout the simulated meetings Angie worried about the roles played by her teammates, because she knew they were also learning their own parts. In an actual IEP team meeting she will be working with other experienced professionals, which will relieve some of her stress. Angie will only have to worry about her own responsibilities, and let the other team members handle their own roles.

Angie also appreciated the scaffolded approach to learning how to conduct IEP team meetings. As she explained:

> Yeah, and I really like how we got to practice and get coached on it, you know,

> through Nancy's perspective. And also role play with her, with her being the [parent]. And I also, with my past experience sitting through those experiences, not being able to use my voice so to speak, but sitting through those and watching different people to conduct those meetings, it helped. But then actually getting coached and being able to help out with those meetings through how we did it, through our process, it's going to be helpful as well. So I'm wondering just when I actually finally graduate, do you think Nancy, could I call her on Skype and say, 'Nancy could you coach me through this first meeting!'

Angie's IEP experience began with sitting in on live meetings, but not participating. In the Special Education Policies and Procedures course, she learned the various components of the eligibility and IEP process. Then she had the opportunity to observe how these different parts fit together by watching the other groups' simulated meetings. Finally, she got to directly experience the IEP process by participating in her own simulations, and allowing the natural contingencies of working with her team members to shape her behaviors.

"When I go back to school, I would love to sit in on [an IEP team meeting]," Sherry agreed. "I know that paras can't, but all that we're doing in Nancy's class is so great that I would love to be in a real one, before I have to be conducting a real one." Sherry felt that she would benefit from an additional step of observing a live meeting before conducting one on her own.

Soleil also appreciated the scaffolded approach to learning to conduct IEP team meetings. "I think it's good to start on TeacherSim personally because you know they can't see your face freaking out!" she exclaimed. Soleil explained that the simulations helped clarify for her what to expect in future IEP team meetings:

> I think it helped your anxiety. The first time you're going to go to an IEP it's going to be the most difficult time, because you're going to be looking at the parent and you might not have the answer right in front of you.

> I feel more confident than I did before. I looked at it like it's just the unknown, I guess. Before, I didn't know exactly what I was going to be doing. All I've heard is, 'Oh, special education teachers have to do so much paperwork, and are so involved with the parent. And it's hard to get anything done.' But now that I know exactly what it is.
>
> Now that I know exactly what it is, I can see it working out better than I had imagined. It doesn't take as much time or effort as I thought it was going to. I thought I was going to be working all day long until 10 in the evening, which is probably going to be true in the beginning. But not so much once I get used to classifying and everything like that.

Although she felt like the simulations had clarified the various ingredients of an IEP team meeting, Soleil realized her training was not complete. While she had a better idea of what to expect, Soleil knew that the first few actual IEP team meetings would still be somewhat of a challenge as she learned to work with her new team members. For Soleil, learning to collaborate was one of the most helpful aspects of the simulations. She explained:

> I totally think it was successful. Especially having to deal with other group members. That's going to be like an [actual] IEP. Because maybe you don't get along with somebody in your group, and maybe you don't get along with the principal at your school, or the regular educator, or whatever.

Noting the high fidelity of the simulations, Soleil commented that, unfortunately, the team members she had learned to work with would not be the same in subsequent IEP team meetings. Though she felt prepared to discuss the different components of special education eligibility and the individualized education program, she was less confident in her ability to collaborate with others in the future.

"The meeting part I feel pretty confident about," explained Kristeen. However, she felt like she could still use some more practice developing the IEP.

> Just because, from a real IEP setting—I mean it was nice that we had this

> meeting, you know, and that you had to do two or three goals, and you had to do all that stuff—but in a real IEP setting, most IEPS have 10, 11, 15, 20 different goals on them. And so they're a lot more encompassing of what's going on. There's a lot more interaction between special ed teacher, the regular ed teacher, and possible other therapies, parent interactions and things like that. There's a lot more in depth, long term stuff that implied within an IEP.

Kristeen felt that while the IEP team simulations were a good start, they did not accurately reflect the IEP process in terms of time and effort put into the process.

In regard to conducting IEP team meetings in the future, Joyce noted that "in reality is going to be a little different." Like Soleil and Kristeen, she felt that the simulated meetings had given her a thorough understanding of the contents of IEP team meetings, but she was still apprehensive about the process of collaborating with new team members. "I'm sure that I don't have a full scope of what it's going to be like, and experience will give me the rest of that!" she exclaimed, elaborating:

> I'm a worrier. So I worry a lot about difficult parents, or making sure that my i's are dotted and my t's are crossed—just very organized. So I'll worry about that kind of stuff. Making sure my paperwork is the way it should be, following the laws the way they should be followed. That kind of thing. So, I'm sure that the first three or four IEPs are still going to be pretty difficult for me to get through. But I think this really did help prepare me for that.
>
> I struggle with getting to know people a little bit, but once I do I work with them really well. So, I think once I get to know the other people on the IEP team, and other teachers and stuff, then I'll actually be able to hopefully use them as a resource as well, and work together with them as I learn. So, yeah, I'm pretty good at working with people. It just does take me a little bit to get to know people.

Joyce was confident in her knowledge of special education policy and procedures, as well as her ability to collaborate with other people. However, she worried about getting to know her fellow faculty members at her school, and acknowledged that it would probably take some time to build a working relationship with them.

On the other hand, Sherry felt more confident to collaborate with others in the future. “And I’ve always believed that more heads are better than one head,” she explained. “Listening to other people’s ideas, 90% of the time they can come up with ideas that I never thought of.” Sherry noted the value of allowing others to express their opinions and concerns. “I like a team effort because one person’s not right all the time, and one person can’t have all the ideas,” she said.

Jana was also self-assured of her ability to work with other members of the IEP team. “As long as the team and I can laugh a little bit, I think that we’ll be able to pull this off!” she exclaimed. “If you get somebody who just thinks it’s going to be perfect the first time around, it might be kind of challenging.” Jana emphasized that developing a student’s IEP is really more of a process than a single instance. “But I think if we’re willing to work together, we’ll come up with the best thing,” she said. “I think it will work.”

“I mean, how else can you do it?” Sherry agreed. “You can’t do it by the seat of your pants?”

Additionally, Jana noted that the strategy her team used to work with Francine’s mom may generalize to other parents. As she explained:

> You know, our particular student was in high school, and she had kind of a prickly mom—although not as prickly as a lot of my other classmates encountered. And so, when we designed her IEP, we presented the piece first that we thought would get her on our side. So we started with transition, because we came up with a plan that we thought her mom would like. And so, we started about where her mother and where Francine wanted to end up, and then we worked backwards. And, I think if we had started by saying, ‘Francine is going to have to get better grades in high school to do what she wants to do ultimately,’ her mom would have not been happy with us. But saying, ‘She wants to be a nurse, that’s her ultimate goal. Now this is how we’re going to get her there,’ led

> us back to the point where her mom was willing to say, 'OK. Maybe she does need some help with reading. Maybe we could put her in a study hall. Maybe she could be monitored by a special ed teacher.'

Jana and her team wanted to reiterate to Francine's mother that they were all working towards the same goal of helping Francine become a nurse. They felt that by approaching the parent in this manner, the team could then better explain to her what they felt was the best method for helping Francine achieve her goal. Jana thought this strategy could also work with challenging parents in the future. She noted that, often, parents and school personnel agreed on the student's goals, but conflict resulted from the process used the student there.

Sherry observed that the simulations clarified for her how special education law affects what she does in the classroom, as she explained:

> Well, it affects everything. The law gives you the boundaries that you need to have. It also gives you like the path that you need to go on. Just as a para working at the school, I have seen where we've had some regular ed teachers who may have been not familiar with the law, so thus they were not cooperative at first. But when we explained what the law demanded, and what our student needed to get, then they were fine to go ahead and do that. I don't think that without the help of the law that could have been accomplished…. The law, for me, gives me a path to follow, like a road map. As long as I'm accomplishing all that and have done everything that the law demands, then I can feel good about that.

Sherry felt that the simulated meetings, combined with her experience as a paraeducator, had provided her with both positive and negative examples of how the Individuals with Disabilities Education Improvement Act was implemented in the schools. This better delineated for her what she should do in her future career as a special education teacher. Sherry elaborated:

> Well, for one thing, for me never having been to [an IEP team meeting], it explained how important it was to me. But I also could see how important it is to

> the parent, and how we have to be able to explain things on a parent's level—which is way below our level—because we use the wording and [jargon], but they don't! And so it's going to be foreign to them, but because they are such a valuable part of the team, we've got to make sure we can explain it on their level. And also explain it so that they can see what a help it is to their student. And what a wonderful help! I learned from my student on our team, that in order for our student to go to college and get help there, that she needed to have all these resources and services in place in high school, in order to get them into college. And I didn't know that! And so it can carry on through all their school years. From kindergarten, if that's where it starts, kindergarten clear through [when] they graduate from college. So what a valuable tool [the IEP] is. And I think that's what I've learned more than anything from this class, is that it is a valuable tool. I didn't realize how valuable it was. You know, you hear the teachers talk and they say, "Oh! I've got to do 10 more IEPs, and I've got to have them done this week!" And they know how important it was, but just for me listening on it sounds more like a drudgery. Having participated in it, now I understand how valuable the tool is, and that you can't, you really can't go anywhere with the students unless they have one!

Understanding the impact an IEP has on the schooling of students with disabilities, Sherry felt more confident filling out the IEP forms and working with other members of the team to develop an individualized plan. "Now I know more about how important the IEP is, because before I did not," she explained. "But I can see how it correlates with the curriculum."

Concurring, Kristeen observed that that there is a direct link between developing the eligibility identification and the IEP product itself, and what the special education teacher does in terms of curriculum development and instructional delivery. "[The law] affects everything that you do in the classroom," she agreed. "The different laws and the things that you can do and the things that you can't do, the way you have to say things, the way you have to approach things with parents, and things like that." Kristeen found that special education law provides guidance on everything from curriculum and instruction to communicating with the parents. "It makes a big difference to know them

versus not knowing them, and then sticking your foot in your mouth later," she advised.

Sherry commented that overall, the simulations gave her a better idea of what to expect in future IEP team meetings.

> Because now I know, now I've been in one! I've actually been to seven of them! You know, watching and all that! Oh, I feel so much better! And I know what they are. I know what papers they use. Yeah, before it was like, 'An IEP? Well what in the world is that?'
>
> So I feel, let's just say the element of surprise is gone. And, yes, I'm still going to be scared, but I feel that I'm starting at a higher level. And, I've got my tools that I need. I know what I need to do. So I'm not going in there totally blind.

The broad range of meetings presented throughout the course allowed Sherry to discriminate between which behaviors are likely to be reinforced and punished in the future, thus increasing her confidence in her ability to collaborate successfully with others.

Angie and Sherry also mentioned that the simulations had increased their confidence to use technology in the future. Angie explained that web-conferencing could be more beneficial than teleconferencing for working with parents who are unable to physically attend the IEP team meetings.

> I feel more educated with the technology part of, you know, like seeing Nancy on my computer. And, you know, for that part I felt OK with. As far as using my computer in an actual IEP meeting, unless a parent was maybe a distance situation where one parent might be out of town and we could do a video conference, like that would be helpful. I can also see it being a little intimidating for the community that I live in currently. But then it might be an awe factor too, of, "Wow! I can actually see so-and-so by camera!" So from that point of view, I learned, but then I also kind of reflected and thought that it may be a little bit over the top if I actually use that type of technology in an actual IEP, sitting down at my table...I'm the type of person that I use my hands a lot to talk—to touch a piece of paper, to touch my pen, to point to my neighbor. You know those types of things to be able to communicate. It's just the way that my personality functions. So it was nice to know, even though we were working through the

> camera with Nancy, it was nice to know that my team members were sitting there next to me, to where if I need to have eye contact or touch them, or slide a paper to them or whatever, it made things a little bit easier.

Although she felt more confident to conduct IEP team meetings at a distance, Angie noted that it is still not the same as physically sitting across from her teammates. Primarily because she is better able to express herself verbally and physically in person. While a web conference more closely approximates this than a phone conference, there is still room for technological improvement.

Sherry felt more confident in using technology to better communicate with parents and other team members. She explained how her self-assurance with technology had generalized beyond the IEP team meetings.

> Well, and in my church, I teach a Sunday school class, and I'm always doing everything on my computer. You know, even for that. So when I'm done with school stuff, it'll still work. We have a smart-board at school that my teacher works on. And I never really got to learn how to do that. But after this summer, because you know with TeacherSim and all that, I really feel so much better that I'm going to [try it]. Now, I want to, because the learning capabilities on there—the games that I could play with the kids, all the learning games and stuff. You just can't beat it!

Sherry, like the community members Angie referred to, was initially intimidated by the advances in technology. However, as she grew more comfortable using it, she began to see the educational implications as well.

Remaining Challenges

Several participants cited individualizing the curriculum to meet the needs of each specific student as their biggest obstacle yet to overcome. "I think that developing curriculum is still something that feels foggy," said Andrea, explaining that this is an area

about which she would like to know more.

> To me it's such a complicated process—not only making sure that you're following all the laws, but then developing the program! And that's really what my biggest hurdle is: How to develop the program. I mean the laws are clearly stated, so you know as long as you do this and this and this, you're most likely to be in compliance. But then the bulk of it is how are you developing these individualized programs? And then dealing with the parent and the team, that's kind of the other component. That's probably the easiest component to talk about because the desired outcome is very much the same. Everybody can say pretty much the same thing about what they want to come out of it. At this point, I just feel like developing the program is my biggest hurdle. So, hopefully I'll get more experience with that!

Andrea noted that applying the federal mandates would continue to be challenging for her as she modified the general curriculum to meet the specific needs of each student. However, she felt confident in her ability to work with other team members to achieve these goals.

Similarly, Sherry stated that the first challenge would be identifying the strengths and weaknesses of every student. As she explained:

> Well, that's why I've got to know what each student needs. And, I can see that that's going to be, "Whoa! How do you juggle that?" You know? But I'll have to! And I think that's where the creativity of teaching comes in: Is how creative can I be to make sure that I have met the needs of each student.

In addition to the initial evaluation, Sherry noted that it will be challenging for her to continue to monitor student progress across all aspects of the curriculum.

Jana observed that it may be easy to over-promise services simply to please a concerned parent, and noted that this was something she would have to watch for in the future. Jana wanted to ensure that she upheld her end of the contract, and that the student received all of the services and accommodations agreed upon in the IEP meeting. She stated:

> Well, I think you're just going to have to be really careful—or as an educator I will have to be really careful—in making sure all those bits and pieces go together. That we're actually delivering the services that need to be delivered to that child. I can see how experience is going to make a huge difference as I work with my students and I see what their needs are. And as I try to provide what's going to be most beneficial to them while keeping within the guidelines that have been set. You know, it's kind of like a puzzle. Fit this with that, put that there, and move that around over to here. Then try that. You know? Yeah. It is a puzzle that has to be put together.

Jana used the analogy of a puzzle to describe the ebb and flow of the classroom, trying various interventions and techniques to figure out what works best for each student.

Soleil and Joyce agreed that individualizing services to each student's needs was going to be one of their biggest challenges. Soleil explained:

> Well, each student's going to be different, so coming up with goals and objectives is always going to be difficult for each student. Also classifying is going to be difficult, just because you're going to have to look at a lot of information to see where they fit perfect. And, I mean those things will come with every child. I mean it will get easier as time goes on, but the first few eligibility meetings and IEP meetings I do, there's going to be a lot of time spent looking at information and talking with the parents and teachers and other special educators.

As a beginning teacher, Soleil expects to spend long durations of time reviewing the classification guidelines and developing individualized goals for her students. However, she noted that with repeated practice this process will become easier.

Joyce stressed that it is also important to focus on each student's present level of functional performance:

> I think that linking the IEP to the curriculum is important, but it's also important to remember the student's ability level and gear it to that as well. And that can sometimes be tricky. You want the student to be able to succeed to the fullest extent possible, and not limit them. But you've also got to be able to make the curriculum applicable to what they can do.

Although modifying the general curriculum can be difficult, Joyce noted that it is equally

important to take into account the students' ability level. Thus the teacher must also arrange for appropriate accommodations such as preferential seating and alternate testing. "And that's why they call it an individualized education plan," Joyce said. "Because you have to gear it to what their needs are, not just one size fits all."

In addition to modifying the curriculum, several participants noted that collaborating would continue to be a challenge. Andrea noted that she would like for the other school professionals that she works with to participate more actively in her IEP team meetings. "We have some new teachers coming in this year that have more experience than any of us," she stated. "So I'm hoping that I can build a relationship with them and draw on their experience in other, past school environments. Just become more of a cohesive team."

Joyce agreed that the IEP process helps the parents and school "come together with a common goal to help the student be successful in school." However, she recalled from her experience in the classroom:

> I see that some teachers follow the IEP and some don't. But I think it's important that everyone knows what is on that IEP and that everyone really tries to follow it in order for the kid to be successful and in order to help the kid. We were talking as a group after our meeting yesterday, one of the ladies in our group is already working as a teacher and she's already had to do some IEPs. And they've just gotten a new kid, and she was telling me about this kid she's working with and what she's been trying to do. Two special education teachers are working with this kid, and one of the teachers is following the protocol and stuff the way it should be, and the other one is not. And she's having a hard time getting the other teacher, even the special ed teacher on board with what really should be happening. So everyone has to work as a team. Even with, and including the parent. You need to know what the parent's expectations are and make sure that the parent is OK with everything that you're doing. And even learn from the parent as well as helping the parent learn what they can do.

Collaboration, Joyce noted, must continue long after the IEP meeting ends. Goals and

objectives agreed upon during the meeting must then be carried out throughout the year. Joyce also realized that the parent may not be the most difficult person to work with.

Jana mentioned that the simulations have given her a better perspective of the parents' point of view. However, she also commented that understanding where the parent is coming from will not inherently make collaboration easier. She explained:

> In my classroom, I work in the ED unit, and I do interact with the parents a little bit. And I think just tailoring...gluing an IEP to a parent, knowing a parent well enough to know what their concerns are and addressing those concerns, and being supportive of that parent and the things that they're hoping to happen with their child. This gave me a whole new perspective of the parent's point of view! I saw Nancy be seven different moms. And heard her say things that, actually I've heard little bits and pieces of that myself. But I don't think I really realized, well for one thing, what it would be to have a child who needed special help. I mean, I think I have just a little bit better picture of what that would be like. Plus, they do have concerns that are very specific to them and their child! And I'd never stopped to consider how that would play out in being able to provide services. So, this was very eye-opening for me, to see it not just from the educator's point of view, but from the parent point of view. And I think that will be a challenge: Dealing with parents.

Jana felt that she now had a better understanding of the parents' perspective on special education, and their concerns for the well-being of their child. Despite this, she still identified "dealing with parents" as presenting a continuous challenge for her.

Angie honed in on her presentation techniques throughout the IEP team meetings as an area for improvement. She explained that sometimes she can have trouble communicating with others.

> For me personally, I tend to—I'm getting better at this—but I tend to not talk big words. I tend to talk with my hands a lot. I tend to—not that I'm not serious and not that I'm not professional about things—but sometimes I joke or I bring a lighter side to it. And sometimes people don't perceive that as enlightening. So I need to work on being able to communicate with words, whether it be a parent who's very highly educated and would understand the big words or the acronyms that we use in special education. Or whether it be I need to use those same words

> in a different way to make that communication across to some parents who may not have that type of language. So I think for myself, I'm getting better at that.
>
> Another thing that I struggle with is that I tend to talk a lot. And so, I get into maybe too much detail, or too much explanation. So I need to reflection on that a little bit and, not change it, but tweak it. Find the happy medium. But I do feel, from my past experience, I've had to sit mute as a paraprofessional. And now with this experience, Nancy did tell us right as we got into the program she was just going over each semester's class structure and how intense it would be, or maybe this class would be a little bit more laid back and this and that. And she said that this current experience that we just had, she did tell us, she said, 'There's going to be difficult parents, there's going to be easy parents.' She just gave us a broad view of all of the different characters that could be out there. And I'm thankful for that experience, because now you can kind of relate maybe some experiences in the future that I may go through, and I can say, 'Oh, I remember....' And you jotted down special wording that Nancy did, or some of my peers at the other sites did, and that Nancy had coached them on. She's such an expert at it! And I think for me it will take a little bit for me to get there, but I also think that I'm not better than anyone else, and I feel like I don't portray that I'm better than anyone else, and I kind of give off that type of energy: That I understand different backgrounds of where different people come from, different cultures. And I think that's one of my strengths going into some of these IEP meetings. So hopefully I can learn and make my communication better, whether it be within my wording or my body language, or that kind of thing.

Angie noted that she would have to fine tune her presentation to meet the needs of the parents. For some parents, this might mean maintaining professionalism throughout the meeting. For others, this could be showing concern, or using less technical language.

Joyce recognized that in most IEP team meetings there is a lot of ground to cover in very little time. "It's one thing to sit there and verbally give information to someone, but you can spit out a lot of verbal information in a half an hour time frame," she observed. "But you're going so fast and trying to get through it that you can't guarantee that parents really comprehended what you're trying to say." Joyce reflected that she always benefits from the use of visual aids to assist with comprehending technical, or simply large amounts, of information.

> The one thing is, we had to make sure that the parent could still see all the documents, and could understand them. I'm a very visual person, you know? I much prefer to have a printed document than to read something off of a computer screen. I'm that visual. I'm almost tangible visible! It's not the same to read something on the computer screen for me as it is to have that document right there in front of me where I can study it and look at each section. And if other people—and not everyone's that bad—but most people have more difficulty with listening, especially over a long period of time, than they do if they can look and listen.

Joyce emphasized the importance of distributing handouts and utilizing visual displays to present large quantities of information in such a short amount of time.

Angie also made the comment that although the policies and procedures class had utilized technology more than any other, there was one piece of technology missing. "We use GoalView to type up IEPs, and it looks a lot different than old school paper/pencil," she stated. While the course taught special education teacher trainees to fill out hard copies of IEP paperwork, Angie observed that her school district, along with most others, have now switched to an electronic format. Although the content remains the same, the topography is quite different.

> But, the piece that I missed the most was not being involved as much as a paraprofessional in the IEP process of explosively writing present levels, and where the goals fit, and which part you tell first, and which part you tell third. Which part you tell second, when you're going through an IEP. That part I felt was missing from the lecture piece to the actual applied piece of actually someone higher than me teaching me that. Like what those papers meant. And I know Nancy did go through the IEP, and she slowly chunked it out and stuff, but it was like first page, second page, third page. But in reality, when you're conducting an IEP, sometimes that first page, second page, third page doesn't flow. It's usually first page, skip to page six, go back to page three, you know? So that was a little hard for me to take the time to research it and think about it and analyze how I'd seen it done in the past. How Nancy has lectured teaching this, and how we're going to actually apply it during the IEP.

