

Training and Supporting General Education Teachers to Promote Inclusive Practices

A Dissertation

Presented in Partial Fulfillment of the Requirements for the

Degree of Doctor of Philosophy

with a

Major in Education

in the

College of Graduate Studies

University of Idaho

by

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May 2019

## Authorization to Submit Dissertation

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## Abstract

Learners with autism spectrum disorder (ASD) and other disabilities should have access to the general education curriculum with their typically developing peers. Common barriers to inclusion can be addressed, in part, through effective in-service training on evidence-based practices (EBP). The purpose of this research was to assess the effects of distance education webinars and video-based performance feedback through Behavior Imaging™ technology on the acquisition of general education teachers' use of two evidence-based practices, behavior-specific praise, and prompting, in rural classrooms. The Behavior Imaging™ technology allowed the general education teachers to self-video record instructional sessions in the classroom through iPads. The resulting videos were uploaded to a secure server where the researcher viewed the taped sequences, tagged examples and non-examples, and wrote corresponding corrective feedback. This was the first known study to use the Behavior Imaging™ technology for teacher preparation in an applied setting. In a multiple element, multiple baseline design across behaviors (praise and prompting) with three general education classroom teachers, results showed that the training webinars had little effect on teacher behavior, but video-based feedback produced increases in the correct use of praise and prompting when associated with a systematic instructional sequence (call for a response, pause, prompt, child response, praise or correct). Negative comments decreased to near zero levels across participants as they increased their correct use of behavior-specific praise and prompting. The participants in the study stated that the technology was easy to use, that their participation was worth their time, it changed their teaching practice, benefited all students, and fostered a more positive classroom environment.

## Acknowledgements

It is with deep gratitude that I want to extend special thanks to Dr. Julie Fodor for her guidance, wisdom, and support in serving as my advisor and chair. I would also like to express thanks to Dr. Gwen Mitchell, Dr. Aleksandra Hollingshead, Dr. Janice Carson, and Dr. Patricia Hampshire for being supportive and serving on my committee. In addition, I would like to thank Carly Hauger and Katrina Thompson for their commitment to reviewing and coding the videos throughout the study. Finally, I would like to thank the participating teachers who graciously agreed to participate to extend research on promoting inclusive practices in general education classrooms.

## Dedication

I would like to dedicate this work to teachers who are life-long learners who strive to create inclusive classrooms to support all learners. I would also like to dedicate this work to friends and family who have inspired me both professionally and personally, especially my husband Trevor Hall and sons Jadon Hall and Ian Hall who have supported and encouraged me throughout this journey.

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## CHAPTER ONE: Introduction

Inclusion in school settings means that learners with disabilities have access to the general education curriculum with their same age peers (IDEIA, 2004). The idea of inclusion is derived from the principles of normalization also known as social role valorization (Renzaglia, Karvonen, Dragsgow, & Stoxen, 2003). Normalization or social role valorization suggests that all persons with intellectual impairments or other disabilities should have everyday living conditions and experiences that are the same as others in their communities (Lemay, 1995). Learners with disabilities including those diagnosed with autism spectrum disorder (ASD) can be academically and socially successful when educated with their same age peers, especially when the right supports and teacher training are provided (Carter, Cushing, Clark, & Kennedy, 2005; Finke, McNaughton, & Drager, 2009).

Given the opportunity to participate in inclusive classrooms, students with ASD and other disabilities experience access to shared learning opportunities, equal expectations, positive peer relationships, and age appropriate curricular content (Agran, Brown, Hughes, Quirk, & Ryndak, 2014). Other benefits of inclusive academic environments include (a) more opportunities for social interactions with peers with and without disabilities, (b) gains in communication, social, and adaptive behavior skills, (c) friendship building, and (d) participation in activities that are age-appropriate and build social competency (McCurdy & Cole, 2014).

The increased prevalence of ASD reported at the rate of 1 in 59 children (Autism Speaks, 2018; CDC, 2018), has resulted in an increased number of children diagnosed with ASD being served in inclusive settings (Crosland & Dunlap, 2014). While the inclusive classroom is increasingly the preferred setting by parents and professionals for students with

ASD (Kasari, Locke, Gulsrud, & Rothram-Fuller, 2011), the progress they make in the classroom is correlated with the quality of educational services provided in the setting (Soukakou, 2012).

### **Attributes of Effective Inclusive Environments**

Inclusive educational environments that are successful have the following attributes: (a) positive attitudes of school personnel toward inclusive education, (b) use of evidence-based instructional practices in the classroom, and (c) a supportive administration (Finke, McNaughton, & Drager, 2009). Conversely, poor attitudes, limited knowledge and use of proven instructional strategies, and lack of administrative support have been identified as common barriers to effective inclusion (Finke, McNaughton, & Drager, 2009; Lindsay, Proulx, Thomson, & Scott, 2013).

Teacher's perceived skills or self-efficacy concerning supporting children with disabilities may contribute to their overall attitudes about inclusion. That is, teachers with higher perceived self-efficacy are more likely to view inclusion with a positive attitude (Soodak, Podell, & Lehman, 1998; Weisel & Dror, 2006). Whereas, teachers with a perceived low self-efficacy tend to be less favorable toward an inclusive classroom (Segall & Campbell, 2012). Lack of self-efficacy about teaching in inclusive classrooms may be related to the lack of adequate teacher preparation. McQuivey, Rennie, Curtis, Hall, Haygeman, and Mitchell (2012), reported that general education teachers indicated that they were not adequately trained to support the implementation of IEP goals of students with ASD. Nor did they have a clear understanding of evidence-based interventions specifically focused on social and behavioral deficits of students with ASD. In another study, Lavay, Guthrie, & Henderson (2014) reported that general education teachers did not feel

adequately trained in the area of behavior management to support learners with ASD or those with other disabilities.

Based on a survey completed by 196 educational professionals on attitudes and knowledge related to effective strategies for students with ASD, Segall and Campbell (2012) reported that general education teachers did not feel that they had the knowledge, skills or experience to adequately teach students with ASD in the general education classroom. In general, the more knowledge, skill, and experience the educator had with students with ASD, the more likely they were to also have a positive attitude toward inclusion which in turn increased their perceived ability to teach students with ASD in the general education setting.

### **Evidence-Based Practices**

Use of effective instructional strategies by both general and special education teachers is vital to the success of students with ASD in the general education classroom. Harrower and Dunlap (2001) outlined interventions that are specifically designed to help students with ASD to be successful. One important evidence-based practice or strategy is reinforcement (Wong et al., 2014). Reinforcement or more specifically, behavior-specific praise is a powerful and effective tool that gives learners specific, positive verbal feedback and indicates approval of social or academic behavior (Villeda, Shuster, Magill, & Carter, 2016). Researchers who focused on the use of praise in the classroom found that general education teacher's use of praise was typically low, while negative comments were more prevalent (Beaman & Wheldall, 2000; Gable et al., 1983; Gorman-Smith, 2003; Shores, Gunter, & Jack, 1993; Wehby et al., 1995). In-service training to increase general education teacher use of behavior-specific praise may result in decreased negative comments and more

successful interactions with students identified with ASD or other disabilities. Increased positive interactions may also help promote teacher confidence (Sharma, Loreman, & Forlin, 2012).

Another set of evidence-based practices is the use of antecedent procedures to proactively prevent or reduce challenging behaviors in the classroom, thus increasing the probability of age and context appropriate behavior. Prompting, priming, and picture scheduling are three primary antecedent procedures (Harrower & Dunlap, 2001). Prompting is a verbal statement, gesture, model, or physical assistance given to learners to assist them in acquiring or engaging in a targeted behavior or skill. Prompting students with learning and behavioral difficulties including those students with ASD increases their chances of success in the general education environment (NPDC, 2015; Wong et al., 2014). For example, to understand specific expectations, students with ASD often require clear and brief prompts by their classroom teacher (McKenney, Stachniak, Albright, Jewell, & Dorencz, 2016). Prompting is used to facilitate correct responding without undue repeated errors and is generally part of a standard instructional sequence (Smith, 2001). The instructional sequence includes: (1) orienting to the student or getting their attention; (2) providing instruction, calling for a response; (3) pausing 3 to 5 seconds; (4) delivery of a prompt if student does not respond; (5) response from the student; (6) correcting the response if necessary; or (7) providing praise/reinforcement. This should occur without additional superfluous conversation between adults in the classroom (Hollo & Wehby, 2017; Smith, 2001).

Both prompting and reinforcement are considered foundational aids that are precursors to the effective implementation of other evidence-based practices (Wong et al.,

2014). These evidence-based practices when implemented correctly are practical strategies that support learners with ASD in the general education classroom (NPDC, 2015).

### **Preparation of Teachers for Inclusion**

To comply with special education law, learners with disabilities must be educated in the least restrictive environment (IDEA, 2004). Often the least restrictive environment is the general education classroom, which suggests the need for teacher training programs to ensure that new preservice teacher college graduates are adequately prepared to include a full continuum of students in their classrooms (Sharma, Loreman, & Forlin, 2012). There is also a growing need for teachers already working in schools to learn effective instructional strategies that benefit a wide spectrum of students they serve in their classrooms (Baker, n.d.; Blanton, Pugach, & Florian, 2014; McQuivey et al., 2012). Specifically, with the increased prevalence of students with ASD and the mandate toward inclusive education for all students, general education teachers must be better prepared to teach students with ASD in the general education setting along with their typically developing peers (Loiacono & Valenti, 2010; Morrier, Hess, & Heflin, 2011).

Face-to-face workshops, conferences, and college courses are common avenues for in-service training. However, cost and location may be a factor for rural districts to participate in these opportunities (Hannum, Irvin, Banks, & Farmer, 2009). Distance education is one form of in-service training that is accessible to teachers in both urban and rural areas. With a supportive online learning community, distance education can be successful in training teachers in various skill sets (Lundberg & Sheridan, 2015).