Angie commented that the way the paperwork was structured and taught throughout the special education law course was not the way she had seen it completed in her prior

experience. While the instructor utilized the sequential order of the paperwork to teach the content efficiently, Angie noted that real IEPs rarely follow this format.

"There's a lot to say for experience," noted Sherry. "I don't think anything can train you enough as real experience can." Sherry felt that while the simulations were a good start, and had answered a lot of her questions, she still had more to learn. She elaborated:

> But, let's just say I'm not as frightened now as I totally was before! I mean I knew what an IEP was, that it was an individual educational program, but that's about all I knew. And, I knew they got together and that some of them lasted for a couple of hours, and it was not something that I absolutely even looked forward to. But now, I can see why sometimes they do last long. You know, you get a problem student that need so much help, and you're hashing out all the different things to do. And trying to bring Mom on board and the regular ed teacher on board and all of that. I can see how all that goes together, but it also helped me because of all the—well I hadn't even seen any of the paperwork, any of the forms you fill out. And so, seeing those and where it had guidelines that kind of guided you through, where you'd be going, what you talk about next and stuff, I thought, 'Oh! Well that makes it easier!' You know? Instead of just starting way out in no-man's land, you start here and you work down. And, so yeah! I'd be lying if I didn't say I was still going to be afraid. And I will.

Sherry cited the many contextual variables that make each student, and therefore IEP team meeting, unique as a remaining challenge for her. Although she felt that the course had provided a broad range of meetings, she recognized that these were just a few of the numerous possibilities.

Kristeen agreed, noting that "it was one case. You always feel better after you've had quite a few." She explained that during her simulated meetings, Andrea—who had prior IEP experience—had done a lot of the work and filled in several blanks for Kristeen. "And it makes sense where she put it," Kristeen stated, "but because I didn't actually do it myself, that's something that definitely I don't really know a whole lot

about."

Andrea was grateful for her live experience developing IEPs, and explained how this had benefited her.

> I'm really honestly thankful that I'm older and have had so much experience dealing with people because, dealing with parents and dealing with other professionals is not the part that—thank goodness it's not another thing for me to worry about. You know what I mean? It's just making sure that I'm you know, creating the right programs and those other things that I have been most worried about.

Having worked with actual parents of students with disabilities in the past, Andrea was confident in her ability to do so again in the future. Instead, she could focus all of her attention on working with her students.

Rule-Governed Behaviors

Perhaps the most important consequence continuing to shape preservice special education teachers' IEP skills in a MUVE is the functionality of this type of training. Every IEP team successfully simulated both an eligibility meeting and an IEP meeting, with all of their respective component parts. Measuring the extent to which these skills transfer to the natural environment, however, is beyond the scope of this research. Instead, additional training was implemented with the research participants to promote generalization. To answer the fourth research question (What rules do students construct to successfully conduct IEP team meetings in the future?), each participant was given the following instructions to help them generate verbal statements to guide their performance in future IEP team meetings.

I am going to ask you to state some verbal rules that you can use as a reminder for

> what you will be doing in future IEP team meetings. This is called rule-governed behavior. And, in the sense that you have not really had the opportunity to experience the direct contingencies of developing IEPs, aside from these simulations, we are going to generate rules that you can state use at a future point in time to help shape your behavior in IEP team meetings. Essentially, this is coming from the standpoint that you have just completed a whole semester on IEP development, but in actuality you probably will not even use these skills until after you have graduated, well over a year from now. And so the idea of rule-governed behavior is that you can create verbal statements that act as prompts or reminders of what you do in specific situations, when you have not really had the opportunity to come into direct contact with the natural contingencies of those situations.
>
> For instance, when you are learning to drive a car, you might say to yourself, "When I get in the car, I put on my seatbelt in order to keep myself safe." That verbal statement specifies the antecedent, *when I get in the car,* it specifies the exact behavior, *I put on my seatbelt*, and then it specifies the contingencies that are associated with that behavior, *to keep myself safe*. And eventually, with sufficient practice, you get accustomed enough to getting in the car and putting on our seatbelts that it happens almost automatically. As we acquire new skills, these verbal statements, or rules, may help prompt us before the behavior becomes fluent, at which point the natural contingencies take over control of the behavior.
>
> So, at this point I would like to talk about developing some rules that you can use to help carry over some of the behaviors that you have learned in the simulations, to when you're actually applying them in the classroom. However, one way that this differs from something like putting on a seatbelt is that IEP development is a much more complicated process. Whereas it would be fairly simple for me to teach you a statement about putting on a seatbelt when you get in the car, the special education eligibility and IEP development process is so much more complicated that I want you to identify some of the stimuli that you found relevant throughout the simulated meetings, some of the specific behaviors that have been reinforced, and then some of the associated contingencies maintaining those behaviors.

After receiving the instructions, participants were given as much time as necessary to generate a verbal statement. Most asked clarification questions to make sure they understood what was being asked of them. No participants were able to construct a complete rule on the spot. Instead, these verbal statements were broken down further into three categories: antecedents, behaviors, and consequences.

Attending to Antecedents

To break down the verbal statements into their component parts, each participant was first asked what antecedents, or environmental variables, they found relevant throughout the simulated meetings and would attend to in the future. In response, Kristeen developed a list of behaviors she would perform prior to the IEP team meetings.

> Going over his file. Going over everything that there is to know about him. Kind of knowing his behaviors, his attitudes, his test scores, everything that's on and off paper about this student. I think that's important, just because like with Patrick, his test scores are really low, but his social behavior is really high. And so, putting him in seclusion would have helped his test scores, but it wouldn't have helped the fact that he's such a social kid. So knowing everything about the student. Knowing everything about their background and their home-life would be beneficial. And knowing my stance as a teacher. Just what I can and can't do. Kind of the rules—not the rules, but the legal ramifications, the legal boundaries that I have...Knowing the school district's boundaries and things like that. I wouldn't want to go into an IEP meeting and offer something and not be able to back it up.

Although she failed to mention any immediate environmental variables that might occur throughout the meeting, she did note several important setting events leading up to the meeting. For Kristeen, being prepared was of the utmost importance. She stressed that it was critical to know certain details about the student, such as his or her present level of functional performance. Additionally, Kristeen felt it was important to know her responsibilities as a special education teacher, and not over-promise services.

Soleil came up with a similar response, citing things she would do to prepare for upcoming IEP team meetings.

> You're going to have to research Jimmy before you can make any decisions about it. You're going to have to know: What are his test scores? What is his family life like? Talk to the psychologist, ask him, 'Is the parent for this? Against it? What's the parent like? Is she going to want to have the floor the whole time? Is she going to want me to talk the whole time?' You know? If you have those tips, I

> guess, you can make it so you are approachable. And just prepare. Preparation is so important. And if you can be prepared to answer questions that you know the parent is going to have, and questions that you think the parent is going to have, then I think that is key.

Soleil felt it was important to anticipate what questions her student's parents might have so that she could provide them with appropriate responses. When asked what she would do if she had not yet met the parents, Soleil replied, "Neutral. I would just be neutral. I mean depending on what I know about Jimmy, I would just make my classroom be soft and approachable, and I myself would be soft and approachable."

Both Angie and Soleil mentioned that visual cues would help prompt them through parts of the meetings. Angie equated constructing rule statements with that of writing scripts to use throughout the IEP team meetings. "Often that wording can get confusing, so maybe a scenario/script type thing for present levels [of performance]," she said. "A little A, B, and C type thing." Angie stated that she often felt overwhelmed trying to convey technical information to a parent. When preparing for the simulated meetings, Angie noted that "I found myself practicing what I was going to say, so I didn't either sound incompetent or flustered because maybe I was thinking about 60 other different things." By rehearsing, she felt more comfortable with the information, and was therefore better able to respond to other environmental stimuli.

"Visuals help me a lot" Soleil said, when asked what stimuli she would attend to in future meetings. She explained:

> So I think if I put things on my notes or agenda like, 'Don't say normal, say average.' Or underline, 'The parent's sensitive about this....' You know, so that I can approach it. I don't know. I mean it's going to be different with each parent. But, depending on what mistakes I make, I will make sure to not make them again, I guess, by taking notes about it, reinforcing it. You know, if I have to put a

> poster up behind the parents that says something like, "Be nice," or whatever, then I'll do that.

Soleil felt that she could address many of her concerns about collaborating with others by writing herself notes on how to approach certain topics. She noted that the each IEP team meeting would also shape subsequent meetings as she learned to work with a greater variety of people.

Sherry initially responded to the question by stating how she would direct the meeting. "I'm going to make sure that I start with the student's strengths," she stated. "Having the parents know their students strengths, and how we will work with them, and then lead into their weaknesses." Additionally, Sherry stated that she would attend to the needs of the student.

> By having started the year out and knowing what's in each of those IEPs. That I will be able to work on those, so that when I do meet with the parent and do those IEPs, that I will be able to show that there's been progress made on those things that the previous IEP had shown…. And that I've been working on the student's needs so that I can show their progress in that area.

Sherry noted that she would present evidence of student performance to the team, which they could then use to discuss goals and objectives for the upcoming year. Upon further self-editing, she modified her response to focus on the concerns of the parent.

> I hope that the parents' concerns, that I take those very seriously. So when I'm developing it, I'm thinking that there will be concerns there that the parent has written from the previous IEP...Make sure that their concerns are foremost, and have been met hopefully.

In conjunction with the progress of the student, Sherry cited the parents' concerns as a primary antecedent.

Andrea also noted that she would attend to the parent's concerns. "I guess there

are a few different components," she said. "One would be making sure that the parent feels comfortable and understood, and that their child's needs are represented in what we do." Additionally, Andrea commented that she would adhere to the Utah state special education rules and regulations. "And then the other aspect would be making sure that we're following the legal guidelines for how we develop them and why we choose what we do," she observed.

Joyce said that she would be attuned to parent involvement throughout the meeting. She noted that it is easy for a parent to become overwhelmed in an IEP team meeting. This is generally exhibited as parents disengaging from the meeting's dialogue. A non-involved parent would prompt Joyce to make an attempt to better include him or her in the meeting. Joyce also expanded on the notion of listening to the parents' concerns.

> Okay. So, first of all, parental involvement and trying to work with the parent in a positive way to help the parent—and this is probably the wrong term to use. Not even try to get the parent on your side, but try to listen to the parent, because maybe you need to change the way you're doing something. So it's not necessarily trying to get the parent on your side, it's trying to get everybody on the same page. Whether it's the parent, or me, whoever, working together to come to some sort of an agreement on how we should approach the student's educational plan. So rather than me just saying, 'Well this is what I think we should do,' to the parent, truly listening to the parent and even using some of their input and being willing and open to saying, 'Oh, you know what? I didn't think about that.' So the parent is probably right…. So I think that's probably the most important thing that I could take from that: Being willing to work together, and not just have a preset notion of what I want to have happen, and not being willing to change and adapt to meet the student and the parents requests.

Joyce emphasized the use of certain language and key words throughout the meeting to ensure that the entire team was working towards a common goal, rather than attempting to coerce team members who presented opposing views.

Perhaps Jana made the best attempt at actually constructing a verbal statement to guide her future behavior.

> Okay. When I conduct an IEP meeting, I'm going to come prepared. I'm going to come prepared with solutions that are the best for that student. When I come to an IEP meeting, I'm going to stay open to suggestions from my other team members, because I don't have all the answers. When I conduct an IEP meeting, I'm going to stay positive.

Jana was the only participant who attempted to frame her rule according using the example of wearing a seatbelt as a model. She repeatedly used the phrase, "When I conduct an IEP meeting...," as an antecedent for what she would then do in the meeting.

Future Behaviors

Following the identification of relevant setting events, participants were asked to define the behaviors they would perform in response to them. Given that several of the participants came up with multiple antecedents, they also cited numerous behaviors emitted in their presence.

Andrea, Sherry, and Jana each described how they would address the parents' concerns. Andrea noted that she "would be making sure that the parent feels comfortable and understood, and that their child's needs are represented in what we do."

Sherry stated that she wants "to always make sure that the parent understands what we're talking about, so that I'm talking on the parent's level. And also to make sure that the parent feels that they are invaluable to the team." She further explained:

> That they're the first priority, because they know the student better than we ever will. So I want to make sure that I do it like that. And know we can't please the parent on everything, but to make sure that we please the parent on those things that we can. Because, so that they'll be more on our side. I worked with a teacher that totally annihilated the parents. And so she had all the parents so mad at her,

> and they had to take her out as a teacher and put her in a different place. I want the parents on my side, because I feel that's the only way we can work with the student is if both of us are working in the same direction. Because without a team effort, the student can feel a bit of tension, I'm sure. So, that's what I want to do.

Sherry described a situation where a teacher ultimately lost her job because of her inability to cooperate with the parents of her students. Sherry, however, was less concerned with losing her job than working together to provide appropriate services for the student.

Jana emphasized that an important part of working together with the parent was listening to them and keeping an open mind.

> I'm going to make sure that everybody has a chance to express an opinion. I'm going to make sure that the parent knows that we're there for them, and that they can jump in at any time, they can say whatever they feel like they need to say, and that we're going to take them seriously. You know it's not us against you. We're a team, and you have every right to talk. And we'll listen to what you have to say, and we'll incorporate the things that you think are important into this. So open-mindedness.

Jana talked about re-assuring parents to help them feel that their concerns were being heard and that their opinions mattered to the rest of the team. She described her experience of meeting Bonnie's mother and realizing that they had different views on education.

> Yeah, and I think that it's very important to listen. When Nancy told us to do the parent interview, I thought, "Oh, well that'll be something." And, as I listened to her talk about our student, I was like, "Wow! You are a flaky mother! Acupuncture? How's that going to help her read better?" But, you know, as we listened she really did care about Francine. You know, some of her methods probably were not anything I'll ever do. And I wanted to help her—I think Francine's been an interesting child to raise, and she's an only child so this is the only experience this mom has had—and I did! By the time we got ready to do an eligibility, it was like, "Well, we need to figure out a way to help Mrs. Jones cope with Francine." So, you know, parents are important.

Although Jana and Francine's mother had differing approaches to education, they were able to find common ground to work together and develop an individualized plan for Francine.

Other participants, however, felt it was equally important not to lose their own voice in the team. "Holding my own," Kristeen stated, when asked how she would perform in the meeting. "Like, being a strong member of the team. You know? Being in contact. Making sure that my part of the IEP is being fulfilled. And, kind of knowing what I'm supposed to know about the IEP." Kristeen explained that as a speech therapist, her responsibilities would be similar to that of a school psychologist. "You're explaining test scores, going over things like that. Kind of assuring the parents, answering any questions that they have. Going over possible goals. Stuff like that," she noted. Although Kristeen wanted to assure her parents that their child's needs were being met, she commented that her primary source of data for doing so would be the student's test scores.

Several participants commented on the importance of preparing for the meetings. Andrea noted that it would behoove her to stay current with special education policies and procedures to make sure "that we're following the legal guidelines for how we develop them and why we choose what we do." She observed that many of these behaviors which occurred outside of the IEP team meetings would affect how she performed within the meetings.

Joyce and Soleil both concurred. "I'll probably create a checklist to make sure that I've done and considered certain aspects [of each meeting]," Joyce stated. "Like I

might put *listen to parent* first, and I might go down a list of rules and regulations that I want to make sure [to include]: Did I include the goals? Are the goals well written?"

"I will be professional. I'll have all my information there," commented Soleil, going into further detail.

> All the procedural safeguards, anything. I'll just have everything professional, structured so that I can be prepared for things to come up. You know, I can be prepared for Mom to have a breakdown, if I'm structured in a way that I can allow time for that and I'm prepared emotionally myself. Things like that. I can just, if I follow my agenda, then I think that will be helpful.

Soleil and Joyce both mentioned the use of a checklist or agenda to prompt them to include various aspects of the meetings, and help keep the dialogue structured and focused on developing an individualized education program.

"I think preparation is so important," Jana agreed. "I didn't realize before that there was quite so much. I didn't realize to look at the test scores, all the testing that's done. I didn't know how that fit in." Rather than focusing on the meeting itself, Jana found that an important part of what she does within the IEP team meetings is a direct result of her preparation long before the meeting begins. She explained:

> I think if you have a pretty good picture academically and behaviorally of where a student is—by looking at those test scores—I think you're better prepared to address what's really happening with that student, instead of just kind of a very generalized, "Well, we're going to help the kid do better." So, I think preparation, looking at the test scores, doing a little research on what the kid wants, and trying to find a way to help him do that, I think would be good.

Jana emphasized the importance of knowing the student well enough to address the concerns of the parent when they inevitably occurred. She felt this was much easier to accomplish by doing her research ahead of time.

Within the meetings, Jana noted that she was going to "stay positive." She drew

on her prior experience as a paraeducator to further elaborate.

> Like in the ED unit, we've got some tough kids. And sometimes it's very easy to talk about all the things that they're not, and all the things they can't do. But I think in an IEP meeting, we're going to talk about, for me, we'll talk about where we want them to get, and how we're going to get them there. Instead of talking about what they can't do, or what's hard for them to do. I'm going to stay positive.

Jana observed that while it was often easy to talk about students' deficits and how they fell short of normalized standards, she wanted to make it a point to focus on the student's strengths, stating future goals and objectives based on the student's present levels of performance.

Just as Soleil had previously stated, Angie felt it was important to "keep my own personality on a professional level." However, whereas Soleil used the term professional in the sense of being prepared and organized, Angie used a different definition of the term. Here she explained what she meant by professional.

> Tactful enough to where I'm portraying to the parent that "I'm OK to talk to." I'm not above you, I'm not below you, I'm right there with you and I understand kind of how you feel. So, one thing that I can think of for myself that was difficult for me...is instead of reading that goal—you know it has to be read word-for-word—but having something to be able to prompt us to give a description to where it's easier to understand from the parent's perspective. So you have a goal or an objective, but then maybe a descriptor, something that you're talking about, something to highlight A,B,C are the key points that I'm trying to portray to the parent.

To Angie, acting professional meant explaining things to the parent in a language they would understand, and making sure their questions were answered. This would be her primary directive throughout the IEP team meetings.

Controlling Contingencies

Once again, Jana was the only participant to attempt to frame the consequences controlling her behavior in the form of a rule.

> In order to provide the best education possible for the student. In order to help the parent cope with the fact that they have a child with a disability. In order to make sure that that child is receiving the best services possible, the best we can provide. To make sure that that child is successful, as successful as we can help them be. And to make sure that they feel that success.

Following the framework of the example, Jana generated a variety of consequences to reinforce the behaviors she will be emitting throughout future IEP team meetings.

Several of the other participants cited the parents' response as a primary determinant of their future behaviors. For instance, Joyce noted that she would take time after each meeting to reflect on how she could do a better job next time around.

> Well, for one thing, if the parent is upset, then I'll have to look back and say, 'OK, why was the parent upset, and what could I have done differently?' So, always looking back to help me look forward. To help me in the next time. And trying to problem solve, you know, anything that went wrong. Also, looking at what went well. If everyone came away feeling good about the situation, then, 'OK, what did I do that made that happen so that I can repeat it in the future?' Those kinds of things. I tend to be that kind of person that tries to troubleshoot, and problem solve, and change it where needed. So I think that is probably what I would do!

An upset parent would punish (i.e., decrease the probability of the same response occurring in the future) Joyce's behavior, while a pleased parent would reinforce it (i.e., increase the probability of the same response occurring in the future).

"Well, of course I want the parent to be pleased, but I want the parent to be pleased so that it's what the student really needs," said Sherry. "Because some parents, some parents are clueless about their kids. I mean they really are." Sherry stated that she

would like for the parents' concerns to be assuaged, but it was really the student's progress that reinforced the part she played on the IEP team. "So, I want to make sure the parent is please, but at the same time…. I don't want them to think their student is way up there, when really he's down here," she said. Sherry's foremost responsibility was to her students, ensuring that each individualized plan was appropriate to meet their specific needs.

Ultimately this would be measured by tracking student progress over the next several weeks and months. However, Sherry identified another more immediate indication of a successful meeting.

> I've got to make sure that I go into each meeting happy, and not let whatever's happened during the day, or the previous meeting, or whatever, affect my behavior in any way in the meeting. And that if something is said that could hurt my feelings, or be it intentional or not intentional, I have to make sure that I'm a professional and not hurt my feelings. Sometimes I have trouble with that, and I've got to make sure that I really work on that. And I don't know, I'll have to like do something—have a paper I read, or eat a candy bar, or something—I'm going to have to find something that I do each time, like putting my seatbelt on that makes me go into that mode. So, anyway, I'll have to find that when I get there.

Sherry noted that she would immediately contact the direct contingencies of her behavior through her own feelings upon completion of the meeting. Sherry stated that she was particularly sensitive to the comments of others, and was aware that her behaviors at the IEP team meetings would serve to avoid having her feelings hurt.

Sherry also mentioned conditioning herself to automatically become more professional upon entering the IEP team meetings. She spoke of eating a candy bar or reviewing a paper to act as an antecedent to become more professional, which would be maintained by avoiding getting her feelings hurt.

Angie gave an example from her experience working with an English language learner (ELL) to explain the contingencies controlling her behavior.

> In one scenario…the parent didn't need a translator, but you could tell it was just kind of like the smile and wave kind of thing. "Do you understand? Do you have any questions?" And then they just do the whole nod and smile kind of thing, when you know really all of the acronyms that the school psychologist used, all the stuff that the special ed teacher used really didn't sink. And so, I think you'd know you have a good meeting is when you do ask and say, "Gosh, do you have any questions? Can I help you understand anything else?" And the parent does ask, or does request more knowledge of what you're trying to portray. I think that's the happy medium of where they don't feel like you are above them, but you're on the equal playing field. You know, you're equal. And I think if you had some of those common languages that were easier for parents to understand, whether they be very highly educated or just average, it may help.

Sherry identified parents' asking follow-up questions as evidence of their understanding what was explained to them over the course of the meeting. The parents' participation throughout the meeting makes them an active part of the IEP team and thus reinforces Angie's participation.

Soleil seemed less sure of what would control her behavior. "I guess, having the parents on board," she said, following with "But that's not something I can control." Soleil did not believe her behavior in the meeting influenced the other members of the IEP team. However, she still hoped the parents agreed with the team's recommendations.