On-going problems with training forums whether they are in person or through a distance platform is the transfer of knowledge to practice (Gulamhussein, 2013), and a

decrease in the implementation of skills when performance feedback is no longer provided by the instructor (Hawkins & Heflin, 2011). Research demonstrates that feedback is critical to skill development (Akalin & Sucuoglu, 2015; Espasa & Meneses, 2010; Hawkins & Heflin, 2011; Sweigart, Collins, Evanovich & Cook, 2016).

**Performance feedback and distance education.** Espasa and Meneses (2010) describe performance feedback as a key element of online distance education because it promotes the regulation of learning. Akalin and Sucuoglu (2015) examined the effectiveness of daily performance feedback given to teachers following training in classroom management skills. They found that performance feedback positively changed the teachers' classroom management strategies.

Numerous methods are available to provide performance feedback through distance education. Bug in the ear technology, video modeling, and self-instruction are most popular. Albert Bandura's theory is that individuals learn through observation (Bandura, 1977). The concept of observational learning stems from social learning theory. Social learning theory suggests that individuals learn through observation, modeling, imitation, and socialization (Parangimalil, 2014). In-service training methods can be enhanced when observational learning strategies are incorporated into the design of the curriculum. Video modeling and performance feedback allow the learner to watch video models of the skill being implemented in a similar setting and receive feedback based on their own video-based performance. Catania, Almeida, Liu-Constant, and Digennaro-Reed (2009) concluded that video modeling is an effective training technique following a study that demonstrated high-performance levels during the maintenance and generalization probes of the study.



Video modeling can also be an observational tool for participants to observe their own self-recorded behaviors. One study used visual performance feedback (VPF) and video self-monitoring (VSM) intervention to assess the effects on the rate and maintenance of teachers' use of behavior-specific praise (BSP). Findings indicated that in some instances, teachers increased their use of BSP during the intervention (Hawkins & Heflin, 2011). Another study that used self-recorded video feedback found a strong transferability of knowledge to practice (Piwowar, Thiel, & Ophardt, 2013). Collectively, these studies support the idea that self-observation of video recordings accompanied by instructor feedback can enhance skill acquisition.

To provide performance feedback in distance education, instructors need to view the skill being performed. Capturing video clips through smartphone technology is one tool that can be used to view teachers engaging in strategies taught through an online forum. Behavior Imaging™ is a type of video capture technology that can be used as a self-instructional tool as previously suggested. It allows the consumer to have digital documentation available at their fingertips by the use of an iPad or smartphone. Video footage of interactions in the classroom can be used to facilitate observational, analytical, and collaborative needs of behavioral healthcare workers as well as educators in school settings or in the community (Oberleitner et al., 2007). Behavior Imaging™ technology has been used in telemedicine to provide feedback and to support the needs of individuals at a distance, but has limited use in teacher preparation. It has also been used in diagnostics and behavior support for learners with ASD (Oberleitner, Elison-Bowers, Reischl & Ball, 2007; Oberleitner, Abowd, & Suri, 2013). The only known use of this technology in a classroom setting was in a special education classroom where it was used as a functional behavioral

assessment tool for students with ASD and other developmental disabilities (Goff et al., 2015). Currently, there are no previous studies examining the use of Behavior Imaging™ technology as a distance feedback tool to enhance professional development in school-based settings. Benefits to using Behavior Imaging™ technology include low cost, timeliness, adherence to privacy and security laws ensuring confidentiality, and easy access.

The use of readily available technology in distance in-service teacher training to support students with ASD should continue to be evaluated (Alexander et al., 2015). Behavior Imaging™ technology may be an important tool for use with general education teachers practicing evidence-based strategies such as behavior-specific praise and prompting to support children with ASD in the classroom. By using this technology, video footage can be recorded and uploaded to a secure server that is then available to experts, or the instructor who can develop more accurate instruction and performance feedback based on the video selection (Behavior Imaging, 2015). Behavior Imaging™ technology allows the expert to review self-recorded digital footage, and tag areas on the footage where performance is correct and incorrect. The learner then views the footage with the tags and specific feedback added.

### **Statement of Problem and Purpose**

The increasing prevalence of ASD, the benefits of inclusive education, and the lack of general education teachers' knowledge and skill related to the use of evidence-based practices present a challenge for educational settings. Researchers identify attitude, skill, and support as major barriers to effective inclusion (Alkharusi, Kazem, and Al-Musawai, 2011; Hettiarachchi and Das, 2014; Male, 2011; Segall and Campbell, 2012; Urton, Wilbert, & Hennemann, 2014). To create effective inclusive learning environments in general education

settings for students with ASD, teachers must be intentionally and effectively trained in evidenced-based practices (Lavay, Guthrie, and Henderson, 2014; McQuivey et al., 2012). Educators who perceive they have the knowledge and ability to provide inclusive education are reported to be more effective working with students with ASD and other disabilities (Hettiarachchi and Das, 2014; Segall and Campbell, 2012). Training general education teachers to implement specific evidence-based practices, along with video-based feedback and self-observation could foster greater self-efficacy and increase positive attitudes about supporting students with ASD and other developmental disabilities. The use of affordable and readily available technology to support observational feedback at a distance may improve in-service teacher preparation outcomes and consequently teacher self-efficacy.