> That would be my contingency. At the end, that's what I would want. You know, if they come in all hostile, and they want this, and it's not going to happen, I want to reassure them. You know comfort them. Inform them of things their missing so that they are on board. That's my personal thing. I don't want the parents to be against what they're doing in school. I want them to be for it so they can help me out.

Although Soleil felt that she had no effect on the parents' attitudes coming out of the meeting, she still considered their assuredness a consequence of her behavior.

Andrea and Kristeen both noted the contextual element of a successful meeting. Andrea initially stated that an IEP team meeting can, on a superficial level, be considered successful once all the signatures have been collected and the individualized plan is in place. However, "it kind of depends on what you define as being successful," Andrea modified her response, explaining:

> Because, ultimately being successful means that the parent feels comfortable with what is being planned. And that they feel that the next school year, with this IEP in place, is going to be great for their child. And that the needs of their child are going to be met. So that would be one way to measure the success of the meeting: How does the parent feel about what's in place? About the relationships that they're building with the team members? Because if the parent doesn't feel comfortable, you're getting off on the wrong foot for the whole rest of the year. So that's a good indication of success.

Andrea felt that her behavior would be reinforced if the student's parents felt comfortable with the services and modifications being implemented over the next school year. "As far as the meeting goes, if everybody is feeling open to communicating, and the meeting's done right, or if issues come up they're satisfactorily resolved," she stated. "Everybody leaves the meeting feeling more empowered, and more talkative about what the upcoming year is going to look like, then that would be what I would be looking for." Andrea attempted to operationalize her definition of success using measurable, observable behavior: An increase in communication between home and school.

Kristeen observed that what constitutes success will likely be different for every IEP team meeting:

> I don't know that I've narrowed that down exactly just yet. Because, going through this class and looking at all the different types of parents that Nancy's been, a lot of the things that most IEP teams would deem as non-successful were small successes for those groups. I think that a lot of it depends on your parent cooperation and your individual student.

Kristeen alluded to the fact that an individualized education program is never fully complete. Rather, each one is just a successive approximation to the student's changing needs.

After scrolling through a variety of responses using the framework for a rule provided in the example of putting on a seatbelt, Jana eventually constructed a complete verbal statement: "When I come to an IEP meeting, I'm going to stay open to suggestions from my other team members, because I don't have all the answers." This was the only complete rule to have all three required elements: An antecedent, behavior, and consequence. Although the consequence did not necessarily follow the model provided, her response alluded to the contingency for staying open to suggestions. By listening to suggestions, Jana received help and support from her teammates which reinforced future occurrences of listening.

CHAPTER V

DISCUSSION

Nested Variables

When talking about the antecedent variables responsible for the use of virtual simulations to train preservice special education teachers enrolled in a distance teacher education program, it is important to discuss the setting events specific to all of those who participated in the IEP team simulated meetings, the contextual elements of each child case, and the motivating operations relevant to each individual participant. Thus, it may be helpful to present the findings of this research in the framework of Bronfenbrenner's (1979) bioecological systems theory. Bronfenbrenner explained:

> Ecological models encompass an evolving body of theory and research concerned with the processes and conditions that govern the course of human development in the actual environments in which human beings live…. The original formulation was devoted primarily to a more differentiated conceptualization of the environment as a context of development in terms of successively nested systems ranging from micro to macro.

Bronfenbrenner emphasized the importance of examining variables on a number of different levels to account for the function of human behavior, or what he referred to as proximal processes. That is, the use of IEP team simulations did not shape the behaviors of all preservice special education teachers to respond in the exact same way. Similarly, the teacher trainees who participated on the same IEP team attended to differing aspects of the meetings, based on their individual histories of reinforcement. In the present case of simulating IEP team meetings in a MUVE, the noteworthy variables can be divided among the simulation, the child case, and the individual participant. Figure 8 displays

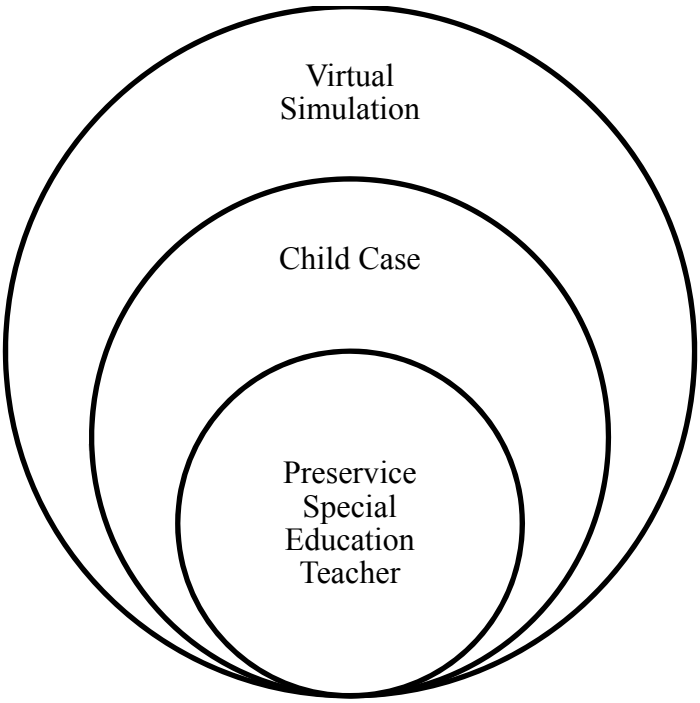

Figure 8. A bioecological perspective of virtual simulation training.

these variables as they relate to Bronfenbrenner's bioecological systems theory.

At the simulation level, all preservices special education teachers participated in the same experiences. For instance, all teacher trainees interacted in a MUVE, took on the role of an IEP team member, and collaborated with their teammates to complete the assignment.

Participants responded to the virtual environment in several ways. Some found TeacherSim more helpful than others, but almost all noted the sharp learning curve associated with interacting in a new environment. In addition to learning the IEP process, preservice teachers also had to learn to interface with the environment. For instance, Sherry noted she had difficulty sitting in TeacherSim, a skills she had mastered years ago in real life. Joyce noted that for her, complications such as these took away from her

simulation experience by interrupting the flow of the meetings.

Only two of the preservice teachers had a sufficient background using technology to access and use TeacherSim without difficulty. Although Kristeen and Soleil adapted to TeacherSim easily enough, they each had teammates who did not possess the same level of technological proficiency. The difficulties of individual team members were felt by the entire team however, as each person on the IEP team needed to be there to complete his or her role.

Overall, however, participants noted that the simulations accurately reflected the IEP process. Each participant said that they benefitted from participating in the simulated meetings, noting that felt better prepared to conduct IEP team meetings in the future. Additionally, Angie and Sherry noted that the simulations had increased their confidence to use technology in other aspects of their lives.

To complete the simulated meetings, each preservice teacher was assigned to research the role and responsibilities of an IEP team member. This gave them a certain perspective from which to view the process of determining a student eligible for services as well as developing an individualized education program. Because there is typically only one special education teacher present at an IEP team meeting, most of the teacher trainees in the class were assigned roles they would not actually be playing in the future. Only Andrea and Jana were assigned to be special education teachers. Angie was asked to participate as a general education teacher, and Soleil was given the role of LEA representative. The other three participants took on the part of school psychologists. The preservice teachers who were not assigned as special education teachers in their meetings

all found that they still learned quite a bit from the simulation experience.

Overall the ability to collaborating with other teammates was most frequently cited as the outcome of simulating IEP team meetings. This included working with parents, other school personnel, and even the student as part of the team. The participants felt that having completed the simulations, they were better prepared to work with a more diverse array of parents, students, and other professionals in the future.

Variables relevant to the child case include manifestations of the student's disability and how the team classified him or her, the parent of the child with a disability, as well as the other school personnel on the IEP team. It appears that the IEP team simulations reinforced behaviors specific to the contextual variables of each hypothetical student case. For instance, Sherry and Jana shared a heighted awareness for accentuating the student's strengths after working on Francine's case, while Angie and Soleil both emphasized the need to act professional with Bonnie's mother.

At the participant level, factors to be examined primarily consist of interactions between the individual and other team members, and how their behaviors function within the IEP team meeting environment. For instance, Soleil primarily focused on student evidence to base her responses throughout the eligibility and IEP meetings. Limiting her sources of data functioned to objectify her recommendations for Bonnie while rejecting the perspective of the parent. By doing so, Soleil created a rule about what data to include and exclude regarding student programming and modifying the general curriculum. This also helped her avoid responsibility for meeting the parents' concerns and values.

Prompted Responses

Prior to the start of each eligibility and IEP meeting, teacher trainees were provided with rubrics on which they would be graded (see Appendix B). These checklists also outlined the necessary components of each meeting. Therefore, the behaviors of each participant which fulfilled these requirements were directly reinforced by the grade each IEP team received on the assignment. This type of interdependent group-oriented contingency reinforces or punishes the group based on the performance of the IEP team as a whole (Litow & Pumroy, 1975; Maag, 1999). In other words, the success of the team is dependent on the group accomplishing each task, rather than the performance of individual team members.

Since the objectives on the two rubrics were denoted as the *required components* of each IEP team meetings, and because the behaviors used to complete these objectives were explicitly reinforced through the course's grading procedure, it would stand to reason that these same behaviors would be listed by the research participants as critical to the success of the IEP team meetings. However, this was not the case. Only one of the components listed on the rubric was mentioned by the participants throughout the interviews: Presenting eligibility data in a parent friendly manner.

This failure to identify objectives on the rubric can be attributed to a variety of factors. First, since these objectives were clearly outlined on the rubric, the participants may not have felt they needed to be discussed in the interview as well. That is, since these components were common knowledge amongst the class, they might not have been identified as noteworthy.

Second, these components may not have been valuable to the preservice special education teachers. The objectives on each rubric were identified by the course instructor (and federal legislation) as the relevant aspects to be included in eligibility and IEP meetings. However, in the interviews, participants were asked to acknowledge the specific behaviors most relevant to them. In other words, while each IEP team completed all steps on both rubrics, this may have been viewed as more of a formality than functional to the operations of the team.

Finally, failing to identify objectives on the rubric could be an issue of faulty stimulus control. The teacher trainees may be dependent on prompts, such as the rubric or an agenda, to elicit (and, therefore, discuss) these behaviors. At this point in their training, the preservice special education teachers may not be fluent enough to recognize the convening of the IEP team members as a discriminative stimulus to introduce everyone and state the purpose of the meeting. Rather, they may still need to rely on written prompts to produce this behavior. This would also explain why several of the participants cited the use of agendas in their rule-governing verbal statements.

Including the Parent on the IEP Team

Each preservice special education teacher acknowledged the important role played by the parent on the IEP team. How this person functioned as part of the team, however, was defined differently for each participant. A clear dichotomy within the perspectives of the preservice special education teachers soon emerged.

Several teacher trainees commented on the hurdle the parent presents. Sherry

stated she wanted to please their parent, noting that sometimes they just need to be sold on the eligibility determination or IEP. Jana explained that while parents might think they have their child's best interest at heart, they may also need to be taught what is right for their student. Similarly, Soleil remarked that the IEP meeting is really more for the teachers than the parent. Other participants made comparable remarks about getting the parent on board.

Over the course of the interviews, each of the participants commented something to the effect of: *We need to convince the parent to agree with our decisions*. However, it is important to note that these views are not stagnant, but purposeful to the context in which they are emitted. As such, most of the teacher trainees also remarked that the team cannot be successful without listening to the concerns and values of the parent. Clearly these are two opposing remarks, and one must look at them in context to better understand how they function.

For instance, when asked how important it was for her to include the parent's perspective, among other things Joyce replied, "If you get Mom on board, and parents on board, you can really be a lot more successful in what you're trying to do." This statement is an interverbal response through which Joyce tacts a hypothetical situation in which the parent agrees with the decisions of the IEP team. Importantly, this response also likely acts as a mand for how she would like future meetings to run. In essence, she is creating a rule to govern her future behavior regarding efficiently running a meeting.

On the other hand, however, comments such as these may also inadvertently form the view that the parent plays a lesser role in developing the IEP. In this perspective, the

parent defers to the expertise of the school professionals regarding what is best for his or her student. The parent may act as a quality control inspector who signs off on the work of the other team members for meeting a minimum standard. This standpoint clearly functions to marginalize the role of the parent as merely an obstacle around which the other members of the team must work. Attitudes such as these likely prompt the teacher trainee to work to avoid parent conflict, perhaps by making the parent feel their input is of little value to the team. Parents who have no voice pose little threat to the IEP team.

This perspective can be reinforcing to special education teachers however, because of the ease and efficiency which it promises: The teacher develops the IEP, the parent agrees, and everyone signs off on the paperwork. Even though the IEP directs what the special education teacher does in the classroom on a day-to-day basis, the process of sitting down with a parent to collaborate on goals and objectives for the next year is not part of the teacher's everyday repertoire and may, therefore, be aversive. Thus, the teacher may act to remove this stimulus as quickly as possible and get back to his or her daily routine.

Alternatively, when asked, "What do you see as the function of the individualized education program?" in another section of the interview, part of Joyce's response was "So everyone has to work as a team. Even with, and including the parent. You need to know what the parent's expectations are…and even learn from the parent." In contrast to the desired efficiency of the previous comment, this interverbal remark signifies what Joyce may consider the ideal scenario. Several collaborative behaviors are mentioned, such as working as a team, including the parent, listening to the parent's expectations,

and learning from the parent. Comments such as this, which highlight the collaborative aspect of the IEP team, demonstrate the ideal meeting between parent and school, in which time and resources are not a factor.

It is important to note that both of these desired outcomes, efficient and ideal, are spoken of in generalities, devoid of specific variables for team members to address (e.g. Joyce uses “the parent” rather than “Darius’ parent”). Therefore, the reader of such remarks may be tempted to say that Joyce always wants the parent to agree with her recommendations, rather than, having proposed the use of a behavior contract to reduce problem behavior, Joyce looked for agreement from Darius’ mother.

Including the Student on the IEP Team

Over the years, special education policies and procedures have worked to give students with disabilities a more active role in their own educational planning (Van Dycke, Martin, & Lovett, 2006). The 1997 Amendments to IDEA recognized students as important members of the IEP team (Martin, Marshall, & Sale, 2004; Test et al., 2004). Continuing to emphasize the role of the student, the 2004 IDEIA amendments required that the IEP team develop measurable postsecondary goals in the IEP on the basis of the student’s assessed needs, strengths, preferences, and interests (Van Dycke et al., 2006). Therefore, it is important for special education teachers to invite students to learn about and communicate these needs, preferences, and interests throughout the IEP process.

According to Mason, Field, and Sawilowsky (2004) and Mason, McGahee-Kovac, Johnson, and Stillerman (2002), students can play an active part of the IEP team

by: (a) Having an informative role in developing and writing their present levels of functional performance; (b) Assisting with the development of measurable postsecondary goals in their IEPs; (c) Identifying the accommodations, modifications, and supports that they need; and (d) Being responsible in the achievement of coordinated transition activities, postschool linkages, and postsecondary goals.

Participants in the current study offered varying opinions of the role of the student on the IEP team. The differences they expressed tended to fall along the age division of their students between primary and secondary school. For instance, Jana and Sherry, who both worked on Francine's case, felt that she should have been at their IEP meeting to provide input on her transition and postsecondary goals. Similarly, Andrea and Kristeen would have liked to have Patrick at their IEP meeting to hear his thoughts on the upcoming year.

On the other hand, Soleil and Angie were concerned with their elementary-age student getting bored at the meeting, and not being able to attend for that length of time. Joyce, who was on Darius' team, noted several ways that elementary school students could contribute to their IEP development, including functional analyses and preference assessments. However, these could be done outside of the IEP meeting itself, with results of these procedures used as additional sources of data for the team to examine.

Although the students for whom the IEP team meetings were held were only hypothetical, several participants explained that it was difficult for them not to follow up on their student's progress. Kristeen was disappointed with how abruptly the simulations ended, with no postlude of what happened to Patrick next. Jana also stated that even

though she knew Francine was not real, she wished she had been able to meet her. The simulation experience of addressing the needs of these four students had elicited an emotional response from several of the preservice teachers. They responded to the students as if they were real, and therefore expected a real consequence of their actions.

Technology, Age, and Distance

Several preservice special education teachers commented on how the use of TeacherSim pushed them out of their comfort zones regarding the use of technology. Andrea found TeacherSim frustrating to use, as she was more concerned with learning about the IEP process than trying to interface with a virtual space. In the end, however, she and the other participants identified it as a useful tool for creating simulations. In particular, they found TeacherSim to be beneficial for collaborating at a distance, to compensate for the geographic disparity of IEP team members. Additionally, Angie and Sherry explained that learning to use TeacherSim increased their use of technology in other aspects of their lives as well, such as presenting Sunday school lessons and using SMART Boards in the classroom.

It should be noted that those who commented on the steep learning curve of TeacherSim—Andrea, Angie, Jana, Joyce, and Sherry—were also quite a bit older than the other two participants, Kristeen and Soleil. This age difference likely played a significant factor in how quickly the users adapted to the TeacherSim environment. Soleil and Kristeen both stated that they used technology quite frequently in their everyday lives, such as social media, smart phones, and playing videogames. This higher

functioning level of technology usage may have increased Kristeen's and Soleil's self-efficacy with new technologies, as well as generalized skills such as creating new user accounts in TeacherSim—a skill with which Jana in particular said she struggled.

Furthermore, Kristeen described her knowledge of technology as average. However, this "average" should be interpreted as it relates to other 20-year-olds, rather than "average" amongst other students in the distance mild/moderate program, which changes the meaning quite dramatically. When compared to other preservice special education teachers in the distance program at USU, Kristeen is significantly more adept.

Another variable to make note of regarding use of technology is the geographic separation of IEP team members. Some student cases, such as Francine's, Darius', and Bonnie's, were composed of group members physically located at the same extension campus in Brigham City. Other teams, such as Patrick's, were made up of teacher trainees located around the state. This made relying on technology to communicate more optional for some than others. For instance, Kristeen was the only student at her extension taking the policies and procedures course. Her other teammates were located hundreds of miles apart from Kristeen, as well as each other. However, Kristeen explained that getting in touch with the other members of Patrick's IEP team was really no different than if they had been located in the same city. The team simply scheduled a time to meet in TeacherSim in advance. However, it should be noted that Andrea and Kristeen did have trouble getting in touch with one of their teammates, who did not show up at the scheduled time and did not respond to phone calls or email. Kristeen observed that had they lived nearby, she could have simply knock on this person's door to make

sure she attended the meetings. Clearly she found that it is easier to avoid communication with classmates via distance education.

Both Bonnie's team and Francine's team were located in Brigham City. Interestingly, Francine's team found several advantages to meeting in TeacherSim, while Bonnie's team preferred to meet in person whenever possible. Sherry and Jana stated that they preferred not having to get dressed up, arrange for child care, and then commute across town just to meet with their teammates. They would rather stay at home where they could attend to children or grandchildren, and cut down on commute time while meeting in TeacherSim. On the other hand, Bonnie's team met in person whenever possible. This was likely due to the steep learning curve associated with TeacherSim. Bonnie's teammates found it easier to meet face-to-face than learn to interact with the virtual meeting space. Therefore, this team only met the minimum requirements in TeacherSim.

Training Sufficient Exemplars

The preservice special education teachers felt that, in addition to participating in their own simulations, they also benefitted from observing each other IEP team's simulated meetings. Bandura (1977) delineated the difference between performance accomplishments (i.e., participating in simulations) and vicarious experiences (i.e., observing other simulations) as they pertain to the learner's self-efficacy. According to Bandura, performance accomplishments are especially influential because they are based on personal mastery experiences. Performances that function as intended are reinforced,

while those that fail to access the natural contingencies are punished.

Once the special education teacher trainee has developed a history of reinforcement, the punishing impact of occasional failures is likely to be reduced. This is important because not every eligibility or IEP meeting will be the same. Some parents will be relieved to hear that their child qualifies for special education, while other parents may be disappointed. Engelmann and Carnine (1991) explained, "To show difference, juxtapose examples that are only minimally different and treat them differently.... To show sameness, juxtapose examples that are greatly different; treat each example in the same way" (pp. 11-12). The juxtaposition of successes and failures creates a discrepancy paradigm, through which participants can learn to discriminate conditions in which certain behaviors are likely to be reinforced. For example, Soleil noted that she would remain "neutral" if she had not already established a report with the parent. This would allow her to better assess the situation (e.g., whether the parent was pleased or concerned with the services her child was receiving) and develop a response that has been previously reinforced for responding the same way under similar conditions. In Bonnie's case, the parent was unhappy because she had previously been denied special education services. Therefore, it was important for Soleil to carefully review the eligibility criteria as well as Bonnie's evaluation data to determine if and how she now qualified.

Discrepancy paradigms can be difficult to structure in situ. Although school personnel often try to group IEP team meetings at one time of year in order to be efficient, this cannot always happen due to scheduling conflicts. Furthermore, in rural environments with smaller class sizes, the overall number of opportunities to hold IEP

team meetings is diminished. The opportunity to shape certain behaviors is therefore limited.

Additionally, the range of student abilities and parent concerns may be widened in rural districts with fewer resources. A teacher with a limited scope of students (e.g., only students with learning disabilities in a resource classroom) is more likely to respond to the similar parent concerns and therefore have more opportunities to shape these behaviors, than a teacher with a broader range of student abilities (e.g., some students included in the general education classrooms and other students in a self-contained classroom). The number of natural learning opportunities for beginning teachers in rural environments is decreased, but can be supplemented with simulated experiences.

Vicarious experiences, such as observing other groups IEP team meetings, also allow preservice special education teachers to derive functional responding from others participating in familiar conditions. However, relying on inferences from social comparisons is a less dependable source of information about one's future performance than direct evidence of personal accomplishments (Bandura, 1977). A number of variables shown to enhance the effects of modeling procedures were implemented throughout the special education policies and procedures course, and noted by the participants.

Kazdin (1973) and Meichenbaum (1971) both found that trainees benefitted more from observing models with similar characteristics to themselves overcome difficulties than from watching contrived performances by adept models. In other words, preservice special education teachers are more likely to benefit from witnessing other teacher

trainees participate in IEP team meetings, as opposed to seeing experienced teachers complete the same tasks. Each participant stated that she had learned quite a bit through observing the other Teams simulated meetings. The similarity across participants enhanced the effectiveness of the model by increasing the extent to which preservices special educators relate to the IEP team members in other scenarios, thereby increasing the personal relevance of vicariously derived information (Kazdin, 1974b). While expert performances provide an ideal example of how an IEP team meeting should run, amateur presentations model successive approximations more likely to be reinforced for beginning teachers.

Interestingly, however, Sherry noted that the simulated IEP team meetings she observed in the course appeared to run more smoothly than those she had observed. In particular, she found the extent to which the local education agency representative participated in each virtual meeting difficult to believe. In her experience as a paraprofessional, Sherry found that the LEA representative usually deferred to other IEP team members. Alternatively, in the simulated meetings—which were also a course assignment—the LEA representative was actively involved. For Sherry, this may have represented more of an ideal than actuality.

Additionally, special education teacher trainees benefit from observing models that clearly showing the consequences of certain behaviors. Modeled behavior with explicit contingencies demonstrates the function of the modeled actions more clearly than if the outcomes remain ambiguous. That is, for a model to work properly, it must delineate both positive and negative examples of performance. Angie and Joyce both

commented how beneficial they found observing the IEP team in which the course instructor portrayed an exceptionally difficult parent. In particular, they took note of the way the rest of the team worked to appease this mother, and the effect they had in calming her down. In live training scenarios, participants are often interrupted when a mistake is made to allow for corrective feedback and repeated rehearsal. However, the model for the audience is confounded by obscuring the contingencies of the observed actions. Thus, observations of vicarious experiences that meet with reinforcing or punishing consequences produce greater behavioral improvements than viewing the same performances modeled without any evident outcomes (Kazdin, 1974c, 1975).

Finally, diversified modeling through a variety of examples has been shown to be more effective than repeated exposure to the same performances by a single model (Bandura & Menlove, 1968; Kazdin, 1974a, 1975, 1976). Although Andrea had conducted several real IEP team meetings, she had only encountered parents who were eager to help their children and easy to please. Witnessing a variety of examples with widely different characteristics allows the audience to interpolate and extrapolate future experiences (Engelmann & Carnine, 1991). Jana explained that while she learned a lot by participating in her own IEP team simulations, the effectiveness of this experience was increased exponentially by watching the other teams' presentations: "To be able to see that happen six other times, in six different ways, with six different moms—you know with behavior kids, and learning disabled kids, and all of the variables out there—it was good!"

Relating Simulation Training to Other Course Products

The preservice special education teachers in this study noted a variety of ways that participating in virtual simulations differed from other aspects of the policies and procedures in special education course. Most notably, participants felt that they were able to apply their knowledge to an actual case. This is in agreement with Gagné (1968), who states:

> I should be inclined to entertain the notion that the most important things learned in school are intellectual skills, and not verbalizable knowledge. The major reason is, very simply, that one can always look up the knowledge, but the skills have to become "built in." (p. 6)

Gagné felt that the rote recollection of facts, what he refers to as verbalizable knowledge, is less applicable than the contextual application of intellectual skills. That is, it is less important to respond be able to respond to the question, "What are the four primary functions of Response to Intervention (RtI)?," than it is to actually apply one's knowledge of RtI by: (a) identifying students who are struggling, (b) documenting students' performance, (c) determining the adequacy of each student's response to intervention in order to decide on appropriate level of instructional intensity, and (d) guiding instruction.

As previously stated, however, verbal statements (i.e., rules) can be used to guide one's actions. Thus the binary developed by Gagné (1968) between intellectual skills and verbalizable knowledge is not a true dichotomy, and may in fact function to marginalize other types of teaching such as practice through simulations, which are not applied and may not include verbal responses (e.g., flight simulators, laparoscopic surgery

simulations, etc.).

Perhaps a better framework for understanding participants' comments about applying their knowledge in the simulations can be found in relational frame theory. Hayes and colleagues (2001b) defined *relating* as a response to one event in terms of another, and note that most complex organism are capable of responding to formal or nonarbitrary topographical relations between stimuli. For instance, when prompted with, "Hand me the red ball," a child will accurately select the red ball in the presence of a blue ball and a green ball. In this case, the child has responded to the formal property of "red."

However, Skinner (1953) noted that in addition to formal properties, it is also possible to condition organisms to respond to more arbitrary relations amongst similar objects.

> Actually it is possible to condition an organism either to choose the larger of two objects or to choose a particular size no matter what the size of an accompanying object. Similar conditioning begins very early in the history of the individual, and the behavior which predominates when a test is made will depend upon such a history. The relational case is important in most environments. As the organism moves about in space, reinforcements are generally contingent upon relative, rather than absolute size. (p. 138)

Skinner notes that, in the natural environment, responding is primarily based on discriminations of arbitrary relations. For instance, when prompted with, "Hand me the reddest ball," a child will accurately select the reddest ball in the presence of multiple red balls varying in shade. Now the child is responding to the arbitrary property of "reddest," and relational features have come under the control of contextual features other than simply the form of the relata. In the first example, the child can respond solely to the formal property (i.e., red) of the red ball in order to access reinforcement. However, in

the second example, in order to access reinforcement, the child must respond to the contextual features of all the red balls in relationship to one another.

Hayes and colleagues (2001b) explained that the relation is no longer defined by the physical properties of the objects, but by some other feature of the situation:

> A relational response of this kind is no longer dependent purely upon the physical properties of the relata. Rather, it is brought to bear on any stimuli encountered in the appropriate relational context: it is arbitrarily applicable. We mean *arbitrarily applicable* [emphasis in original] simply in the sense that in some contexts this response is under the control of cues that can be modified on the basis of social whim. (p. 25)

In other words, the child's response can no longer be based solely on the formal properties of the stimulus. The child must now provide an arbitrarily applicable, derived relational responds.

These same principles can also be applied to the virtual simulations in which each participant took part. Throughout the first part of the semester, students were reinforced for their formal responses to test questions. That is, reinforcement was based strictly on the topography of their written response, and whether it contained all necessary information. The simulations, however, were based on hypothetical child cases, which required participants to modify their responses based on the present social context. For example, when asked on a test, "Who qualifies as a parent under IDEIA?" The following answer would have constituted a correct response: "A biological or adoptive parent; a guardian, but not the State if the student is a ward of the State; a person acting in the place of a parent of a student (such as a grandparent, stepparent, or other relative) with whom the student lives, or a person who is legally responsible for the student's welfare; or a surrogate parent who has been appointed in accordance with the Utah Special

Education Rules." These are the required criteria to act as a parent according to the Utah Special Education Rules and Regulations, and therefore this response would have been reinforced.

In Darius' case, however, his foster mom was not sure whether she was allowed to participate on the IEP team. When his foster mother asked, "Am I allowed to act as the parent on the IEP team?" an identical response to that provided on the test would no longer be reinforced. The response does not take into account the contextual variables presented in the simulation, and would have to be arbitrarily edited to include only the factors relevant to a foster parent. A correct response would be something to the extent of, "Consistent with State law, a foster parent may act as a parent under Part B of the IDEIA if the following four conditions are met: (a) The biological or adoptive parents' authority to make educational decisions on the student's behalf has been extinguished under State law; (b) The foster parent has an ongoing, long-term parental relationship with the student; (c) The foster parent is willing to make the educational decisions required of parents under these Rules; and (d) The foster parent has no interest that would conflict with the interests of the student." Darius' foster mom is not concerned with biological parents, adoptive parents, grandparents, or other relatives. She only needs to know whether or not she fits the legal definition of a parent.

By incorporating the contextual elements within the IEP team simulations, preservice special education teachers are now reinforced for providing arbitrarily applicable derived relational responses. Or, as Kristeen described it, "[The simulation] makes you focus a little bit better, makes you pay attention a little bit more to the little

things like that."

Several students also noted the teamwork aspect of the virtual simulations. Kristeen, Jana, and Sherry found the opportunity to collaborate with others to complete the IEP team meeting simulations very beneficial. Interestingly, Jana and Sherry were both on Francine's IEP team. This may provide some indication as to how well the team functioned together.

On the other hand, Angie found working as part of a team to be much more stressful. Rather than just worrying about her own responsibilities, Angie was now concerned with her other team members' roles as well. This attitude was not reciprocated by Soleil, however, who was also on Bonnie's IEP team. Most likely the anxiety Angie felt was a result of her own desire for perfection, as other members of her team did not share this same concern.

Another area in which Angie and Soleil disagreed was on the amount of time in the course dedicated to learning special education law. Whereas Soleil did not care for reading through the textbook and filling out her study guide for exams, Angie wished there was more of this. Since Soleil had no prior special education experience, her motivating operations may have led her to seek out more opportunities for direct application of special education law. Angie, however, had worked with students in special education for years. This may have prompted her to research the policies and procedures which she could then relate to her classroom experiences. Angie's concern was shared by Jana, another veteran paraprofessional, who noted that the course's text book would be a valuable resource in the future. The desire for more direct training of

special education law may have extended to others with sufficient classroom experience.

It should also be noted that Andrea, the only participant who is working as a special education teacher while going through the distance mild/moderate program, found this course to be one of the most relevant to what she does in the classroom. It is unlikely that she is implementing all of the strategies taught to her in other courses already, so it is interesting that she describes the policies and procedures course to be more relevant. This comment could signify a state of deprivation of knowledge in this particular area. Her statement may have been prompted by feelings of unpreparedness while conducting IEP team meetings the previous year. To avoid future feelings of being unprepared, Andrea may have attended more to the special education policies and procedures course, thus making it more relevant to her situation.

Promoting Generalization

Citing generalization as one of the seven defining properties of applied behavior analysis, Baer and colleagues (1968) explained that "a behavior change may be said to have generality if it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors" (p. 96). Similarly, Stokes and Baer (1977) identified these same three characteristics in their definition of generalization.

> Generalization will be considered to be the occurrence of relevant behavior under different, non-training conditions (i.e., across subjects, settings, people, behaviors, and/or time) without the scheduling of the same events in those conditions as had been scheduled in the training conditions. Thus, generalization may be claimed when no extratraining manipulations are needed for extratraining changes; or may be claimed when some extra manipulations are necessary, but their cost or extent

> is clearly less than that of the direct intervention. Generalization will not be claimed when similar events are necessary for similar effects across conditions. (p. 350)

In addition to emphasizing changes across time, settings, and behaviors, Baer and colleagues (1968) and Stokes and Baer (1977) stressed the need to actively plan for generalization rather than passively expect it as an inherent outcome of training. Although some degree of generalization will usually occur whether or not it is planned, Stokes and Baer advise that practitioners should never act as if generalization is given away for free, but rather always requires programming.

Cooper and colleagues (2007) identified five strategies for promoting effective generalized behavior change: (a) teach the full range of relevant stimulus conditions and response requirements, (b) make the instructional setting similar to the generalization setting, (c) maximize the target behavior's contact with reinforcement in the generalization setting, (d) mediate generalization, and (e) Train to generalize. Certain tactics based on each of these strategies were implemented throughout the simulated IEP team meetings to support generalization to the natural environment.

While teaching every desired form of a target behavior in every setting or situation in which the special education teacher trainee may need that behavior in the future is usually impossible, teaching sufficient examples is generally a much more practical alternative. This strategy was used in the virtual simulations by teaching preservice special education teachers to respond to a subset of the entire possible stimulus and response class which may be encountered in future IEP team meetings. As noted above, through either their own performance accomplishments or vicarious experiences,

participants encountered a broad range of stimulus examples. For example, Andrea felt that the simulations accurately represented an assortment of parent personalities, concerns, and needs. Having been exposed to such numerous variables in the simulations, she felt better prepared to work with a broader range of parent and student factors in the future.

It should be pointed out, however, that the exemplars presented throughout the course do not cover the entire spectrum of possibilities. Each of the simulated IEP team meetings ended with the student being eligible for special education services and the parents signing off on the IEP. In real life, however, special education teachers who remain in the field long enough will likely come across students who are referred, but not determined eligible for special education services, as well as parents who ultimately disagree with the proposed IEP. The range of cases presented served the purpose of the special education policies and procedures course though, and accounted for many of the most common variables beginning special education teachers are likely to encounter.

A second strategy to program generalized behavior change is by making the instructional setting similar to the generalization setting. Cooper and colleagues (2007) explained that the target behavior is more likely to be emitted in the generalization setting when it shares a high degree of similarity with the instructional environment. Therefore, if the objective is to train preservice special education teachers to emit a variety of behaviors specific to IEP team meetings, the training environment should be very similar to a school conference room where these types of meetings are typically held. One example of this is programming common stimuli, which involves identifying salient

stimuli that characterize the generalization settings and incorporating these stimuli into the instructional setting. For instance, Joyce commented that the rainbow-shaped table in TeacherSim looked exactly like the one in her school where IEP team meetings were held. This type of stimulus generalization increases the probability that the same target responses will emitted when Joyce sits down for an IEP team meeting at the rainbow-shaped table in her school.

Additionally, the IEP team simulations varied non-critical aspects of the instructional setting within and across teaching sessions. For example, participants were provided with an agenda of all the objectives to be met within both the eligibility meeting and the IEP meeting, but were not instructed on a particular topography to achieve each of these requirements. This type of teaching loosely reduces the probability that a single of small group of noncritical stimuli will acquire exclusive control over the target behaviors (e.g., parents may be given a physical copy of the procedural safeguards, or told to access an electronic copy online). Furthermore, including a wide range of non-critical stimuli increases the likelihood that at least some of the stimuli that were present during instruction will be present in the natural setting. For instance, an IEP team meeting may not always include the school principal, school psychologist, special education teacher, general education teacher, and parent, but at least some of these people will always be present.

Third, generalization can be programmed by maximizing contact with reinforcement in the generalization setting. One tactic for promoting this strategy is by teaching the relevant behaviors to levels required by natural contingencies. The

participants in this study had multiple opportunities to practice their IEP team meetings in TeacherSim. Sherry cited these dress rehearsals as being particularly beneficial for her, saying that it helped her become more professional. Lindsley (1992, 1995) stated that training component skills to fluency will result in longer retention, greater endurance, broader generalization to other applications, performance aims for teaching, and standards for aims and evaluation.

A fourth method of programming generalized behavior change is by mediation, or arranging for an object or person to act as a medium that ensures the transfer of the target behavior from the instructional setting to the generalization setting. Several participants made comments about developing a checklist to prompt their behavior in future IEP team meetings, similar to the agendas provide for them in the simulations. Contrived mediating stimuli must be made functional for the target behaviors during instruction and easily transported to the generalization setting in order to effectively mediate generalization (Baer, 1999). The agendas used throughout the simulations can easily be modified to meet the needs of each preservice special education teacher and used in future IEP team meetings to prompt specific behaviors. Cooper and colleagues (2007) explained that contrived mediating stimuli can be especially useful in promoting generalization and maintenance of complex behaviors and extended response chains, such as eligibility and IEP meetings, by simplifying an intricate situation.

Finally, the last strategy for programming generalized behavior change is training to generalize. Stokes and Baer (1977) stated that “if generalization is considered as a response itself, then a reinforcement contingency may be placed on it, the same as with

any other operant" (p. 362). This is primarily done by reinforcing response variability (Neuringer, 1993; Ross & Neuringer, 2002; Shahan & Chase, 2002) and instructing the learner to generalize (Ninness, Fuerst, Rutherford, & Glenn, 1991). Participants in this research were asked to create rules that they could use to govern their own behavior in future IEP team meetings. By doing so, they were indirectly instructed to generalize the behaviors that were reinforced through the virtual simulations to the natural environment setting.

Generalization was promoted across all five categories identified by Cooper and colleagues (2007) for the preservice special education teachers who participated in this research. Participants noted each of these methods as strategies that would help them apply what they had learned through the simulations in their future careers as special education teachers. It should be noted, however, that like most university courses, the policies and procedures in special education course falls into an overarching class of generalization strategies identified by Stokes and Baer (1977) as *Train and Hope,* in which new behaviors are taught without developing and implementing a plan to facilitate their maintenance and generalization in the natural environment.

Generating Rules

The simulated meetings provided each participant the opportunity to directly contact the contingencies of their behavior as they determined a hypothetical child eligible for special education and developed an individualized plan for that student. As participants in the current research, each participant was asked to reflect on this

experience to determine how the simulations shaped (i.e., reinforced or punished) their behavior, and to generate rules from this experience to guide their behavior in future meetings.

The results indicate that all seven participants had difficulty generating rules to govern their future behavior. In this study, there were two primary barriers preventing rule construction. The first barrier was a very large unit of analysis. Given the magnitude and complexity of a typical IEP team meeting, the preservice special education teachers who participated in this research likely had problems honing in on discrete behaviors, and therefore had trouble coming up with rules to guide these behaviors.

Individualized education program team meetings primarily consist of interverbal exchanges among meeting attendees. There are only minimal physical stimuli to which special education teacher can respond. Operationalizing verbal behavior is often much more difficult than physical behavior (Chomsky, 1967). Several participants noted parent participation as an antecedent to which they would attend. General participation is one of the few discrete physical behaviors to be observed at an IEP team meeting. Almost all beginning teachers can easily differentiate between a parent who participates in an IEP team meeting and one who does not. Participation behaviors may consist of making eye-contact with other team members, occasional nodding of head, and speaking. These behaviors are fairly easy to objectively discern.

Verbal behavior, on the other hand, may be harder to operationalize and is often somewhat more subjective, as the variables controlling these responses are not always clear. For instance, the response *I don't want my child labeled as one of 'those' kids* is

likely both an interverbal, a response controlled by a verbal stimulus without point-to-point correspondence or formal similarity, and a mand, a response controlled by motivating operations seeking specific reinforcement (e.g., the child not receiving special education). Skinner (1957) explained that the same form of response may appear across different types of operants.

> In the terminology of meaning, we say that the word *doll* is used at one time "to ask for a doll" and at another "to describe or refer to a doll." When the response *Doll!* has been acquired as a mand, however, we do not expect that the child then spontaneously possesses a corresponding tact of similar form. If we find both types of operants in the repertoire of the child, we must account for them separately. This appears to make the task of explaining verbal behavior more difficult, but the advantage which appears to be gained by the traditional concept of the "word *doll"* is offset by the problem which remains of explaining how a child may learn to use a word both to "express a desire" and also to "describe an object." The total formulation has not been simplified; part of the task has merely been postponed. If we are to accept the full responsibility of giving an account of verbal behavior, we must face the fact that the mand *doll* and the tact *doll* involve separate functional relations which can be explained only by discovering all relevant variables. (pp. 187-188)

The same word, in this case *doll*, may not be the same functional unit for the speaker. In other words, whereas the sentence or individual word may be the unit of traditional grammar, it is not a functional unit of the verbal behavior of the individual speaker or listener (Sundberg & Michael, 2001).

To further complicate matters, the same verbal operants can often be manifested in a variety of ways. Therefore, the rule must be specific to the function of the behavior rather than the form through which it is emitted. For example, a rule which begins, *When a parent expresses concern about placing their child in special education,* covers a greater range of conditions than one which begins, *When a parent says they don't want their child labeled as one of 'those' kids.* The first rule is more broadly applicable than

the second example. Concern from the parent may be observed through many different means, including verbal statements of concern, a furrowed brow, a grimace on the parents face, a change in the level of the parent's participation, et cetera ad infinitum.

The second barrier to successful rule construction in this study may be improper training. None of the participants in this study were familiar with the term rule-governed behavior prior to conducting the final interview for the current research. Although they were provided with an example of rule-governed behavior, and the various components that make up a rule, this singular exemplar may not have been sufficient to generalize to present context of IEP development. As a developing skill, it is possible that this type of reflection was new to the teacher trainees and that the prompt to describe rule-governed behaviors was not yet strong enough to elicit this type of response. With additional training and extended practice developing rule statements, the participants may be able to produced complete rules related to novel situations in the future.

Jana was the only participant to attempt to construct rules using the framework provided in the example (When ___, I will ___, in order to ___), and thus the only one to generate a complete verbal statement (see Table 2). The other six participants simply provided a list of antecedents, behaviors, and consequences. Whether or not this will be advantageous to Jana as she enters her first live IEP team meeting was beyond the scope of the current research.

Of the antecedents generated, the concerns of the parent and the needs of the student were cited most often. Attending to the parents throughout the meeting was emphasized by Joyce, Jana, and Andrea, while Sherry spoke of primarily focusing on the

Table 2

ABC Components of Rules Generated by Jana

When…	I will…	In order to…
When I conduct an IEP meeting	I'm going to come prepared with solutions that are the best for that student	In order to provide the best education possible for the student
When I come to an IEP meeting	I'm going to stay open to suggestions from my other team members	Because I don't have all the answers
	I'm going to stay positive.	In order to help the parent cope with the fact that they have a child with a disability
	Keeping an open mind	In order to make sure that that child is receiving the best services possible, the best we can provide
	I'm going to make sure that everybody has a chance to express an opinion	In order to make sure that that child is successful, as successful as we can help them be
	I'm going to make sure that the parent knows that we're there for them, and that they can jump in at any time, they can say whatever they feel like they need to say, and that we're going to take them seriously	In order to make sure that they feel that success
	I'm going to listen to the parent	
	I'm going to incorporate the things that you think are important into this	

evidence of the student's performance (see Table 3). These are both critical aspects of the individualized education program; as the curriculum must be modified to meet the needs of the student while addressing the concerns of the parents.

Throughout other parts of the interviews, each participant noted distinct behaviors that they performed during the simulations that were omitted when asked to develop rule-governed behaviors. For instance, each team conducted a parent interview to gather more

Table 3

ABC Components of Rules Generated by Joyce

When…	I will…	In order to…
Reviewing my agenda	Work with the parent in a positive way	Make sure that I include the parent
Marking off my checklist	Listen to the parent	Involve the student in the IEP
Observing parent involvement	Try to get everyone on the same page	Follow certain procedures
Listening to parent concerns	Work together	Agree on how we should approach the student educational plan
	Use parent input	Reinforce parent responding
	Create a checklist	Reflect on what I can do better next time
		Appease the parent

information about their student. However, no one brought this up when asked to develop verbal statements to govern future behavior (i.e., "When I receive a referral for special education services, I will conduct a parent interview, to find out additional information about the student's background.). One possibility for this omission is that they did not see the parent interview as an important piece of the eligibility determination process, thereby punishing the occurrence of the same behavior in the future. Alternatively, this type of interviewing behavior may already be strong enough in each participant's repertoire that rule-governance was not necessary. It could also be that the special education teacher trainees did not recognize the parent interview as part of the simulation, because it did not take place in TeacherSim, or as a formal IEP team meeting.