The purpose of this research was to assess the effects of distance education webinars and video-based performance feedback using smart device technology and Behavior Imaging™ technology on the acquisition of general education teachers' use of praise and prompting in the classroom with students diagnosed with ASD and other disabilities. Attitudes and self-efficacy were assessed to gauge how participants gauged their competence to teach students with ASD and other disabilities in the general education setting. A social validity questionnaire and brief phone interview were used to determine how participants perceived the training experience.

### **Research Questions**

1. To what extent does the distance training package change teachers' knowledge of behavior-specific praise and prompting as measured on pre and posttests?

2. To what extent does a distance training package (i.e., rationale, modeling, examples, and non-examples) change teachers' use of behavior-specific praise, prompting, and negative comments in the general education classroom?
3. To what extent does feedback on video samples (using video capturing technology) impact teachers' use of behavior-specific praise, prompting in the instructional sequence, and negative comments in the general education classroom?
4. To what extent does the webinar training package change teachers' attitudes and self-efficacy about inclusion?
5. To what extent do teacher participants value the content, instruction, feedback, and video capturing technology they received during the course of the study?

## CHAPTER TWO: Literature Review

### Overview

The purpose of this research was to assess the effects of distance education webinars and video-based performance feedback using smart devices and Behavior Imaging™ technology on the acquisition of general education teachers' use of praise and prompting in the classroom with students diagnosed with ASD and other disabilities. Attitudes and self-efficacy were assessed to gauge how participants gauged their competence to teach students with ASD and other disabilities in the general education setting. A social validity questionnaire and brief phone interview were used to determine how participants perceived the training experience.

The following review of literature supports the tenets and significance of the study. The literature review includes information on (a) autism spectrum disorder (ASD), (b) foundational underpinnings of inclusion in school settings, (c) barriers to inclusion and teacher efficacy, (d) evidence-based practices including reinforcement and prompting, (e) in-service training and distance education, (f) performance feedback, and (g) video capture technology. Finally, a summary of concluding remarks is presented to highlight the significance of this study.

### Autism Spectrum Disorder

The Centers for Disease Control and Prevention (CDC) estimates that 1 in 59 children have been identified with autism spectrum disorder (ASD), which is 15 percent higher than the estimated 2014 total of 1 in 68 children (CDC, 2018). Currently, ASD is the fastest growing developmental disorder in the United States (Autism Speaks, 2018; CDC, 2018). ASD is a complex neurodevelopmental disorder that may cause problems with

thinking, feeling, language, and the ability to relate to others (American Psychiatric Association, 2015). In 2013, the diagnostic criteria for ASD changed. According to the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5), the criteria to meet an ASD diagnosis includes (a) persistent deficits in social communication and social interaction across multiple contexts, (b) restricted, repetitive patterns of behavior, interests, or activities, (c) symptoms must be present in the early developmental period, (d) symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning, and (e) these disturbances are not better explained by intellectual disability or global developmental delay (American Psychiatric Association, 2013).

The CDC (2018) describes the spectrum of ASD as a difference in problem-solving, learning, and thinking abilities that can range from severely challenged to gifted. Some individuals with ASD may need significant support in their daily lives, while others require less support. Some people with ASD may repeat certain behaviors and may be resistant to change. Signs of ASD can be present from a very early age, and currently a diagnosis can be evident from 12-15 months old. Associated features of ASD may include the following: does not point or look at objects when directed to do so, has difficulty relating to others or demonstrated little or no interest in other people, avoids eye contact, prefers to be alone, has trouble understanding other's emotions or feelings, appears to be unaware when people are talking to them, repeats words or phrases, has difficulty with imitative or pretend play, adapting to changes in routines, skill or language loss, and may have unusual sensory reactions to smells, tastes, feels, or sounds (CDC, 2018).

## **Theoretical Foundation of Inclusion in School Settings**

In school settings, inclusion means that learners with disabilities have access to the general education curriculum with their same age peers. The concept of inclusion derived from the philosophical underpinnings of normalization described by Bengt Nirje in 1969. Nirje proposed that all persons with, intellectual impairments (the “mentally retarded”) should experience everyday living conditions available to all people in the community (Lemay, 1995; Perrin, 1999). Nirje’s assumption was later expanded to suggest that all people with disabilities had the right to live their lives like everyone else (Perrin, 1999). The concept of normalization was brought to North America in the early 1970s by Wolfensberger in Canada when he used the term normalization in reference to human services (Lemay, 1995). In 1983, Wolfensberger, broadened the concept of normalization to include all marginalized groups and established the theory of Social Role Valorization (SRV). The SRV theory purports that the roles of marginalized groups in society are often devalued by the mainstream. That is, people who hold valued roles, are more likely to experience positive outcomes than people with devalued roles (Cocks, 2001; Lemay, 1995, Osburn, 2006).

Extended to education, the principles of SRV prompted the United Nations Educational, Scientific, and Cultural Organization (UNESCO) to produce the “Salamanca Statement” at the World Conference on Special Needs Education in Salamanca, Spain. The statement reads: “Those with special education needs must have access to regular schools which should accommodate them within a child-centered pedagogy capable of meeting these needs” (UNESCO, The Salamanca Statement, 1994, p. viii). The Salamanca Statement further reads: “Regular schools with this inclusive orientation are the most effective means

of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire education system” (UNESCO, The Salamanca Statement, 1994, p. ix). The statement urged all governments to “Adopt as a matter of law or policy the principle of inclusive education, enrolling all children in regular schools, unless there are compelling reasons for doing otherwise” (UNESCO, The Salamanca Statement, 1994, p. ix).

In the United States, the right to receive an education in the least restrictive environment is a mandate of the Individuals with Disabilities Education Improvement Act (IDEIA, 2004). Stemming from the principles of SRV, a common belief among advocates and researchers is that students with disabilities including those diagnosed with autism spectrum disorder (ASD) can be academically and socially successful in integrated settings, when the right supports and training are provided (Carter, Cushing, Clark, & Kennedy, 2005; Finke, McNaughton, & Drager, 2009).

### **Students with ASD in the General Education Setting**

Enhanced life outcomes are possible for children with ASD who attend school with same age peers in the general education settings. However, students with ASD often remain or are returned to segregated special education settings because of disruptive behaviors that include loud or repetitive talking, off task behaviors, and high levels of inattention (McCurdy and Cole, 2014). One of the obvious problems associated with segregated learning is that students have fewer opportunities to communicate and socialize with their same age peers. Hughes, Cosgriff, Agran, and Washington (2013) found that the degree to which high school students with intellectual disabilities, including those with ASD, were



included in school and community, impacted their overall opportunities to set personal goals, make choices, express preferences, and develop other self-determination skills. When supported in inclusive classrooms, participation can increase access to shared learning opportunities, equal expectations, positive peer relationships, and interesting curricular content (Agran, Brown, Hughes, Quirk, & Ryndak, 2014).

Inclusive schools and classrooms benefit typically developing peers as well as students with ASD and other disabilities (McCurdy and Cole, 2014). In an attempt to increase the interaction of students with ASD with their non-disabled peers, Gardner et al. (2014) implemented a peer network in a high school setting. The results included substantial and sustained increases in peer interactions and social engagement between all students who participated. Both groups of students reported that they enjoyed the peer network experience (Gardner et al., 2014). In another study, Owen-DeSchryver, Carr, Cale, & Blakeley-Smith (2008) reported a substantial increase in peer initiations after training typically developing student to be tutors. One unexpected finding was that the initiations toward the students with ASD increased for both trained and untrained peers during lunchtime and recess activities (Owen-DeSchryver et al., 2008).

Both of the aforementioned studies provide examples of the positive experiences that can result from inclusive educational settings. Other benefits of inclusive settings include more opportunities for social interactions with typically developing peers, gains in communication, social and adaptive behavior skills, friendship building, and participation in activities that are age-appropriate that build social competence skills (McCurdy and Cole, 2014).

## **Barriers to Inclusion**

The benefits of inclusive educational environments for all students is noteworthy, yet common barriers exist that hamper efforts of school personnel to effectively include students with ASD and other disabilities in general education. The most commonly cited barriers to school inclusion are (a) attitudes, (b) lack of knowledge, and (c) lack of support and resources. These barriers are all interrelated. That is, poor attitudes of school personnel is a barrier that is fostered by lack of knowledge about students with disabilities as well as strategies known to improve educational outcomes. Lack of knowledge and skill is associated with lack of self-efficacy or the belief that one has the ability to teach students with specific characteristics, such as those with ASD. Similarly, lack of the right supports and access to resources can also impact attitudes of school personnel (Alkharusi, Kazem & Al-Musawai, 2011; Ernst & Rogers, 2009; Male, 2011; Urton, Wilbert, & Hennemann, 2014).

**Attitudes about inclusion.** Attitudes of district administration, teachers, staff, and parents are important to evaluate when establishing a model of inclusion because poor attitudes tend to produce ineffective results (Male, 2011; Urton, Wilbert, & Hennemann, 2014). For example, Donohue and Bornman (2015) suggested that negative attitudes about inclusion impact learners' academic progress due to the low expectations of their abilities (Donohue & Bornman, 2015).