Interestingly, many of the antecedent variables that participants did generated

were actually other behaviors they wanted to perform. For instance, Kristeen, Angie, and Soleil all mentioned some type of *preparation* as an antecedent (see Table 4). It is easy to see how they may have been confused, as preparations do occur before the meeting takes place, but *preparing* is not a discriminant stimulus under which their behavior during the IEP team meeting can be reinforced. This may have simply been a misunderstanding of what was being asked of them. Many of the preparations they spoke of included developing prompts, such as gathering test scores or creating a checklist, to respond to throughout the meeting. Developing prompts is certainly a functional technique to elicit particular behaviors in the future, but it does not work as an antecedent in a verbal statement for rule governance.

Rather than focusing on the preparation itself, however, the product of these preparations may function as an antecedent. For example: *When reviewing my agenda at an IEP team meeting, I will check off each component that has been addressed, in order*

Table 4

ABC Components of Rules Generated by Angie

When…	I will…	In order to…
Reading scripts	Keep my own personality on a professional level	Make it easier for parents to understand
Looking at visual cues	Link goals and objectives to core standards	Not sound incompetent or flustered
Using GoalView	Use visual prompts	Clarify understanding
Reading the goals	Use plain English language rather than jargon	
Writing present levels of performance	Practice what I am going to say	
Calling the parent	Ask if they have any questions	
The parents look confused		

to comply with state and federal mandates. In the above stated rule, the agenda functions as the antecedent to ensure the various parts of the meeting have been met. Thus, while *preparing the agenda* is not an antecedent, the agenda itself fits this framework.

Rules could also be developed to guide preparation behavior, such as: *When an IEP team meeting has been scheduled, I will prepare an agenda, in order to address all the required components.* In this example, *preparing the agenda* now becomes the behavior which is reinforced in the presence of *a scheduled IEP team meeting* and is reinforced by *addressing all required components*. Again, the extent to which these nuances function to control future behavior remains to be seen.

It may be argued that developing incomplete rules (verbal statements that do not overtly specify an antecedent, a behavior, and a consequence) will never allow the user to come into contact with the natural contingencies associated with that rule, therefore rendering the rule useless and punishing the development of incomplete rules. This will either shape the development of complete rules in the future, or all together extinguish the overt development of rules. When this happens, one of two meta-cognitive or overarching rules about creating rules will come about. If the development of complete rules has been reinforced, one could then say: *When creating rules, I will make sure the rule is complete, in order to function in the environment*. However, if rule development has been extinguished all together, the following rule would then function: *When preparing for future events, I will not consciously develop rules, because this behavior has never contacted the natural contingencies.* In essence, a rule about the use of rules as a training mechanism is developed.

The behaviors that participants described mostly involved some form of cooperation with the parents, whether that be listening to parents, or addressing their concerns. The fact that parent participation and cooperation was cited first and foremost indicates that this was the primary concern of each participant. This is likely due to the emphasis placed on working with the parent throughout the simulated meetings. The student and parent are the contextual variables unique to each IEP team meeting, and to which special education policies and procedures must be applied.

However, the simulations also emphasized to Kristeen that it was important to make sure that her own voice were heard throughout the meeting (see Table 5). Kristeen had previously mentioned that she tended to defer to Andrea, because of Andrea's previous experience conducting IEP team meetings. Even though she felt Patrick's eligibility and IEP meetings ran smoothly, Kristeen may have regretted not taking more of an active role in the process or voicing her opinion about particular services or accommodations for him. Thus, in future meetings, Kristeen wanted to ensure that her ideas were at least put on the table for consideration.

Andrea, Joyce, Jana, and Soleil all mentioned preparing for the meetings as a critical future behavior (see Table 6). This was the second time Soleil noted preparation, as she had also listed it as an antecedent (see Table 7). Feeling well prepared for each meeting was very likely of the utmost importance to Soleil. On the other hand, Sherry was the only participant who did not explicitly talk about preparing for IEP team meetings (see Table 8). Preparation consisted of developing checklists and reviewing the most current guidelines for special education policy and procedures.

Table 5

ABC Components of Rules Generated by Kristeen

When…	I will…	In order to…
Reviewing student files	Hold my own	Depends on parent cooperation and individual student
Seeking background information about the student	Explain test scores	
Knowing my stance as a teacher	Assure the parents	
Knowing the district's legal boundaries	Answer parent questions	
	Go over goals	

Table 6

ABC Components of Rules Generated by Andrea

When…	I will…	In order to…
The parent feels comfortable and understood	Make sure the parent feels comfortable with what is planned	Open lines of communication
The child's needs are represented	Ensure the parent feels the next school year is going to be great for the child	Resolve issues
We're following the legal guidelines	Make sure the needs of the child are going to be met	Leave the meeting feeling more empowered
	Develop the IEP	Talk about what the upcoming years is going to look like

Table 7

ABC Components of Rules Generated by Soleil

When…	I will…	In order to…
Attending to visual cues	Remain neutral	Have the parents on board
Reading notes	Review records	Reassure the parents
Reflecting on prior mistakes	Talk with other school faculty	Help me out
Preparing for the meeting	Answer parent questions	
Reviewing the agenda	Be professional	
	Structure the meeting	
	Follow the agenda	

Table 8

ABC Components of Rules Generated by Sherry

When…	I will…	In order to…
Discussing students' strengths Parents express concerns Reviewing prior records Reviewing student progress	Make sure the parent feels invaluable to the team Work as a team Talk on the parents' level	Please the parent Benefit the student Not hurt my feelings Provide realistic expectations to the parent Boost the student's self esteem

Jana was the only participant to focus on accentuating the positives, although Sherry had also mentioned something to this effect as an antecedent. Both of them realized the importance of speaking to the student's strengths and stating his or her present levels of performance rather than deficits. Interestingly, Jana and Sherry both participated in a simulation where the parent was very reluctant to having her daughter labeled as a special needs student. None of the participants who merely observed Francine's case picked up on this variable. This may further indicate that active participation through simulation training reinforces conditional discriminations and derived relational responding which may not occur in passive learning.

A final behavior noted by Angie and Soleil was acting professional. Again it should be point out that both of them worked together on Bonnie's case. Angie and Soleil's focus on professionalism may have been in response to Bonnie's aunt who went so far as to move Bonnie to another school district in order to get her the services she needed. Clearly the aunt was concerned about Bonnie's wellbeing, and perhaps the rest of the IEP team felt they should reflect this attitude. Soleil's concern for professionalism

may also be partially contributed to the role she played on the IEP team. Soleil was given the part of LEA representative, and perhaps felt her primary responsibility was to facilitate the meeting and keep things moving according to the agenda.

Each of the participants spoke of the contingencies controlling their behavior in terms of how they would know whether or not the IEP team meeting was successful. Of course, the definition of "success" varied somewhat for each person. Some participants noted a general rule of thumb, such as providing the best services for the student or opening up lines of communication with the parent.

While many students spoke of pleasing the parent, Soleil felt that the parent's attitude was beyond her control. This was consistent with her earlier identification of antecedents and behaviors which consisted of visual prompts to "be nice" and allowing time "for Mom to have a breakdown." Soleil appeared to distance herself from any sort of responsibility for how the parent reacted throughout the IEP team meetings, only noting that their compliance with what is happening at school would really "help me out."

Other participants observed that success could only be defined according to the contextual variables specific to each student and parent. Once again, it should be noted that Andrea and Kristeen participated on the same IEP team with Patrick's mother. Kristeen stated that she developed this perspective by juxtaposing her own simulation experience with the other IEP team meetings she observed. The members of every other team were also provided this same opportunity, so it is interesting that this perspective was isolated only to the members of Patrick's team.

Perhaps a variable specific to Patrick's case let Andrea and Kristeen compare

their own operant behaviors with those of every other team. This may be partially attributed to Patrick's age. As a rising 10th grader, Patrick was preparing to transition out of high school. His IEP team members collected information on Patrick's preferred employment setting through a preference assessment. Whereas the other IEP Teams only collected information from the parent—Francine was also a high school student, but it was already apparent to her team that she wanted to train to be a nurse—Patrick's team looked at multiple sources of data (parent and student) when developing his IEP. Thus, they had the opportunity to compare Patrick's goals with those of his mother. This multiple-exemplar training may have been sufficient to promote generalization to the other IEP team meetings observed by Andrea and Kristeen.

CHAPTER VI

CONCLUSIONS

Bateman (1970) stated that "teaching is the teacher's intentional arranging or manipulating of the environment so that the [student] will learn more efficiently than if he were to learn incidentally from the world at large" (p. 8). This study examined the use of a MUVE to examine the effects of simulating IEP team meetings with students enrolled in a distance mild/moderate special education teacher preparation program. The course instructor was able to effectively manipulate the virtual environment to expedite preservice teachers' understanding of special education policies and procedures as well as collaborating with other members of the IEP team. Table 9 displays a summary of the findings for the first research question. The IEP team simulations allowed preservice special education teachers to experience the IEP process prior to entering the classroom, gave them multiple opportunities to practice their own eligibility and IEP meetings, and promoted generalization by juxtaposing their own meetings with the meetings of other classmates.

Table 9

Summary of Findings for the First Research Question

Antecedents	Behaviors	Consequences
Background in special education Prior IEP experience Distance education Familiarity with technology Age	Determining eligibility Developing the IEP Using TeacherSim Collaborating with other IEP team members Including the parent Including the student	Simulations compared to other course products Confidence to conduct IEP team meetings in the future Remaining challenges

Participants in the virtual simulations were able to complete all of the component parts of each meeting as identified by the eligibility and IEP rubrics, even though they were physically located hundreds of miles apart. Additionally, the preservice special education teachers who took part in this research cited many benefits and challenges to simulating IEP team meetings in a MUVE. This satisfied Kirkpatrick's (1959, 1996) first level of evaluating training programs: Collecting data on the participants' reactions to the simulation. In addition to stating their thoughts on the general efficacy of the use of virtual simulations, participants were asked to identify stimuli which occurred throughout the simulations. It was left to each preservice special education teacher to discriminate between noteworthy stimuli, defined as those with sufficient establishing operations to elicit a response from each individual participant, and other stimuli without such motivating operations in place. These were divided into categories, based on Skinner's (1969) three-term contingency: Antecedents, behaviors, and consequences.

Given the results of this study, there are many implications for teacher educators who use simulation training as a method of instructing preservice teachers on special education policies and procedures. Over the years, research has concentrated on the benefits of the IEP process, application of federal mandates, and the interpersonal relationships developed through IEP team meetings. As a result, a better understanding of training, observation, practice, and feedback has been acquired. Clearly, more is now known about how individuals, as well as teams, work together to modify the general curriculum for students with disabilities (Lytle & Bordin, 2001), and a number of principles have been derived that have direct application for training special education

teachers. However, there has been relatively little effort directed toward applying these principles to simulation training (Burden et al., 2010).

Although participants in the current study came from varying backgrounds in regard to the special education eligibility and IEP process, each benefitted from simulating IEP team meetings. This was primarily attributed to the range of student and parent cases presented across the simulations. Even though the teacher trainees only directly interacted with one parent, they were able to juxtapose these experiences with other teams' simulations, vicariously reaping the benefits of multiple exemplars.

Although their background in special education did not play a significant factor in simulation training, each preservice special education teacher's familiarity with technology did. Some individuals struggled to access the desktop-based virtual environment, and once there they encountered a steep learning curve. Therefore, in addition to learning about the IEP process, participants had to learn to interact with their surroundings as well. Acclimation to the virtual environment should be kept in mind for teacher trainers looking to incorporate simulation experiences into their programs. This was particularly true for highly nontraditional students who tend to be older in age and less familiar with current technologies.

As simulation training undoubtedly becomes more prevalent in teacher education, it will be interesting to watch as its application narrows to discrete trials training of specific skills. For instance, in other uses of simulation training—such as aviation, medicine, and sports—the simulated experiences are used less as an orientation to the event, but to reinforce specific skills necessary to successfully accomplish a task. In the

current study, simulation training was used for students to uncover or discover the various components of IEP team meetings. Preservice special education teachers were oriented to the eligibility determination and IEP processes by experiencing the various components indicative of each procedure. That is, first the teacher trainees received a notice of referral for special education evaluation. Next they conducted a parent interview. Then they obtained parental consent to conduct the evaluation. The process went on until finally the individual education program was developed and placement for the student to receive services had been determined. Although the teacher trainees' behaviors within the simulation were reinforced or punished by the contingencies of interacting as part of a team, the assignment focused more on task completion than shaping particular skills.

In other disciplines, however, individual components of the composite skill are often taught using methods of direct instruction. The various elements of the target procedure are outlined via verbal instruction, and a broadly applicable rule is provided to the trainees about how to accomplish the task. Only then is simulation training conducted to contingency-shape the more critical tasks of the overall objective. For instance, in flight training, simulators are typically limited to take-offs, approaches, and landings (Khatwa & Helmreich, 1999). In medicine, simulators have been used to train grip position and trajectory of laparoscopic surgery instruments (Verner, Oleynikov, Holtmann, Haider, & Zhukov, 2003). Similarly, Farrow and colleagues (1998) used simulating training to teach novice tennis players to respond to a virtual serve. Rather than focusing on the ecological fidelity of the procedure, these simulations are used to

develop expert performance of individual skills through repeated trials and training to criterion.

It is important to consider, however, that special education eligibility determination and individual education program development meetings may contain too many variables to train using discrete trial methods. The number of variables is particularly significant given that simulation research emphasizes training to criterion rather than a fixed about of time in a simulator. For IEP team simulations, this suggests that mastery criterion would have to be established for each behavior emitted throughout the duration of an eligibility or IEP meeting.

While federal and state legislation mandate certain components of IEP team meetings, such as parent and student involvement, the content and extent of their participation is less clear and heavily influenced by the context of the meeting. Therefore, the idea of developing criterion-based standards for participation may in fact shape IEP team behaviors that serve to meet the standard rather than the needs of the student.

This research was the result of what appeared to be the logical next step in training preservice special education teachers to conduct IEP team meetings at a distance. Face-to-face simulations have been shown to be effective for training teachers about special education policies and procedures (Bruner & Bartlett, 2008; Burden et al., 2010). However, students in distance teacher education programs may not have the option to meet face-to-face due to geographic constraints. The current study was an investigation into the use of a MUVE as a platform to allow preservices special education teachers to congregate around a virtual table in a simulated school building, and role play the various

parts of both special education eligibility and IEP meetings. The purpose of this research was to analyze the function of simulated IEP team meetings in a MUVE from the perspective of distance undergraduate students learning to become special education teachers.

The IEP document is a critical component of providing special education services to students with disabilities. The IEP allows for clearer communication among parents, teachers, and others involved in the child's education, and, therefore, offers improved planning, consistency in instruction, regular evaluation, and accountability. However, unlike other aspects of the teacher education process, preservice teachers rarely have the opportunity to witness IEP team meetings in their field placements.

Due to time and scheduling constraints, as well as confidentiality issues, many special education teacher trainees do not get direct exposure to the IEP process until the first year they begin teaching. Alternatively, teacher education programs have begun to utilize educational simulations to recreate IEP team meetings for training purposes. In these simulations, preservice teachers gather around a conference table and role play the various parts of eligibility and IEP meetings, including the general and special education teachers, school psychologist, LEA representative, parent, student, and related service providers. While this appears to be an effective substitute for providing on-campus preservice teachers access to the IEP process, distance students may not have access to this same type of training.

With a sharp rise in the number of distance education students over the past few years (Means et al., 2009), teacher educators must develop a method for conducting

education simulations across geographic constraints. MUVEs appear to be an appropriate platform for this type of teacher training (Campbell, Wang, Hsu, Duffy, & Wolf, 2010; Childress & Braswell, 2006). Desktop-based MUVEs allow preservice teachers from all over the globe to take part in IEP team simulations conducted in a virtual school building. Multiple case study analysis was employed to examine the antecedents, behaviors, and consequences associated with preservice special education teachers who used MUVEs to simulate the IEP process, with particular emphasis placed on strategies for promoting maintenance and generalization to the natural environment.

The results of the current study indicate that educational simulations conducted in a MUVE accommodate a range of preservice teachers' background experiences, and facilitate the specific needs of distance students. The seven participants of this research had varying levels of experience in the classroom. Some of them, such as Sherry and Angie, were seasoned paraeducators with more than 15 years of service in special education. Others, such as Soleil were entering the classroom for the first time.

Similarly, these simulated meetings proved valuable for teacher trainees just learning about the IEP process (e.g., Soleil, Kristeen, and Jana), as well as those who had previously conducted IEP team meetings (e.g., Andrea and Sherry). It is interesting to see that the participants' duration of tenure in special education did not line up with their level of experience with the IEP process. Andrea had only been in the classroom for two years, but she was working on a letter of authorization to teach while she completed the degree and licensure program. This allowed her to take part in IEP team meetings as the special education teacher of record. Other participants, such as Jana and Angie, who had

worked as paraeducators for a number of years, had relatively little experience with the IEP process.

In addition to each participant's role in the classroom, her geographic location must also be taken into consideration. Paraeducators in more rural environments are likely to be involved in a variety of educational planning activities, including the IEP process to some extent. Due to limited resources, rural paraeducators have to take on additional responsibilities than their counterparts in urban or suburban schools, who have more of a defined role. Therefore, the paraprofessionals who participated in this study have varying levels of IEP experience not necessarily consistent with their tenure in special education.

It should also be noted that the participants cited varying benefits of the IEP team simulations according to their prior experience with the IEP process. For instance, those with little background in special education policies and procedures profited from the exposure to the topography of eligibility and IEP meetings. They also felt like they were able to apply the knowledge they acquired during the first half of the semester. On the other hand, preservice teachers who had conducted prior IEP team meetings primarily benefited from the range of parent and student characteristics offered in the educational simulations. Andrea, in particular, felt like the actual meetings she had conducted were all very similar with respect to working with agreeable parents. She stated that the variety of personalities she encountered in the simulations better prepared her to work with a broader range of parents and students in the future.

The respective distance of each participant, from both the main campus and

each other, was also an influential variable for conducting virtual simulations. The physical location of participants ranged from approximately 30 to over 300 miles away from the course instructor, who played the part of the parent on each IEP team. Participants nearer the main campus, who had the option to commute, listed dangerous driving conditions and parking difficulties as the primary reasons for selecting a distance education program. Those further away cited ties to the community that prevented them from moving closer to the main campus to attend classes.

Bonnie and Francine's IEP teams both attended the Brigham City campus extension. However, it is interesting to compare the two teams with respect to how they completed the simulated IEP team meetings. Some of the members of Bonnie's team struggled to adjust to TeacherSim, so the team opted to meet in person at the Brigham City campus, and conference in the parent via Skype. This is possible because Skype allows up to two active webcams on a call.

Francine's team, who also had the ability to meeting face-to-face, decided to embrace the TeacherSim environment and noted many benefits. It is important to note that several members of Francine's team also initially struggled with TeacherSim. However, after acclimating to the virtual environment, they found that practicing their meetings in TeacherSim cut down on their commute time, did not require getting dressed up or putting on make-up, and allowed them to simultaneously attend to their grandchildren at home.

Other teams, such as Patrick's, were composed of members from different campuses, who did not have the option to meet face-to-face. These teams were, therefore,

forced to utilize TeacherSim. Kristeen observed that the geographic separation of team members allow for easier escape and avoidance of task demands. However, this phenomenon can be attributed to distance education in general, and is not specific to the use of virtual simulations.

The extent to which participants struggled to use TeacherSim was inversely proportional to their age. Younger preservice teachers, such as Kristeen and Angie, found TeacherSim fairly easy to use, and compared it to other video games they had encountered. However, older preservice teachers, such as Sherry and Jana, had difficulty creating user accounts and adjusting their avatar's appearance. This resulted in a much steeper learning curve for older participants, who were not only required to conduct IEP team meetings but also needed to learn to interact with their virtual surroundings. Although a basic tutorial on using TeacherSim was provided prior to beginning the virtual simulations, additional practice time in the virtual environment may level the playing field for students less familiar with this type of technology. Future research should focus on transitioning teachers to the virtual environment, with a particular emphasis on the amount of time needed to develop the prerequisite skills necessary to conduct virtual simulations.

The use of virtual simulations to teach the IEP process builds upon and extends preservice teachers' knowledge of special education policies and procedures. For instance, Soleil noted that "it was real." Compared to the book reading and tests that she was accustomed to, Soleil felt that the virtual simulations provided her with the opportunity to apply her knowledge of special education law. She also got to experience

the direct contingencies of her actions in the virtual simulations, which further continued to shape her behaviors within the IEP team. Other participants noted that the simulations linked various aspects of special education law together, tying together what they had previously learned in the course. The preservice teachers also had the benefit of working together collaboratively as part of a team, rather than being independently responsible for their knowledge and understanding of special education law.

Virtual simulations function best when they define the instructional universe by demonstrating the set of stimulus conditions across which the specified behaviors are to be performed. The instructional universe refers to every situation in which a person would be expected to perform a skill to achieve a particular outcome (Horner, McDonnell, & Bellamy, 1986). Joyce explained that the virtual simulations "gave me a sense of what might really happen and what to expect in the future when I'm working." The variety of case studies students encountered in the simulations covered the probable range of parents and students they will likely encounter when working as a special education teacher. They also had the ability to compare and contrast simulations which were presented sequentially within a brief period of time. Arranging this type of contingency analysis in the natural setting is nearly impossible due to logistical constraints. Participants also felt the virtual simulations provided them with a number of resources to access in the future.

The psychological and ecological fidelity of the virtual simulations also increased their efficacy. As Jana stated:

> I'm surprised, every time we talk about Francine, how I would really like to be in that co-taught language arts class. And I would like to be able to help her,

> because she's smart enough that she could make this work if she wanted to. And I'd like to convince her of that. So, I don't know. I know she's not real. I'll never meet Francine. But, yeah, I'd like to help her.

Several participants related the hypothetical cases on which they were presently working to students they had worked with in the past. Joyce noted that her student, Darius, reminded her of her own son. As such, when she was designing Darius' IEP, she acted as if she were doing it to benefit her son. This increased level of psychological fidelity allows participants to behave as if their actions in the simulations will have lasting effects on real students. Participants who do not take the simulations seriously do not experience these same benefits.

Programming common stimuli from the natural environment also increased the participant's level of presence in the virtual simulations. For instance, Joyce noted that the horseshoe shaped table in TeacherSim was exactly like the one where IEP team meeting were held in her school. In this regard, the use of virtual simulations may prove to be more valuable than face-to-face simulations. Students conducting live simulations often do so in a university classroom in front of an audience of their peers. This reduces the ecological fidelity of the simulation. In contrast, virtual simulations offer the benefit of conducing IEP team meetings in classroom or conference room within a virtual school building, more closely resembling the natural environment.

However, participants also noted several drawbacks to TeacherSim that reduced their experience of presence within the simulated IEP team meetings. For instance, many of their actions took place outside of TeacherSim, including sending and receiving emails, live meetings with other team members, and examining IEP documents. As the

technology of MUVEs continues to improve, many of these external behaviors may one day be accomplished within the virtual environment.

The virtual simulations allowed participants to come into contact with the direct contingencies of their behaviors without actual or long-term consequences. For instance, Kristeen noted:

> You go through the process and there's no—well there's pressure because you have a grade, but there's not real pressure because it's not somebody's real kid that you have the potential of totally annihilating!

Preservice teachers liked the opportunity to practice developing goals and objectives, and establishing relationships with parents, without the pressure of working with live students. However, the virtual simulations accurately portrayed the demands of an actual IEP team meeting, including real-time responding of content-specific knowledge applied to the current context.

Participating in virtual simulations increased the use of technology for most preservice teachers. "The other parts of the course were typical," explained Joyce. This included using Blackboard, checking email, and taking online tests. However, the virtual simulations required greater technological proficiency. This came easier for some than others. Jana stated, "Truly, we're just a bunch of old ladies and we don't know what we're doing." Some individuals found TeacherSim aversive, which made it difficult to collaborate in the environment. Given the group contingency of the assignment, all members of the IEP team had to effectively work together in the virtual environment. However, those who practiced in TeacherSim to the point of fluency began to feel more confident using other technologies as well.

The use of virtual simulations increased the self-efficacy of the participants to complete IEP team meetings in the future. Many teacher trainees explained that the IEP process was not as tough or formal as they had initially thought. “I think it’s good to start on TeacherSim personally,” said Soleil, “because you know they can’t see your face freaking out!” Simulating IEP team meetings in TeacherSim emphasized important collaborative behaviors of the participants, while eliminating non-essential variables, such as worrying about attire and scrolling through notes.

A final consideration of the current study is that the use of a MUVE for simulating IEP team meetings was intended to produce a measurable change in some aspect of the environment. Johnston and Pennypacker (1993) warned that “if there is truly no evidence for the existence of a supposed behavior other than through the measurement process, then it is probably not really a behavior” (p. 27). The present study collected qualitative evidence of each participant’s behavior change as a result of simulating IEP team meetings in a virtual environment. While the open-ended interviews used throughout data collection elicited a momentary environmental change in the form of verbal responses from each participant, the effects of simulation training is hoped to be more durable. Future research should focus on longitudinal investigations to assess generalization and maintenance of skills acquired through virtual simulation to the natural environment. Additionally, researchers of the IEP process should focus on further defining the range of relevant stimulus and response variations, as well as sequencing teaching examples to maximize efficiency and efficacy of simulation training.

Much of the current research on effective IEP Teams emphasizes utilizing

cooperative attitudes and examining cultural beliefs (e.g., Briggs, 1997; Dabkowski, 2004; Kalyanpur et al., 2000). However, Johnson and Pennypacker (1993) argued that attitudes and beliefs are not behaviors, and therefore have no lasting effect on the environment.

> For example, the practice of attempting to investigate attitudes using questionnaires is widespread. Is an attitude such as cooperativeness a behavior? If so, what is the environmental effect of this attitude? The answers to a questionnaire will not help because they are the result of verbal behavior in the form of writing, and the questionnaire procedure will not uncover the variables that control the verbal responses. If one points to the act of helping a co-worker pick up a heavy object (which could be measured by the changed location of the object) as cooperativeness, it might be argued that it is more environmentally appropriate to describe that act as "picking up an object." Continuing to apply this definitional criterion will eventually lead to the conclusion that cooperativeness is not a behavior. (p. 27)

The significance of this statement is that attitudes and beliefs such as cooperativeness and cultural responsiveness are not behaviors, and therefore cannot be elicited, reinforced, or maintained within the context of an IEP team meeting. Similarly, the responses collected from each participant throughout this study do not guarantee the application of the behaviors to which they referred. The variables controlling the verbal responses of preservice special education teacher trainees in an interview may not be the same as the variables controlling the responses of special education teachers in an IEP team meeting.

Emphasizing the use of observable, measurable behavior as data in applied behavior analysis interventions, Baer and colleagues (1968) stated:

> Accordingly, a subject's verbal description of his own non-verbal behavior usually would not be accepted as a measure of his actual behavior unless it were independently substantiated.... The relevant question is not what he can say, but what he can do. (p. 92).

Ultimately, verbal responses to interview questions are far less socially significant than

the behaviors emitted within eligibility determination and IEP meetings. However, Baer and colleagues also acknowledge that applied research rarely has the opportunity to choose a response easily quantified in a reliable manner, and that that instrumented recording will not always be possible. Due to the above listed reasons of logistics and feasibility, the ability to assess a measurable change in some aspect of the natural environment for IEP team meetings is hindered. The use of virtual simulations, however, offers an alternative for acquiring and assessing such important teaching behaviors.

The simulated meetings investigated in this study allowed participants to experience the contingencies that are required to develop rules to produce desirable behaviors in future IEP team meetings. However, additional research is needed on training preservice teachers to generate rules to govern their classroom behaviors. Given the complexity and range of IEP team meetings, as well as the variety of backgrounds from which participants came, each preservice special education teacher in the current study was asked to explicitly compose verbal statements based on their virtual experiences to help govern their behavior in future IEP team meetings. Skinner (1974) noted:

> By learning the laws of science, a person is able to behave efficiently under the contingencies of an extraordinarily complex world. Science carries him beyond experience and beyond the defective sampling of nature inevitable in a single lifetime. It also brings him under the control of conditions which could play no part in shaping and maintaining his behavior. (p. 138)

The IEP team behaviors of each participant, having been contingency-shaped through the simulations, and with the help of self-generated rules to act as a prompt, are more likely to generalize to the natural environment. Although the natural contingencies themselves

are far too deferred to have any reinforcing or punishing effects, rules that accurately describe the variables controlling responses with sufficient detail can maintain these behaviors and facilitate generalization to the natural environment. While participants in this research were not able to develop comprehensive verbal statements to guide their future IEP team behaviors, the idea of promoting rule-generation as a means of reflection may still be worth pursuing in future research. Perhaps more importantly, however, this type of reflection emphasizes framing their classroom experiences in terms of antecedents, behaviors, and consequences.

REFERENCES

Aldrich, *C*. (2002). *A field guide to educational simulations*. Alexandria, VA: American Society for Training & Development.

Aldrich, C. (2004). Six criteria of an educational simulation. *Learning circuits*. Retrieved from http://www.coulthard.com/library/Files/aldrich_2004_sixcriteriaeduc simulation.pdf

Alessi, S., & Trollip, S. (1991). *Computer-based instruction: Methods and development*. Englewood Cliffs, NJ: Prentice Hall.

Allen, I., & Seaman, J. (2008). *Staying the course: Online education in the United States.* Needham, MA: Sloan Consortium.

Allerton, D. J. (2000). Flight simulation: Past, present, and future. *Aeronautical Journal, 104,* 651-663.

Annetta, L. A., Folta, E., & Klesath, M. J. (2010). *V-learning: Distance education in the 21st century through 3D virtual learning environments*. The Netherlands: Springer.

Arslanyilmaz, A., & Pedersen, S. (2007). A cased-based learning environment for second language acquisition. In R. Carlsen (Eds), *Proceedings of Society for Information Technology & Teacher Education International Conference 2007* (pp. 220-223). Chesapeake, VA: AACE.

Baer, D. M. (1999). *How to plan for generalization*. Austin, TX: Pro-Ed.

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1,* 91-97.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191-215.

Bandura, A., & Menlove, F. L. (1968). Factors determining vicarious extinction of avoidance behavior through symbolic modeling. *Journal of Personality and Social Psychology, 8,* 99-108.

Barab, S., Thomas, M., Dodge, T., Carteaux, R., & Tuzun, H. (2005). Making learning fun: Quest Atlantis, a game without guns. *Educational Technology Research and Development, 53,* 86-107.

Barkand, J., & Kush, J. (2009). GEARS: A 3D virtual learning environment and virtual social and educational world used in online secondary schools.

Electronic Journal of e-Learning, 7, 215-224.

Bateman, B. D. (1970). *The essentials of teaching.* San Rafael, CA: Dimensions.

Bateman, D. F. (2010). Due process hearing case study. *Teaching Exceptional Children, 42,* 80-82.

Baylor, A. L. (2001). Permutations of control: Cognitive considerations for agent-based learning environments. *Journal of Interactive Learning Research, 12*, 403-425.

Behavior Analyst Certification Board. (2010). *About behavior analysis*. Retrieved from http://www.bacb.com/index.php?page=2

Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorders. *Exceptional Children, 73*, 261-284.

Berry, J. O., & Hardman, M. L. (1998). *Lifespan perspectives on the family and disability*. Boston, MA: Allyn & Bacon.

Billings, D. B, Norman, G., & Ledford, K. (Eds.). (1999). *Confronting Appalachian stereotypes: Back talk from an American region*. Lexington, KY: The University Press of Kentucky.

Blaisdell, M. (2006). Educational gaming: All the right MUVEs. *T.H.E. Journal, 33*, 28-38.

Bogdan, R., & Bilken, S. K. (2007). *Qualitative research for education: An introduction to theories and methods* (5th ed.). Needham Heights, MA: Allyn & Bacon.

Boyd, B. A., & Correa, V. I. (2005). Developing a framework for reducing the cultural clash between African American parents and the special education system. *Multicultural Perspectives, 7,* 3-11.

Briggs, M. H. (1997). *Building early intervention teams: Working together for children and families.* Gaithersburg, MD: Aspen.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University Press.

Brown, M. G. (1983). Understanding transfer of training. *Performance and Instruction, 22,* 5-7.

Bruckman, A. S. (1997). *MOOSE Crossing: Construction, community, and learning in a networked virtual world for kids*. (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 0598541)

Bruner, D. Y., & Bartlett, M. J. (2008). Effective methods and materials for teaching law to pre-service teachers. *Action in Teacher Education, 30,* 36-45.

Bull, G., Bull, G., & Kajder, S. (2004). Tapped in. *Learning & Leading with Technology, 31*(5), 34-37.

Burden, R., Tinnerman, L., Lunce, L., & Runshe, D. (2010). *Video case studies: Preparing teachers for inclusion*. Retrieved from http://escholarship.bc.edu/education/tecplus/vol6/iss4/art3

Butera, G. (2005). Collaboration in the context of Appalachia: The case of Cassie. *The Journal of Special Education, 39,* 106-116.

Calderhead, J. (1981). Simulated recall: A method for research on teaching. *British Journal of Educational Psychology, 51,* 180-190.

Calkin, A. B. (2005). Precision teaching: The standard celebration charts. *The Behavior Analyst, 6,* 207-213.

Campbell T., Wang, S., Hsu, H., Duffy, A., & Wolf, P. (2010). Learning with web tools, simulations, and other technologies in science classrooms. *Journal of Science Education and Technology, 19,* 505-511.

Carnine, D. (1976). Effects of two teacher presentation rates on off-task behavior, answering correctly, and participation. *Journal of Applied Behavior Analysis, 9,* 199-206.

Carnine, D. W., Silbert, J., Kame'enui, E. J., & Tarver, S. G. (2004). Direct instruction reading (4th ed.). Upper Saddle River, NJ: Merrill Prentice Hall.

Childress, M., & Braswell, R. (2006). Using massively online role-playing games for online learning. *Distance Education, 27,* 187-196.

Chomsky, N. (1967). A review of B.F. Skinner's verbal behavior. In L. A. Jakobovits & M. S. Miron (Eds.), *Readings in the psychology of language* (pp. 142-143). Englewood Cliffs, NJ: Prentice-Hall.

Choy, S. (2002). *Nontraditional undergraduates.* Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Clarke, J., Dede, C., Ketelhut, D. J., & Nelson, B. (2006). A design-based research strategy to promote scalability for educational innovations. *Educational Technology, 46,* 27-36.

Cloud, N. (1993). Language, culture, and disability: Implications for instruction and teacher preparation. *Teacher Education and Special Education, 16,* 60-72.

Cole, J. E., & Kritzer, J. B. (2009). Strategies for success: Teaching an online course. *Rural Special Education Quarterly, 28,* 36-40.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River, NJ: Pearson.

Creswell, J. (1998). *Qualitative inquiry and research design: Choosing among five traditions.* Thousand Oaks, CA: Sage.

Crowder, N. A. (1964). On the differences between linear and intrinsic programming. In J. P. DeCecco (Ed.), *Educational technology* (pp. 77-85). New York, NY: Rinehart & Winston.

Curtin, L. (2010). Going from the gut. *American Nurse Today, 5,* 48.

Dabkowski, D. M. (2004). Encouraging active parent participation in IEP team meetings. *TEACHING Exceptional Children, 36,* 34-39.

Day, W. F. (1969). Radical behaviorism in reconciliation with phenomenology. *Journal of the Experimental Analysis of Behavior, 12,* 315-328.

De Jong, T., & van Joolingen, W. (1998). Scientific discovery learning with computer simulations of conceptual domains. *Review of Educational Research, 68,* 179-201.

Dede C., Nelson, B., Ketelhut, D., Clarke, J., & Bowman, C. (2004). Design-based Research Strategies for Studying Situated Learning in a Multi-User Virtual Environment. *The Proceedings of the Sixth International Conference of the Learning Sciences (ICLS).* Mahwah, NJ: Erlbaum.

Dieterle, E., & Clarke, J. (2008). Multi-user virtual environments for teaching and learning. Retrieved from http://muve.gse.harvard.edu/rivercityproject/ documents/MUVE-for-TandL-Dieterle-Clarke.pdf

Dodd-McCue, D., & Tartaglia, A. (2010). Self-report response bias: Learning how to live with its diagnosis in chaplaincy research. *Chaplaincy Today, 26,* 2-8.

Eastmond, J. V. (1998). Adult learners and Internet-based distance education. *New Directions for Adult and Continuing Education, 78,* 33-41.

Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review, 14,* 532-550.

Elliott, R. L. (2005, April). *Professional development of professional developers: Using practice-based materials to foster an inquiring stance.* Paper presented at the meeting of the American Education Research Association, Montreal, Canada.

Engelmann, S. (2004). *District-based teacher certification model*. Retrieved from www.zigsite.com/PDFs/DistBaseModel.pdf

Engelmann, S., & Carnine, D. (1991). *Theory of instruction: Principles and applications*. Eugene, OR: ADI.

Ericsson, K. A., Krampe, R. T., & Tesch-Romer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review, 100,* 363-406.

Farrow, D., Chivers, P., Hardingham, C., & Sacuse, S. (1998). The effect of video-based perceptual training on the tennis return of serve. *International Journal of Sport Psychology, 29,*131-242.

Fenstermacher, G. D. (1978). A philosophical consideration of recent research on teacher effectiveness. *Review of Research in Education, 6,* 157-185.

Fischler, R. B. (2006). *Simteacher: Simulation-based learning in teacher education*. (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 3210046)

Foster, A. L. (2005). The avatars of research. *The Chronicle of Higher Education, 52,* 35-36.

Fowler, S. M., & Pusch, M. D. (2010). Intercultural simulation games: A review (of the United States and beyond). *Simulation & Gaming, 41,* 94-115.

Fritz, P. Z., Gray, T., & Flanagan, B. (2007). Review of mannequin-based high-fidelity simulation in emergency medicine. *Emergency Medicine Australasia, 20,* 1-9.

Gagné, R. M. (1968). Learning hierarchies. *Educational Psychologist, 6,* 1-9.

Garriott, P. P., Wandry, D., & Snyder, L. (2000). Teachers as parents, parents as children: What's wrong with this picture? *Preventing School Failure, 45,* 37-43.

Geiger, K. B., Carr, J. E., LeBlanc, L. A. (2010). Function-based treatments for escape-maintained problem behavior: A treatment-selection model for practicing behavior analysts. *Behavior Analysis in Practice, 3,* 22-32.

Gena, A., Couloura, S., & Kymissis, E. (2005). Modifying the affective behavior of preschoolers with autism using in-vivo or video modeling and reinforcement contingencies. *Journal of Autism and Developmental Disorders, 35,* 545-556.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research.* Chicago, IL: Aldine.

Glesne, C. (2006). *Becoming qualitative researchers: An introduction* (3rd ed.). Boston, MA: Pearson Education.

Glomb, N., Mendenhall, T., Mason, L. L., & Salzberg, C. (2009). Reducing isolation through regional mentors and learning communities: A way to support rural learners. *Rural Special Education Quarterly, 28,* 31-35.

Gresham, F. M., MacMillan, D. L., Beebe-Frankenberger, M. E., & Bocian, K. M. (2000). Treatment integrity in learning disabilities intervention research: Do we really know how treatments are implemented? *Learning Disabilities Research & Practice, 15,* 198-205.

Grow, L. L., Carr, J. E., & LeBlanc, L. A. (2011). Treatments for attention-maintained problem behavior: Empirical support and clinical recommendations. *Journal of Evidence-Based Practices for Schools, 10*¸70-92.

Guttman, A. (1999). *Democratic education* (2nd ed.). Princeton, NJ: Princeton University Press.

Haluck, R. S., Webster, R. W., Snyder, A. J., Melkonian, M. G., Mohler, B. J., Dise, M. L., & Lefever, A. (2001). A virtual reality surgical simulator trainer for navigation in laparoscopic surgery. In J. D. Westwood & H. M. Hoffman (Eds.), *Medicine meets virtual space* (pp. 171-176). Amsterdam, The Netherlands: IOS Press.

Hargreaves, D. H. (1977). A phenomenological approach to classroom decision-making. *Cambridge Journal of Education, 7,* 12-21.

Harry, B., Allen, N. A., & McLaughlin, M. (1995). Communication versus compliance: African-American parents' involvement in special education. *Exceptional Children, 61,* 364-377.

Hayes, S. C., Blackledge, J. T., & Barnes-Holmes, D. (2001a). Language and cognition: Constructing an alternative approach within the behavioral tradition. In S. C. Hayes, D. Barnes-Holmes, & B. Roche (Eds.), *Relational frame theory: A post-Skinnerian account of human language and cognition* (pp. 3-20). New York, NY: Plenum.

Hayes, S. C., Fox, E., Gifford, E. V., Wilson, K. G., Barnes-Holmes, D., & Healy, O. (2001b). Derived relational responding as learned behavior. In S. C. Hayes, D. Barnes-Holmes, & B. Roche (Eds.), *Relational frame theory: A post-Skinnerian account of human language and cognition* (pp. 21-49). New York, NY: Plenum.

Hazen, K. (2002). Identity and language variation in a rural community. *Language, 78,* 240-257.

Herriott, R. E., & Firestone, W. A. (1983). Multisite qualitative policy research:

Optimizing description and generalizability. *Educational Researcher, 12,* 14-19.

Heward, W. L. (2003). *Exceptional children: An introduction to special education* (7th ed.). Upper Saddle River, NJ: Pearson Education.

Hixon, E., & So, H. J. (2009). Technology's role in field experiences for preservice teacher training. *Educational Technology & Society, 12,* 294–304.

Horn, L. (1996). *Nontraditional undergraduates, trends in enrollment from 1986 to 1992 and persistence and attainment among 1989-90 beginning postsecondary students*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Horner, R. H., McDonnell, J. J., & Bellamy, G. T. (1986). Teaching generalized behaviors: General case instruction in simulation and community settings. In R. H. Horner, L. H. Meyer, & H. D. B. Fredericks (Eds.), *Education of learners with severe handicaps: Exemplary service strategies* (pp. 289-315). Baltimore, MD: Brookes.

Huefner, D. S. (2000). The risks and opportunities of the IEP requirements under IDEA '97. *Exceptional Children, 63,* 195-204.

Individuals with Disabilities Education Improvement Act. (2004). P.L. 108-446, 20 U.S. Code § 1400 et seq. Retrieved from http://idea.ed.gov/explore/view/p/%2Croot%2Cstatute%2C

Insko, B. (2003). Measuring presence: Subjective, behavioral and physiological methods. In G. Riva, F. Davide, & W. A. Ijsselsteijn (Eds.), *Being there: Concepts, effects and measurement of user presence in synthetic environments* (pp. 109-119). Amsterdam, The Netherlands: IOS.

Johnson, J. M., & Pennypacker, H. S. (1993). *Strategies and tactics of behavioral research* (2nd ed.). Hillsdale, NJ: Erlbaum.

Kafai, Y. B. (2006). Playing and making games for learning: Instructionist and constructionist perspectives for game studies. *Games and Culture, 1,* 36-40.

Kalyanpur, M., Harry, B., & Skrtic, T. (2000). Equity and advocacy expectations of culturally diverse families' participation in special education. *International Journal of Disability, Development and Education, 47,* 119-136.

Karge, B. D., McClure, M., & Patton, P. L. (1995). The success of collaboration resource programs for students with disabilities in grades 6 through 8. *Remedial and Special Education, 16,* 79-89.

Kazdin, A. E. (1973). Covert modeling and the reduction of avoidance behavior. *Journal*

of Abnormal Psychology, 81, 87-95.

Kazdin, A. E. (1974a). Comparative effects of some variations of covert modeling. *Journal of Behavior Therapy and Experimental Psychiatry, 5,* 225-232.

Kazdin, A. E. (1974b). Covert modeling, model similarity, and reduction of avoidance behavior. *Behavior Therapy, 5,* 325-340.

Kazdin, A. E. (1974c). Effects of covert modeling and reinforcement on assertive behavior. *Journal of Abnormal Psychology, 83,* 240-252.

Kazdin, A. E. (1975). Covert modeling, imagery assessment, and assertive behavior. *Journal of Consulting and Clinical Psychology, 43,* 716-724.

Kazdin, A. E. (1976). Effects of covert modeling, multiple models, and model reinforcement on assertive behavior. *Behavior Therapy, 7,* 211-222.

Kazdin, A. E. (2001). *Behavior modification in applied settings* (6th ed.). Belmont, CA: Wadsworth.

Khatwa, R., & Helmreich, R. (1999). *Analysis of critical factors during approach and landing in accidents and normal flight.* Alexandria, VA: Flight Safety Foundation.

Kim, C., & Baylor, A. L. (2008). A virtual change agent: Motivating pre-service teachers to integrate technology in their future classrooms. *Educational Technology & Society, 12,* 309-321.