Attitudes of educators can change following training in specific content that supports inclusive environments (Donohue & Bornman, 2015; Ernst & Rogers, 2009; Male, 2011; Segall & Campbell, 2012). Based on "theory of attitude" espoused by Eagly and Chaikens (1993), Ernst and Rogers (2009) developed a teacher rating to measure high school teachers'

attitudes toward inclusion. Their findings indicated that teachers who engaged in special education coursework and in-service training, and had direct experience teaching in an inclusive environment were more likely to have positive attitudes. Teachers who had support materials and instructional resources also demonstrated positive attitudes (Ernst & Rogers, 2009). Similarly, Donohue & Bornman, (2015) found that providing teachers with sufficient resources within the classroom, and hands-on training experience with children with disabilities influenced their attitudes about inclusion.

**Self-efficacy and attitudes.** Self-efficacy or the perception of having skills and knowledge is correlated with positive attitudes about one's ability to teach in inclusive settings (Segall & Campbell, 2012). Urton, Wilbert, and Hennemann (2014) investigated self-perceived skill and teaching experience on teachers' attitudes about inclusion. They found that the teachers' self-efficacy was the only provable influence on attitudes towards social integration of students with disabilities. That is, the teachers who indicated that they had the skills necessary to support students with disabilities in the classroom were more positive about inclusion. Similarly, Sharma, Loreman, and Forlin (2012) found that teachers who were competent in effective teaching strategies, managing disruptive behaviors, and collaborating regularly with others perceived themselves to be effective in inclusive environments (Sharma et al., 2012).

Teachers who have a perceived lack of knowledge to teach students with ASD is a barrier to inclusion and speaks to the need for increased teacher training (Alkharusi, Kazem, and Al-Musawai, 2011; Hettiarachchi and Das, 2014). Through a survey, McQuivey, Rennie, Curtis, Hall, Haygeman, and Mitchell (2012) found that the general educators in the study sample did not feel adequately prepared in IEP development or evidence-based

practices specifically related to the social and behavioral needs of students with ASD. Similarly, Lavay, Guthrie, and Henderson (2014) reported that teachers did not feel adequately prepared to teach and support children in the area of behavior management.

On a side note, as one would expect, Hettiarachchi and Das (2014) reported that special education teachers indicated higher perceived competence in working with children with disabilities compared to general education teachers. However, Boe (2014) noted that teachers in special education are not always trained to the highest standards and indicated that pre-service training in special education should focus more on quality indicators, which would help supply schools with better support for inclusion in the general education classroom.

**Support and resources for inclusion.** Lack of support for educators is another identified barrier to effective inclusion (Donohue & Bornman, 2015; Ernst & Rogers, 2009). Learners with ASD often exhibit unique social communication and behavior challenges making it difficult for teachers to meet their needs and thus may lead to lower teacher expectations and ultimately limit access of some students to the general education curriculum (Witmer & Ferreri, 2013). When asked what type of resources and supports are needed to support inclusion, teachers reported that assistive devices, computers, instructional materials, increased salaries, no extra activity duties, personal assistants, and extra training were needed (Donohue & Bornman, 2015). The above-mentioned resources are obviously more readily available when school administrators are supportive as well as proponents of inclusion.

Successful inclusive environments are well supported by school administrators, staffed by educators with positive attitudes about the inclusion process, and who use

evidence-based instructional practices in the classroom (Finke, McNaughton, & Drager, 2009; Lindsay, Proulx, Thomson, & Scott, 2013). When these elements are not in place they become barriers to creating effective learning environments for students with ASD as well as other students with disabilities. Overcoming these barriers is pivotal to enacting the conceptual framework of social role valorization in earnest.

### **Evidence-based Practices**

Evidence-based practices (EBPs) are interventions that researchers have shown to be effective through defined scientific processes (Cook & Cook, 2011). The No Child Left Behind Act (NCLB) and Individuals With Disabilities Education Improvement Act (IDEIA) mandate educators to teach using EBPs. These policies are designed to protect the learners with ASD and other disabilities from ineffective practices (Marder & Fraser, 2012). EBPs for students with ASD and other disabilities are primarily used in special education classrooms. For inclusion to be effective, these strategies need to be applied across settings and especially in the general education classroom (Alexander et al., 2015).

To impact student learning, EBP requires attention to fidelity. That is, strategies that are evidence-based require implementation of a set of prescribed procedures. When EBPs are implemented incorrectly, they may not be as effective (Odom, 2008). Educators who have not been trained to use a set of procedures as prescribed may try to adapt the procedures in ways that seem appropriate for their particular setting, yet may not be effective. Thus, if inclusion in the general education classroom is to be effective, teacher training on the use of EBPs across educational settings is imperative (Alexander et al., 2015; Odom et al., 2010).

There are currently 27 identified evidence-based practices recommended when teaching students with ASD. Reinforcement and prompting are the two evidence-based practices conceived as the basic building blocks to establish instructional and behavioral control in the classroom (Camargo, Rispoli, Ganz, Hong, Davis, & Mason, 2016; Wong et al., 2014). Reinforcement is an event, activity or other circumstance occurring after a learner engages in a desired behavior that leads to the increased occurrence of the behavior in the future (Wong et al., 2014). There were 43 single case studies that empirically validated reinforcement as an evidence-based practice. Reinforcement establishes the relationship between the learner's behavior or use of skill and the consequence of the behavior or skill. It is described as only reinforcing if the consequence increases the likelihood that the learner performs that behavior or skill. Reinforcement, is the bases of all learning and when applied correctly, assists individuals with ASD to differentiate appropriate from inappropriate behaviors and also encourages the acquisition of concepts and communication (Camargo et al., 2016; Wong et al., 2014). Reinforcement is used to address social, communication, behavior, joint attention, play, school-readiness, academic, motor, adaptive, and vocational skills (Wong et al., 2014). It is also used to address disruptive and off-task behaviors in classrooms for children with ASD (McCurdy & Cole, 2014).

**Praise.** Behavior-specific praise (BSP) is a type of reinforcement that gives learners specific, positive verbal feedback that indicates approval of social or academic behavior (Villeda, Shuster, Magill, & Carter, 2016). Chalk and Bizo (2004) found that behavior-specific praise was mutually reinforcing for the teacher and student. For example, when students were behaving, teachers tended to praise more often. The more praise the students received, the better they behaved. BSP fosters a social bond between teacher and student and

between students (Brophy, 1981; Hollingshead et al., 2016). Further, the use of BSP encourages desired behaviors for learners with and without disabilities (Allday, Hinkson-Lee, Hudson, Neilsen-Gatti, Kleinke, & Russel, 2012; Chalk & Bizo, 2004; Dweck, 2007; Hollingshead et al., 2016; Madsen, Becker, & Thomas, 1968). Finally, when used correctly, BSP increases on-task behavior while decreasing disruptive behavior and supports learners who struggle socially by increasing their positive self-concept (Chalk & Bizo, 2004; Sutherland, Wehby, & Copeland, 2000).

While research findings demonstrate the benefits of BSP in the classroom, negative statements continue to occur frequently (Beaman & Wheldall, 2000; Gable et al., 1983; Gorman-Smith, 2003; Hollingshead et al., 2016; Shores, Gunter, & Jack, 1993; Wehby et al., 1995). The use of negative, critical, and disparaging comments in the classroom tends to lessen the reinforcing quality of the adult in charge. To create a positive climate in classrooms, educators should be trained to simultaneously increase BSP while at the same time reduce the use of negative comments (Hollingshead et al., 2016; Rathel, Drasgow, Brown, & Marshall, 2014).

**Prompting.** Another foundational evidence-based practice is the use of antecedent procedures to teach concepts, functional communication and to proactively prevent or reduce challenging behaviors in the classroom. Prompting is a focused intervention designed to address a goal or a single skill (Odom et al., 2010; Wong et al., 2014). Wong et al. (2014) defines prompting as verbal, gestural, or physical assistance given to learners to assist them in acquiring or engaging in a targeted behavior or skill. Prompts are usually given by an adult or peer before or as a learner attempts to use a skill. It is a basic skill for promoting success for students with learning difficulties including those students on the autism

spectrum (NPDC, 2015). Prompting as an evidence-based practice was validated through multiple research studies (Wong et al., 2014). It is an evidence-based practice that can be used to address social, communication, behavior, joint attention, play, school-readiness, academic, motor, adaptive, and vocational skills (Wong et al., 2014). In the first study to examine prompting as a stand-alone strategy, Faul, Stepensky, and Simonsen (2012) found a decrease in off-task behavior when the teacher used verbal prompts within the classroom. The researchers concluded that prompting can be simple and an effective strategy to use in a general education setting.

Prompting and BSP are two fundamental evidence-based practices that are the bases of many other evidence-based strategies (Camargo et al., 2016; Wong et al., 2014). As foundational skills, teachers must become proficient in each prior to implementing other evidence-based strategies (Harrower & Dunlap, 2001; Loiacono & Valenti, 2010). Effective in-service training can increase the use of evidence-based strategies that support positive student outcomes, especially for students with ASD and other disabilities.

### **In-service Training and Distance Education**

While there are several ways to provide training with in-service teachers, cost and location may be factors that limit participation for rural school districts (Hannum, Irvin, Banks, & Farmer, 2009). Lundberg and Sheridan (2015) noted that distance education is a viable option for training teachers when a supportive online learning community is present. In one study, Hanline, Hatoum, and Riggie (2012) explored how in-service teachers of learners with severe disabilities recognized the need to make changes to their instruction after receiving distance education training through synchronous online presentations.