Kirkpatrick, D. L. (1959). Techniques for evaluating training programs. *Journal of the American Society of Training Directors, 13,* 3-9, 21-26.

Kirkpatrick, D. L. (1996). Revisiting Kirkpatrick's four-level model. *Training and Development, 50,* 54-59.

Koch, S. (2007). Training rural special educators online to teach social skills. *Rural Special Education Quarterly, 26,* 16-20.

Kraiger, K., & Jung, K. M. (1997). Linking training objectives to evaluation criteria. In M. A. Quinones & A. Ehrenstein (Eds.), *Training for a rapidly changing workplace* (pp. 151-175). Washington, DC: American Psychological Association.

Küpper, L. (2000). *A guide to the individualized education program.* Washington, DC: National Dissemination Center for Children with Disabilities.

Lake, J. F., & Billingsley, B. S. (2000). An analysis of factors that contribute to parent-school conflict in special education. *Remedial & Special Education, 21,* 240-256.

Lamorey, S. (2002). The effects of culture on special education services: Evil eyes, prayer meetings, and IEPs. *TEACHING Exceptional Children, 34,* 67-71.

Lim, C. K. (2001). Computer self-efficacy, academic self-concept, and other predictors of satisfaction and future participation of adult distance learners. *The American Journal of Distance Education, 15,* 41-51.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Newbury Park, CA: Sage.

Lindsley, O. R. (1992). Precision teaching: Discoveries and effects. *Journal of Applied Behavior Analysis, 25,* 51-57.

Lindsley, O. R. (1995). Ten products of fluency. *Journal of Precision Teaching, 13,* 2-11.

Litow, L., & Pumroy, D. K. (1975). A brief review of classroom group-oriented contingencies. *Journal of Applied Behavior Analysis, 8,* 341-347.

Lytle, R. K., & Bordin, J. (2001). Enhancing the IEP team: Strategies for parents and professionals. *Teaching Exceptional Children, 33,* 40-44.

Maag, J. W. (1999). *Behavior management: From theoretical implications to practical applications.* San Diego, CA: Singular Press.

Mahon, J., Bryant, B., Brown, B., & Kim, M. (2010). Using Second Life to enhance classroom management practice in teacher education. *Educational Media International, 47,* 121-134.

Malott, R. W., Whaley, D. L., & Malott, M. E. (1997). *Elementary principles of behavior* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Martin, J. E., Marshall, L. H., & Sale, P. (2004). A 3-year study of middle, junior high, and high school IEP meetings. *Exceptional Children, 70,* 285-297.

Marzano, R. J. (2003). *What works in schools: Translating research into action.* Alexandria, VA: Association for Supervision and Curriculum Development.

Mason, C. Y., Field, S., & Sawilowsky, S. (2004). Implementation of self-determination activities and student participation in IEPs. *Exceptional Children, 70,* 441-451.

Mason, C. Y., McGahee-Kovac, M., Johnson, L., & Stillerman, S. (2002). Implementing student-led IEPs: Student participation and student and teacher reactions. *Career Development for Exceptional Individuals, 25,* 171-192.

Mason, L. L., Jeon, T. K., Blair, P., & Glomb, N. (2011). Virtual tutor training: Learning to teach in a multi-user virtual environment. *International Journal of Gaming and Computer-Mediated Simulation, 3,* 51-67.

McNair, K., & Joyce, B. (1979). *Teachers' thoughts while teaching: The South Bay study, part II* (Research Series No. 58). East Lansing, MI: Michigan State University, The Institute for Research on Teaching.

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies.* Washington, DC: U.S. Department of Education, Office of Planning, Evaluation, and Policy Development.

Meichenbaum, D. H. (1971). Examination of model characteristics in reducing avoidance behavior. *Journal of Personality & Social Psychology, 17,* 298-307.

Menlove, R. R., Hudson, P. J., & Suter, D. (2001). A field of IEP dreams: Increasing general education teacher participation in the IEP development process. *Teaching Exceptional Children, 33,* 28-33.

Merriam, S. (1998). *Qualitative research and case study application in education* (2nd ed.). San Francisco, CA: Jossey-Bass.

Messinger, P. R., Ge, X., Stroulia, E., Lyons, K., Smirnov, K., & Bone, M. (2008). On the relationship between my avatar and myself. *Journal of Virtual Worlds Research, 1,* 1-17.

Michael, J. (1993). Establishing operations. *The Behavior Analyst, 16,* 191-206.

Michalak, D. F. (1981). The neglected half of training. *Training & Development Journal, 35,* 22-28.

Miltenberger, R. G., Gatheridge, B. J., Satterlund, M., Egemo-Helm, K., Johnson, B. M., Jostad, C., … Flessner, C. (2005). Teaching safety skills to children to prevent gun play: An evaluation of in situ training. *Journal of Applied Behavior Analysis, 38,* 395-398.

Mostert, M. P. (1996). Interprofessional collaboration in schools: Benefits and barriers in practice. *Preventing School Failure, 40,* 135-138.

Müller, E. (2009). *Virtual personnel preparation programs for special educators: Several approaches*. Washington, DC: National Association of State Directors of Special Education.

Mueller, T. (2009). IEP facilitation: A promising approach to resolving conflicts between families and schools. *Teaching Exceptional Children, 41*, 60-68.

Neef, N. A., Lensbower, J., Hockersmith, I., DePalma, V., & Gray, K. (1990). In vivo versus simulation training: An interactional analysis of range and type of training exemplars. *Journal of Applied Behavior Analysis, 23,* 447-458.

Neef, N. A., Parrish, J. M., Hannigan, K. F., Page, T. J., & Iwata, B. A. (1989). Teaching self-catheterization skills to children with neurogenic bladder complications. *Journal of Applied Behavior Analysis, 22,* 237-243.

Neuringer, A. (1993). Reinforced variation and selection. *Animal Learning & Behavior, 21*, 83-91.

Nikopoulos, C. K., & Keenan, M. (2004). Effects of video modeling on social initiations by children with autism. *Journal of Applied Behavior Analysis, 37,* 93-96.

Ninness, C., Fuerst, J., Rutherford, R., & Glenn, S. (1991). The effects of self-management training and reinforcement on the transfer of improved conduct in the absence of supervision. *Journal of Applied Behavior Analysis, 24,* 499-508.

Norlin, J. W. (2007). *What do I do when...the answer book on special education law* (5th ed.). Horsham, PA: LRP Publications.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Place, U. T. (1988). Skinner's distinction between rule-governed and contingency-shaped behavior. *Philosophical Psychology, 1,* 225-234.

Povenmire, H. K., & Roscoe, S. N. (1973). Incremental transfer effectiveness of a ground-based general aviation trainer. *Human Factors, 15,* 534-542.

Rivera, J., & Goldscheid, J. (2009, August). *Making simulations real: Using simulations to teach doctrine, skills and professionalism across the curriculum*. Paper presented at the 2009 Summer Conference of the Institute for Law Teaching and Learning, New York, NY.

Rock, M. L. (2000). Parents as equal partners: Balancing the scales in IEP development. *TEACHING Exceptional Children, 32,* 30-37.

Ross, C., & Neuringer, A. (2002). Reinforcement of variations and repetitions along three independent response dimensions. *Behavioural Processes, 57,* 199-209.

Rural students: Common obstacles, different settings. (2006). *The Chronicle of Higher Education, 53,* B14.

Salas, E. Bowers, C. A., & Rhodenizer, L. (1998). It is not how much you have but how you use it: Toward a rational use of simulation to support aviation training. *The International Journal of Aviation Psychology, 8,* 197-208.

Salembier, G., & Furney, K. S. (1997). Facilitating participation: Parents' perceptions of their involvement in the IEP/transition planning process. *Career Development for*

Exceptional Individuals, 20, 29-42.

Sandelowski, M. (1995). Focus on qualitative methods: Sample sizes in qualitative research. *Research in Nursing & Health, 18,* 179-183.

Schlager, M. S., Fusco, J., & Schank, P. (2002). Evolution of an online education community of practice. In K. A. Renninger & W. Shumar (Eds.), *Building virtual communities: Learning and change in cyberspace* (pp. 129-158). Cambridge, UK: Cambridge University Press.

Seidman, I. (1998). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (2nd ed.). New York, NY: Teachers College Press.

Self, T., Scudder, R. R., Weheba, G., & Crumrine, D. (2007). A virtual approach to teaching safety skills to children with autism spectrum disorder. *Topics in Language Disorders, 27,* 242-253.

Shahan, T. A., & Chase, P. N. (2002). Novelty, stimulus control, and operant variability. *The Behavior Analyst, 25,* 175-190.

Sidman, M. (1960). *Tactics of scientific research*. New York, NY: Basic.

Siedentop, D., & Eldar, E. (1989). Expertise, experience, and effectiveness. *Journal of Teaching in Physical Education, 8,* 254-260.

Skinner, B. F. (1938). *The behavior of organisms.* New York, NY: Appleton-Century-Crofts.

Skinner, B. F. (1953). *Science and human behavior*. New York, NY: Macmillan.

Skinner, B. F. (1954). The science of learning and the art of teaching. *Harvard Educational Review, 24,* 86-97.

Skinner, B. F. (1957). *Verbal behavior.* Englewood Cliffs, NJ: Prentice Hall.

Skinner, B. F. (1958). Teaching machines. *Science, 128,* 969-977.

Skinner, B. F. (1969). *Contingencies of reinforcement: A theoretical analysis.* New York, NY: Appleton-Century-Crofts.

Skinner, B. F. (1974). *About behaviorism.* New York, NY: Vintage Books.

Squire, K. R., & Jenkins, H. (2003). Harnessing the power of games in education. *Insight, 3,* 5-33.

Stake, R. E. (2006). *Multiple case study analysis.* New York, NY: Guilford.

Stake, R. E. (2010). *Qualitative research: Studying how things work.* New York, NY: Guilford.

Stokes, T. F., & Baer, D. M. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis, 10,* 349-367.

Sulzer-Azaroff, B., & Mayer, R. (1991). *Behavior analysis for lasting change*. Fort Worth, TX: Holt, Reinhart & Winston.

Sundberg, M. L., & Michael, J. (2001). The benefits of Skinner's analysis of verbal behavior for children with autism. *Behavior Modification, 25,* 698-724.

Test, D. W., Mason, C., Hughes, C., Konrad, M., Neale, M., & Wood, W. M. (2004). Student involvement in individualized education program meetings. *Exceptional Children, 70,* 391-412.

Thomas, R., & Milligan, C. (2004). Putting teachers in the loop: Tools for creating and customizing simulations. *Journal of Interactive Media in Education, 15*. Retrieved from http://jime.open.ac.uk/article/2004-15/217

Utah State Office of Education. (2010). *Utah special education rules*. Salt Lake City, UT: Author.

Van Dycke, J. L., Martin, J. E., & Lovett, D. L. (2006). Why is this cake on fire? Inviting students into the IEP process. *TEACHING Exceptional Children, 38,* 42-47.

Van Houten, R., & Hall, R. V. (2001). *The measurement of behavior: Behavior modification* (3rd ed.). Austin, TX: Pro-Ed.

Vargas, J. S. (2009). *Behavior analysis for effective teaching.* New York, NY: Routledge.

Verner, L., Oleynikov, D., Holtmann, S., Haider, H., & Zhukov, L. (2003). Measurements of the level of surgical expertise using flight path analysis from da Vinci Robotic Surgical System. *Medicine Meets Virtual Reality, 11,* 373-378.

Vygotsky, L. S. (1987). *Mind in Society.* Cambridge, MA: Harvard University Press.

Ward, P., Williams, A. M., & Hancock, P. A. (2006). Simulation for performance and training. In: K. A. Ericsson, N. Charness, P. J. Feltovich, & R. R. Hoffman (Eds.), *The Cambridge handbook of expertise and expert performance* (pp. 243-262). New York, NY: Cambridge University Press.

Warren, S., Dondlinger, M., & Barab, S., (2008). A MUVE towards PBL writing: Effects of a digital learning environment designed to improve elementary student writing. *Journal of Research on Technology in Education, 41,* 113-140.

Warren, S. J., & Stein, R. A. (2009). Simulating teaching experience with role-play. In Gibson, D., & Baek, Y. (Eds.), *Digital simulations for improving education: Learning through artificial teaching environments* (Vol. 1, pp. 273-288). Hershey, PA: IGI Global.

Warren, S. J., Stein, R. A., Dondlinger, M. J., Barab, S. A. (2009). A look inside a MUVE design process: Blending instructional design and game principles to target writing skills. *Journal of Educational Computing Research, 40,* 295-321.

Wei, C., Berkner, L., He, S., & Lew, S. (2009). *2007-08 National Postsecondary Student Aid Study (NPSAS:08): Student financial aid estimates for 2007-08: First look (NCES 2009-166).* Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

Whitehouse, K. (2005). Web-enabled simulations: Exploring the learning process. *Educause Quarterly, 3,* 21-29.

Williams, A. M., Ward, P., Knowles, J., & Smeeton, N. (2002). Anticipation skill in a real-world task: Measurement, training, and transfer in tennis. *Journal of Experimental Psychology: Applied, 8,* 159-170.

Wolcott, H. F. (2009). *Writing up qualitative research* (3rd ed). Thousand Oaks, CA: Sage.

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, CA: Sage.

Yinger, R. J. (1980). A study of teacher planning: Description and a model of preactive decision-making. *Elementary School Journal, 80,* 107-127.

Zibit, M., & Gibson, D. (2005). *simSchool: The game of teaching*. Retrieved from http://simschool.org/article.htm

APPENDICES

Appendix A

Structured Interviews

Antecedents Interview

I'd like to talk with you about your experience in the classroom and the events in your life that led up to you entering USU's mild/moderate distance undergraduate program. This interview will be broken down into three parts: (a) Your background in special education, (b) your understanding of special education policy & procedures, and (c) your familiarity with technology.

1. Tell me about why you decided to become a special education teacher, and specifically, why you joined USU's distance program. (Probe for experience in the classroom, with people with disabilities, with the IEP process).
2. Next I'd like to ask you how special education law affects what you do in the classroom. What is the importance of an individualized education program? (Probe about role of parent and student in IEP development, collaborating with other people, working with people from culturally/linguistically diverse backgrounds)
3. Given that this program relies heavily on technology, how comfortable would you say you are you with using technology? To what extent would you say technology facilitates your learning? (Probe for examples, prior computer use, video game play, etc.)

Behaviors Interview

Today I'd like you to reconstruct your experience of simulating IEP team meetings in the MUVE. This interview will focus on the simulation itself, how you applied your knowledge of special education policy and procedures in the simulation, and the technology used to carry-out the simulation.

1. Tell me about your experience conducting IEP team meetings with your student's parent. Walk me through the specifics of arranging the meetings and the day of the meetings. (Probe for information about individual responsibilities in the meetings, working with other members of the IEP team, and working with the parent).
2. Next I'd like to ask you how special education law affects what you do in the simulation. What is an individualized education program? (Probe about role of parent and student in IEP development, collaborating with other people, working with people from culturally/linguistically diverse backgrounds)
3. Tell me about your experience with TeacherSim. How did the MUVE allow you to conduct these IEP team meetings? (Probe for information on adapting to the environment, benefits and challenges of working in the MUVE, and comparing this environment to a face-to-face meeting)

Consequences Interview

In this interview, I'm going to ask you to reflect on your experiences learning to conduct IEP team meeting in a MUVE. Given what you have previously told me about experience in the classroom, and given what you have said about the virtual simulations, I'd like for you to talk about how you believe this experience has better prepared you to enter the classroom.

1. How did the IEP team meeting simulations differ from other aspects of the course? (Probe for advantages/disadvantages to learning through simulation; extent to which content knowledge acquired in the first half of the course could be applied; student's confidence in working with parents/IEP team to develop individualized education plans in the future.)
2. Given what you have reconstructed in these interviews, how does special education law effect what you do in the classroom? (Probe for information on links between eligibility/IEP process and curriculum/instructional delivery).
3. How confident do you feel in your ability to conduct IEP meetings in the future? (Probe for information about working with other professionals, including the parent/student in the meeting, knowledge of purpose and procedures of IEP team meetings).
4. What did you learn about the eligibility/IEP process through this simulation? What challenges still remain?

Appendix B

Evaluation Meeting Observation Form

Evaluation Meeting Observation Form

Name:_____ Meeting:_____ Date:_____

4.	Everyone at the meeting introduced themselves	Yes	No
5.	The purpose of the meeting was stated	Yes	No
6.	Evaluation data/information was presented in a parent friendly manner	Yes	No
7.	Definitions and eligibility criteria for the IDEIA categories being considered were explained to the parents, including how the student's evaluation information supported or refuted the eligibility criteria	Yes	No
8.	All of the necessary information for determining eligibility was presented	Yes	No
9.	If requested, Procedural Safeguards document was available for parent	Yes	No
10.	The eligibility determination document was signed by all team members, and a copy was given to the parent	Yes	No
11.	It was explained to the parent that someone from the team would contact the parent to schedule an IEP/LRE meeting	Yes	No

HIGH----------LOW

5. To what extent did you feel the team included the parent in the discussions?

4 3 2 1 0

6. Overall, how would you rate this meeting?

4 3 2 1 0

IEP Meeting Observation Form

Activity	**Components**	**Timetable** (recommended)	**Initial IEP**	**Annual IEP**
Introductions	Introduce all persons including their role or reason for attendance Pass out copies of an agenda to all team members	4 3 2 1 0		
Purpose for the meeting	State the purpose for the meeting Review agenda, tasks to be accomplished, team members who will present information, and time lines	4 3 2 1 0		
Review and closeout the existing IEP, and review progress on annual goals	Review current placement and service time, including ESY if applicable Review current related services required for student to benefit from sped Review current program modifications, supports, or supplementary aids and services in regular education programs Review participation in regular curriculum, extra-curricular and non-academic activities if applicable Review state and district assessment Review each goal from the current IEP Present and/or ask team members to present data on progress toward each goal Indicate, in writing, whether each goal has been mastered or should be continued Provide a copy of summarized data to the parent Obtain all necessary signatures to close out the current/existing IEP	4 3 2 1 0		
Review evaluation results	Standardized school psych evaluation results/data are presented by a School Psychologist or other qualified persons Present curriculum based assessment data	4 3 2 1 0		
Determine goals, benchmarks, and objectives for the new IEP	Utilize existing data and input from team members to write a quantifiable statement of the student's present level of performance Request and consider/discuss proposed goals, benchmarks, and objectives from all team members Determine and document criteria for mastery, method of measurement, and reporting schedules for each goal	4 3 2 1 0		
Review other factors	Initiate discussion to determine related services required for student to benefit from special education Initiate discussion to determine program modifications, supports, or supplementary aids and services in regular education programs Initiate discussion to determine participation in regular curriculum, extra-curricular and non-academic activities if applicable Review state and district assessment requirements Review other factors as applicable	4 3 2 1 0		
Determine placement	Discuss and determine placement options and service time (including ESY if applicable) Complete and review the Prior Notice and Consent for Initial Placement in Special Education form, Prior Notice for Change of Placement in Special Education form, and/or check the Placement Review box on the IEP signature form	4 3 2 1 0		
Review procedural safeguards	Hand the parent a copy of procedural safeguards Review procedural safeguards and answer any related questions	4 3 2 1 0		
Signatures	Obtain signatures on IEP and all other forms as applicable Adjourn the meeting in a timely manner	4 3 2 1 0		

Appendix C

Hypothetical Student Referrals for Special Education Services

Referral for Evaluation for Special Education Services

Date May 24, 2010

Student Francine Jones DOB 7-4-1993 School Fargo H.S.

Address 24 Mississippi Way. Phone 555-1212
Fargo, UT.

Grade Rising 11th Track _____

Primary Language English

Parent(s) Nancy & John

Person Making Referral Parents

Relationship to the Student ☐ Parent ☐ Teacher ☐ Other

☐ District student intervention documentation form is attached and has been reviewed - "Documentation of Response to Interventions"
(May not be applicable for preschool)

For Parent Referral; list all concerns:
Francine received resource room services in elementary school. She did not want to participate after sixth grade, but has struggled ever since. She gets Cs and Ds – some Bs. She wants to go to college and be a nurse. We've convinced her to do this to see if she can get help with the SATs.

Action Taken:

☒ Evaluation recommended. Assigned to: Fargo Team
Send "Prior Notice and Consent for Evaluation."

☐ No evaluation recommended at this time.
Send "Prior Notice of Recommended Action."

C. Brown
LEA or Designee Signature

5-24-10
Date

Cache School District
North Logan, UT 84341

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Written Prior Notice and Consent for Evaluation/Re-Evaluation

Student Francine Jones Date of Birth 7/4/1993
School Fargo High School Grade rising 11th Date 6/16/10

Parent Prior Notice for Evaluation/Re-Evaluation

We are proposing to evaluate/re-evaluate this student to determine if he/she has a disability that may require special education services under the Individuals with Disabilities Act (IDEA). We are proposing this evaluation because of concerns about the student's educational progress. Although there may have been interventions implemented, concerns about progress continue. These concerns form the basis for this decision. You have protection under the Procedural Safeguards, a copy of which is included with this notice. If you have any questions regarding this notice or your Procedural Safeguards, contact the special education teacher at the student's school or the District Special Education Office.

We need your permission to conduct this evaluation. Examples of tests and their purposes are indicated on the back of this form. We may not need to give all of these tests. Without your consent, we will not give any test in areas other than those indicated below:

- [x] Intellectual/Cognitive
- [x] Academic
- [ ] Communication
- [ ] Hearing
- [ ] Motor
- [ ] Adaptive
- [ ] Social/Behavioral
- [ ] Vision
- [ ] Vocational/Transition
- [ ] Assistive Technology
- [ ] Other_____

This evaluation cannot begin until your written permission is received. Upon completion of the evaluation, the results will be discussed with you. You have the right to refuse permission for this evaluation. **Please sign below and return.**

Parental Consent for Evaluation/Re-Evaluation

[x] I **DO** give permission for the evaluation requested and have received the Procedural Safeguards and a copy of this document. I understand that all results will be kept confidential and reviewed with me.

Nancy Jones — Signature of Parent
6/16/2010 — Date

[ ] I **DO NOT** give permission for the evaluation requested and have received the Procedural Safeguards and a copy of this document.

_____ Signature of Parent
_____ Date

A copy of the Procedural Safeguards is included with this notice.

Date form received back from parent_____

Goldenrod copy to file, White copy to parent

Standardized Norm-Referenced Assessment Data from the
Magic Testing Center in the Sky

Student Name: Francine Jones
Grade: 11th

WISC- IV Intelligence Test
*For an overview of the WISC –IV Domains and what they measure, go to: http://harcourtassessment.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8982-800&Mode=resource&Leaf=015-8982-800_2

Full Scale: **101**

- Verbal Comprehension Domain: **89**
- Perceptual Reasoning Domain: **102**
- Working Memory Domain: **100**
- Processing Speed Domain: 86

Woodcock Johnson-III Achievement Test

- Broad Reading: **76**
- Broad Math: **106**
- Written Expression: **99**

Achenbach System of Empirically Based Assessment

Subtest	CBCL
Aggressive Behavior	**50**
Anxious Depressed	**61**
Attention Problems	**67**
Rule Breaking Behavior	**50**
Social Problems	**50**
Somatic Complaints	**52**
Thought Problems	**50**
Withdrawn/Depressed	**52**
Affective Problems	**50**
Anxiety Problems	**60**
Somatic Problems	**52**
Attention Deficit/ Hyperactivity Problems	**65**
Oppositional/Defiant	**50**
Conduct Problems	**50**

Vision and Hearing screening were both within normal range.

Referral for Evaluation for Special Education Services

Date 5-24-2010

Student Bonnie Doon DOB 7-4-2000 School Hope Elementary

Address 24 Shining Light Place Phone 555-1212
Hope, Ut.

Grade Rising 4th Track

Primary Language English

Parent(s) Nancy Jones - Aunt / Legal Guardian

Person Making Referral Ms. Jones

Relationship to the Student ☐ Parent ☐ Teacher ☒ Other Legal Guardian

☐ District student intervention documentation form is attached and has been reviewed - "Documentation of Response to Interventions"
(May not be applicable for preschool)

For Parent Referral; list all concerns:
Bonnie has been with me since October of 2009 when her mother died. She used to do well in school, but last year she continued to fall behind. I requested an evaluation at her previous school, but my request was declined. I moved her to this district and school hoping for a fresh start. She ended her 3rd grade year with failing grades in all subjects.

Action Taken:

☒ Evaluation recommended. Assigned to: Hope Team
Send "Prior Notice and Consent for Evaluation."

☐ No evaluation recommended at this time.
Send "Prior Notice of Recommended Action."

C O Blume 5-24-10
LEA or Designee Signature Date

Cache School District
North Logan, UT 84341

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Written Prior Notice and Consent for Evaluation/Re-Evaluation

Student Bonnie Doone Date of Birth 7-4-2000
School Hope Grade 4th Date 6-24-2010

Parent Prior Notice for Evaluation/Re-Evaluation

We are proposing to evaluate/re-evaluate this student to determine if he/she has a disability that may require special education services under the Individuals with Disabilities Act (IDEA). We are proposing this evaluation because of concerns about the student's educational progress. Although there may have been interventions implemented, concerns about progress continue. These concerns form the basis for this decision. You have protection under the Procedural Safeguards, a copy of which is included with this notice. If you have any questions regarding this notice or your Procedural Safeguards, contact the special education teacher at the student's school or the District Special Education Office.

We need your permission to conduct this evaluation. Examples of tests and their purposes are indicated on the back of this form. We may not need to give all of these tests. Without your consent, we will not give any test in areas other than those indicated below:

- ☑ Intellectual/Cognitive
- ☑ Academic
- ☐ Communication
- ☑ Hearing
- ☐ Motor
- ☑ Adaptive
- ☑ Social/Behavioral
- ☑ Vision
- ☐ Vocational/Transition
- ☐ Assistive Technology
- ☐ Other_____

This evaluation cannot begin until your written permission is received. Upon completion of the evaluation, the results will be discussed with you. You have the right to refuse permission for this evaluation. **Please sign below and return**.

Parental Consent for Evaluation/Re-Evaluation

☒ I **DO** give permission for the evaluation requested and have received the Procedural Safeguards and a copy of this document. I understand that all results will be kept confidential and reviewed with me.

Nancy Jones — Signature of Parent
6-24-2010 — Date

☐ I **DO NOT** give permission for the evaluation requested and have received the Procedural Safeguards and a copy of this document.

_____ Signature of Parent
_____ Date

A copy of the Procedural Safeguards is included with this notice.

Date form received back from parent 6-24-2010

Goldenrod copy to file, White copy to parent

Standardized Norm-Referenced Assessment Data from the
Magic Testing Center in the Sky

Student Name: Bonnie Doon
Grade: Rising 4th

WISC- IV Intelligence Test
*For an overview of the WISC –IV Domains and what they measure, go to http://harcourtassessment.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8982-800&Mode=resource&Leaf=015-8982-800_2

Full Scale: **112**

- Verbal Comprehension Domain: **115**
- Perceptual Reasoning Domain: **112**
- Working Memory Domain: **109**
- Processing Speed Domain: **110**

Woodcock Johnson-III Achievement Test

- Broad Reading: **98**
- Broad Math: **96**
- Written Expression: **100**

Achenbach System of Empirically Based Assessment

Subtest	CBCL	TRF
Aggressive Behavior	**50**	**50**
Anxious Depressed	**99**	**99**
Attention Problems	**75**	**80**
Rule Breaking Behavior	**50**	**50**
Social Problems	**98**	**102**
Somatic Complaints	**90**	**85**
Thought Problems	**70**	**75**
Withdrawn/Depressed	**80**	**90**
Affective Problems	**90**	**90**
Anxiety Problems	**95**	**99**
Somatic Problems	**90**	**85**
Attention Deficit/ Hyperactivity Problems	**75**	**80**
Oppositional/Defiant	**58**	**55**
Conduct Problems	**61**	**67**

Vision and Hearing screening within normal range.

Date May 24, 2010

Student Darius Johnson DOB 7-4-1998 School Sunrise Elem Charter School

Address 1400 Solar Way Phone 555-1212
Sunrise Ut

Grade Rising 5th Track

Primary Language English

Parent(s)

Person Making Referral Nancy Jones- Foster Parent

Relationship to the Student ☐ Parent ☐ Teacher ☐ Other

☐ District student intervention documentation form is attached and has been reviewed - "Documentation of Response to Interventions"
(May not be applicable for preschool)

For Parent Referral; list all concerns:
Darius came to my home in Feb. of 2010. He attended the neighborhood elem. school. He had a very difficult time and I want to try Sunrise because of the small class size. I believe he was in special ed when he lived in Colorado but we do not have school records.

Action Taken:

☒ Evaluation recommended. Assigned to: Sunrise Team
Send "Prior Notice and Consent for Evaluation."

☐ No evaluation recommended at this time.
Send "Prior Notice of Recommended Action."

C. Bell 5-24-10
LEA or Designee Signature Date

Cache School District
North Logan, UT 84341

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Written Prior Notice and Consent for Evaluation/Re-Evaluation

Student Darius Johnson Date of Birth 7-4-1998
School Sunrise Elem Grade 5 Date June 29, 2010

Parent Prior Notice for Evaluation/Re-Evaluation

We are proposing to evaluate/re-evaluate this student to determine if he/she has a disability that may require special education services under the Individuals with Disabilities Act (IDEA). We are proposing this evaluation because of concerns about the student's educational progress. Although there may have been interventions implemented, concerns about progress continue. These concerns form the basis for this decision. You have protection under the Procedural Safeguards, a copy of which is included with this notice. If you have any questions regarding this notice or your Procedural Safeguards, contact the special education teacher at the student's school or the District Special Education Office.

We need your permission to conduct this evaluation. Examples of tests and their purposes are indicated on the back of this form. We may not need to give all of these tests. Without your consent, we will not give any test in areas other than those indicated below:

- ☒ Intellectual/Cognitive
- ☒ Motor
- ☐ Vocational/Transition
- ☒ Academic
- ☒ Adaptive
- ☒ Assistive Technology
- ☒ Communication
- ☒ Social/Behavioral
- ☐ Other_____
- ☒ Hearing
- ☒ Vision

This evaluation cannot begin until your written permission is received. Upon completion of the evaluation, the results will be discussed with you. You have the right to refuse permission for this evaluation. **Please sign below and return**.

Parental Consent for Evaluation/Re-Evaluation

☐ **I DO** give permission for the evaluation requested and have received the Procedural Safeguards and a copy of this document. I understand that all results will be kept confidential and reviewed with me.

X Nancy Jones
Signature of Parent — Date

☐ **I DO NOT** give permission for the evaluation requested and have received the Procedural Safeguards and a copy of this document.

X
Signature of Parent — Date

A copy of the Procedural Safeguards is included with this notice.

Date form received back from parent_____

Goldenrod copy to file, White copy to parent

Standardized Norm-Referenced Assessment Data from the
Magic Testing Center in the Sky

Student Name: Darius Johnson
Grade: Rising 5th

WISC- IV Intelligence Test
*For an overview of the WISC –IV Domains and what they measure, go to:
http://harcourtassessment.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8982-800&Mode=resource&Leaf=015-8982-800_2

Full Scale: **132**

- Verbal Comprehension Index: **133**
- Perceptual Reasoning: **128**
- Working Memory: **130**
- Processing Speed: **129**

Woodcock Johnson-III Achievement Test

- Broad Reading: **111**
- Broad Math: **124**
- Written Expression: **129**

Achenbach System of Empirically Based Assessment

Subtest	CBCL	TRF
Aggressive Behavior	**99**	**101**
Anxious Depressed	**55**	**61**
Attention Problems	**85**	**90**
Rule Breaking Behavior	**95**	**101**
Social Problems	**98**	**102**
Somatic Complaints	**50**	**50**
Thought Problems	**75**	**75**
Withdrawn/Depressed	**50**	**50**
Affective Problems	**90**	**90**
Anxiety Problems	**95**	**99**
Somatic Problems	**50**	**50**
Attention Deficit/ Hyperactivity Problems	**85**	**90**
Oppositional/Defiant	**58**	**55**
Conduct Problems	**52**	**50**

Vision and Hearing screening within normal ranges.

Referral for Evaluation for Special Education Services

Date May 24, 2010

Student Patrick Jones DOB 7-4-1999 School Carson 9th Grade Center

Address 3456 Golden Ave. Phone 555-1212
Pearl, UT

Grade Rising 10th Track _____

Primary Language English

Parent(s) Nancy & Cole

Person Making Referral Nancy Jones

Relationship to the Student ☒ Parent ☐ Teacher ☐ Other

☐ District student intervention documentation form is attached and has been reviewed - "Documentation of Response to Interventions"
(May not be applicable for preschool)

* For Parent Referral; list all concerns:
Pat has been receiving special education since 2nd grade. He isn't scheduled for a re-eval until next year but we would like to have one done now. He's been classified as SLD, but we don't feel that's accurate.

Action Taken:

☒ Evaluation recommended. Assigned to: Carson Team
Send "Prior Notice and Consent for Evaluation."

☐ No evaluation recommended at this time.
Send "Prior Notice of Recommended Action."

[signature] 5-24-10
LEA or Designee Signature Date

Standardized Norm-Referenced Assessment Data from the
Magic Testing Center in the Sky

Student Name: Patrick Jones
Grade: Rising 10th

WISC- IV Intelligence Test
*For an overview of the WISC –IV Domains and what they measure, go to:
http://harcourtassessment.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8982-800&Mode=resource&Leaf=015-8982-800_2

Full Scale: **67**

- Verbal Comprehension Domain: **69**
- Perceptual Reasoning Domain: **66**
- Working Memory Domain: **65**
- Processing Speed Domain: **65**

Woodcock Johnson-III Achievement Test
- Broad Reading: **65**
- Broad Math: **67**
- Written Expression: **64**

Vineland Adaptive Behavior Scales
- Communication Domain: **68**
- Daily Living Skills: **71**
- Socialization: **64**
- Adaptive Behavior Composite: **68**

CURRICULUM VITAE

LEE L. MASON

OSEP Project Coordinator
Department of Special Education & Rehabilitation
Utah State University

Education

August 2011	PhD Curriculum & Instruction Utah State University, Logan, UT Dissertation: A Functional Analysis of Training Teachers to Conduct Individualized Education Programs through Virtual Simulations. Chairs: Dr. James Barta, Dr. Nancy Glomb
August 2004	M.Ed Special Education Stephen F. Austin State University, Nacogdoches, TX
May 2003	B.A. Elementary Education/Humanities Trinity University, San Antonio, TX

Awards

2010 "Emerging Virtual Scholar" award presented by the Applied Research on Virtual Environments for Learning SIG for paper presented at American Educational Research Association Annual Meeting: Denver, CO

2010 Utah State University graduate student senate travel award to present at the 36th Annual Convention of the Association for Behavior Analysis International: San Antonio, TX

2010 Utah State University graduate student senate travel award to present at the American Educational Research Association Annual Meeting: Denver, CO

2009 Utah State University graduate student senate travel award to present at the 35th Annual Convention of the Association for Behavior Analysis International: Phoenix, AZ

Licensure

Texas Classroom Teacher: Special Education (EC-12) #1228377
Board Certified Behavior Analyst #1-07-3606

Employment History

8/11—Present	Assistant Professor of Special Education University of Texas at San Antonio, San Antonio, TX
6/07—8/11	Office of Special Education Programs Project Coordinator Utah State University, Logan, UT
1/11—8/11	Clinical Supervisor Autism Treatment Center, San Antonio, TX
1/11—5/11	Adjunct Special Education Faculty Utah State University, Logan, UT
1/06—7/06	Behavior Analyst Treehouse Pediatric Center, San Antonio, TX
5/05—7/06	Certified Teacher/Education team Leader/Consultant Autism Treatment Center, San Antonio, TX
8/04—5/05	Special Education Teacher Nacogdoches County Co-op, Martinsville, TX

Courses Taught

Policies & Procedures in Special Education
Middle School English Language Arts Praxis Preparation

Practicum: Direct Instruction Reading & Language Arts for Students with Mild/Moderate Disabilities

Practicum: Teaching Mathematics to Students with Mild/Moderate Disabilities
Student Teaching in Special Education

Publications

Mason, L.L. (In Press). An analysis of effect sizes for single-subject research: A statistical comparison of five judgmental aids. *Journal of Precision Teaching and Celeration.*

Blair, P., Mason, L.L., & Glomb, N. (In Press). Virtual World Simulations for Learning Activities. In B. Ludlow & B. Collins, (Eds.) *Online in Real Time: Using Web 2.0 for Distance Education in Rural Special Education.* American Council on Rural Special Education.

Glomb, N., Mason, L.L., & Blair, P. (In Press). Desktop Conferencing: Utah State

University's Solution for Quality Supervision at a Distance. In B. Ludlow & B. Collins, (Eds.) *Online in Real Time: Using Web 2.0 for Distance Education in Rural Special Education.* American Council on Rural Special Education.

Mason, L.L., Jeon, T.K., Blair, P., & Glomb, N. (2011). Virtual tutor training: Learning to teach in a MUVE. *International Journal of Gaming and Computer-Mediated Simulation, 3,* 51-67.

Vasquez, E., Slocum, T., Mason, L.L., O'Keeffe, B., Lopez, A., Straub, C., Powell, S., McKinney, T., Bedesem, P., Walker, Z., & Gonzalez, T. (2011). Empirical research on ethnic minority students: 1995-2009. *Learning Disabilities Research & Practice.*

Glomb, N., Mendenhall, T., Mason, L.L., & Salzberg, C. (2009). Reducing isolation through regional mentors and learning communities: A way to support rural learners. *Rural Special Education Quarterly, 28,* 31-35.

Mason, L.L., Glomb, N., & Sebastian, J. (2008). Special education. In G.A. Goreham (Ed.), *Encyclopedia of rural America: The land and people,* (pp. 295-300). Millerton, NY: Grey House Publishing.

Mason, L.L., & Truett, W. (2005). The legend of sleepy hollow. In B. Hoffer & E. Young (Eds.), *Language acquisition and development* (pp. 247-253). San Antonio, TX: Trinity University Press.

Presentations

Mason, L.L., Blair, P., & Alexander, M. (2011). *Preparing distance students to be highly qualified with praxis prep modules*. Paper presented at the 31st annual conference of the American Council on Rural Special Education: Albuquerque, NM.

Mason, L.L., Glomb, N., Barta, J., & Blair, P. (2011). *Training preservice teachers to develop individualized education programs through simulations in a MUVE*. Paper presented at the 31st annual conference of the American Council on Rural Special Education: Albuquerque, NM.

Blair, P., Mason, L.L., & Glomb, N. (2011). *Collaboration, presence, and transfer in TeacherSim.* Paper presented at the 31st annual conference of the American Council on Rural Special Education: Albuquerque, NM.

Glomb, N., Blair, P., & Mason, L.L. (2010). *IEP Meetings in TeacherSim: A Virtual Collaboration Activity for Distance Learners.* Paper presented at the 33rd annual conference of the Teacher Education Division of the Council for Exceptional Children: Saint Louis, MO.

Mason, L.L. (2010). *Comparing single-subject effect sizes.* Poster presentation at the 36th

Annual Conference of the Association for Behavior Analysis International: San Antonio, TX.

Mason, L.L., Jeon, T.K., Blair, P., & Glomb, N. (2010). *Virtual tutor training: Learning to teach in a MUVE.* Round table discussion at the 2010 American Educational Research Association annual meeting: Denver, CO

Mason, L.L. (2010). *Analyzing single-subject effect sizes.* Paper presented at the 13th annual Intermountain Graduate Research Symposium: Logan, UT

Mason, L.L., Blair, P., & Glomb, N. (2010). *Training preservice special education teachers in a MUVE.* Paper presented at the 30th annual conference of the American Council on Rural Special Education: Memphis, TN.

Glomb, N., Mason, L.L., & Blair, P. (2009). *Reducing isolation through regional learning communities: A way to support rural learners.* Poster session presented at U.S. Office of Special Education Programs Project Directors' Conference: Washington, D.C.

Mason, L.L., Blair, P., & Glomb, N. (2009). *Building effective teaching behaviors in a virtual environment.* Paper presented at the 35th Annual Conference of the Association for Behavior Analysis International: Phoenix, AZ.

Alexander, M., Alexander, H., & Mason, L.L. (2009). *Meeting highly qualified teacher requirements through online training modules.* Paper presented at Council for Exceptional Children Convention & Expo: Seattle, WA.

Mason, L.L. (2009). *Virtual tutor training: Building effective teaching behaviors in Second Life.* Paper presented at the 12th annual Intermountain Graduate Research Symposium: Logan, UT.

Mason, L.L., Blair, P., & Glomb, N. (2009). *IEP meetings in Second Life: Distance education's bridge to the real world.* Paper presented at the 29th annual conference of the American Council for Rural Special Education: Denver, CO.

Mason, L.L., & Glomb, N. (2008). *Convert to hybrid: A website that helps faculty take the plunge.* Paper presented at the Annual Conference of the Teacher Education Division of the Council for Exceptional Children: Dallas, TX.

Mason, L.L. (2008). *A review of literature on preparing culturally responsive special educators.* Poster presented at the Annual Conference of the Teacher Education Division of the Council for Exceptional Children: Dallas, TX.

Mason, L.L., & O'Keeffe, B. (2008). *Increasing and monitoring reading fluency: Strategies and cautions.* Paper presented at the annual Utah Conference on

Effective Practices in Special Education and Rehabilitation: Interventions Across the Lifespan: Logan, UT.

O'Keeffe, B., Mason, L.L., & Slocum, T.A. (2008). *Variability in reading rate assessment: The effects of goal markers and passage differences.* Paper presented at the 34th Annual Conference of the Association for Behavior Analysis International: Chicago, IL.

Mason, L.L., & Horrocks, E. (2008). *Decision making: How to incorporate evidence-based practices about choice-making interventions.* Paper presented at the 34th Annual Conference of the Association for Behavior Analysis International: Chicago, IL.

Glomb, N., Mason, L.L., Jeon, T., Clark, R., & Shelton, B. (2008). *Convert to hybrid: A website that helps faculty take the plunge.* Paper presented at the 28th Annual Conference of the American Council on Rural Special Education: Charleston, WV.

Glomb, N., Mason, L.L., Mindenhal, T., & Salzberg, C. (2008). *Reducing isolation through regions learning communities: A way to support rural learners.* Paper presented at the 28th Annual Conference of the American Council on Rural Special Education: Charleston, WV.

Alexander, M., & Mason, L.L. (2008). *Preparing highly qualified teachers in rural America: The online solution.* Paper presented at the 28th Annual Conference of the American Council on Rural Special Education: Charleston, WV.

Mason, L.L. (2008). *Applying goal markers to decrease variability in reading rate assessment.* Paper presented at the 28th Annual Conference of the American Council on Rural Special Education: Charleston, WV.

Alexander, M., & Mason, L.L. (2007). *Preparing highly qualified teachers in mathematics: The online solution.* Paper presented at the 50th Annual Conference of the Teacher Education Division of the Council for Exceptional Children: Milwaukee, WI.

Mason, L.L. (2007). *Applying goal markers to decrease variability in reading rate assessment.* Paper presented at the 10th Annual Intermountain Graduate Research Symposium: Logan, UT.

Forbush, D., Vasquez, E., & Mason, L.L. (2007). *Assessing tutees reading skills at a distance via a live audio/video Internet based system.* Paper presented at the 27th Annual Conference of the American Council on Rural Special Education: Billings, MT.

Grant Writing

2010 ScienceSim/OpenSim Land Grant. Awarded ¼ region parcel on ScienceSim grid by Intel Labs and Fashion Research Institute for research related to special education teacher training in virtual environments.

2008 Utah ASD Systems Development Project Enhancement to the Leadership Education in Neurodevelopmental and Related Disorders Training Program (T73). Grant Number: T73MC00054. Awarded $300,000 by the U.S. Department of Health and Human Services, Maternal Child Health Bureau.

Service

2011—2014	Board Member (American Council on Rural Special Education)
2010—2014	Webmaster (American Council on Rural Special Education)
2008—2010	TED Professional Development Committee (Council for Exceptional Children)
2007—2009	Proposal reviewer for the Council for Exceptional Children Annual Convention & Expo
2007—2008	Manuscript reviewer for the Journal of Precision Teaching and Celebration
2007—2008	Proposal reviewer for the Annual Conference of the Teacher Education Division of the Council for Exceptional Children

Professional Affiliations

American Council on Rural Special Education
Association for Behavior Analysis International
Association for Contextual Behavioral Science
Association for Direct Instruction
Association of Professional Behavior Analysts
Council for Exceptional Children
Standard Celebration Society