On-going problems with training forums, whether they are in person or through a distance platform, is the transfer of knowledge to practice (Gulamhussein, 2013), and a decrease in implementation of skills when performance feedback is no longer being provided by the instructor (Hawkins & Heflin, 2011). Although, feedback is deemed critical to long term skill development (Akalin & Sucuoglu, 2015; Espasa & Meneses, 2010; Hawkins & Heflin, 2011; Sweigart, Collins, Evanovich & Cook, 2016).

### **Performance Feedback and Observation Learning**

Performance feedback is a key element to online distance education because it promotes the regulation of learning (Espasa & Meneses, 2010). Akalin and Sucuoglu (2015) found that performance feedback impacted teachers' use of effective classroom management strategies. Because feedback on performance helps teachers incorporate new skills into their teaching repertoire, it is generally accepted and even promoted by learners (Ley & Cook, 2014). Also, feedback allows learners to evaluate their own learning process when it's received in a timely manner. Artman-Meeker and Hemmeter (2013) demonstrated a functional relationship between teachers receiving performance feedback via email and changes in their prompting, promoting, and reminding students of expected classroom behaviors. However, once email feedback was eliminated the performance gains were not maintained (Artman-Meeker & Hemmeter, 2013). This finding suggests that not all feedback is equal and that other mechanisms and feedback strategies may have longer-term effects (Artman-Meeker & Hemmeter, 2013). One way to foster maintenance effects, may be to combine feedback with observational learning. Albert Bandura (1977) demonstrated that individuals learn readily through observation. This concept is derived from social learning theory which suggests that individuals learn through observation, modeling,

imitation, and socialization (Parangimalil, 2014). Video modeling is one form of observational learning where the learner views a video display of a specific skill and then imitates the response. Catania, Almeida, Liu-Constant, and Digennaro-Reed (2009), used video modeling to teach discrete-trial training with three participants. While only one participant needed additional support to acquire the skills, all three participants demonstrated high performance levels of implementation of discrete-trial instruction during the maintenance and generalization probes.

Self-modeling can also be achieved through video capture. Kong (2010) used self-video observation to promote reflection of teaching performance for student teachers. A self-reflection form was used both before and after viewing videos to determine if there was a change in self-reflection. The student teachers in this study increased their reflective notes by 50% and their reflections were written with more depth after watching the video of their teaching performance. In another study, Piwovar, Thiel, and Ophardt (2013) developed a training program where they evaluated classroom management for secondary school teachers. The training program had three modules. The first module included lecture, video presentation of research-based classroom management strategies, and discussion. Microteaching and role playing were part of the second module where the focus was on reflection and the opportunity for participants to practice strategies. Group analysis of self-videotaped segments was the third module. Participants shared segments of their videos with each other and then collectively generated alternative classroom strategies based on the analysis of each student's video performance. The transfer of knowledge to practice was most evident after module two and module three, which supports the use of self-recorded videos and feedback to enhance skill performance (Piwovar, Thiel, & Ophardt, 2013).

In contrast, Reinke, Lewis-Palmer, and Martin (2007) also used group consultation and visual feedback through graphic displays of performance to evaluate the use of behavior-specific praise (BSP) by classroom teachers. Neither the group consultation nor the visual feedback produced a lasting effect on teacher behavior. Initially, the teachers demonstrated an increase in BSP, however, performance gains decreased over time even with the daily visual performance feedback (Reinke, Lewis-palmer, & Martin (2007). Perhaps the display of graphic results alone did not target specific areas in need of improvement and thus were not maintained. Hawkins and Heflin (2011) extended research on observational feedback to increase use of behavior-specific praise through video self-modeling (VSM) and visual performance feedback (VPF) with secondary teachers working with students with emotional/behavioral disorders. During the study, the interventionist first provided feedback through graphic displays of data collected on the previous self-recorded video session. The participants then viewed an edited VSM segment of their use of behavior-specific praise. Lastly, the participants themselves received verbal behavior-specific praise from the interventionist on the quality and quantity of their performance. While all participants increased their use of behavior-specific praise, only one participant continued to demonstrate behavior-specific praise after the intervention was withdrawn. It was noted that this participant was the only one who requested to watch the VSM videos multiple times and appeared to watch the videos closely. In another study, Digennaro-Reed, Coddling, Catania, and Maguire (2010) used videos of an experienced teacher to model a skill with another adult as the fictitious student and then provided performance feedback based on the participant's self-recorded video. One week following intervention, they found that by adding performance feedback, all participants demonstrated 100% correct

implementation of skills. The results of this study and others aforementioned suggest the need for further investigation on ways to bridge the gap to support teachers' implementation of effective practices in the classroom (Hawkins & Heflin, 2011).

**Performance feedback at a distance.** To provide performance feedback at a distance, instructors need to view the skill being performed. Alexander, Williams, and Nelson (2012) found the use of video as a self-monitoring tool to be effective. The purpose of their study was to investigate the effects of video self-monitoring on individual pre-service self-selected teaching behaviors. They also investigated whether pre-service teachers found the process helpful to improve their teaching. One rationale for the study was to increase the efficiency of supervision with student teachers in rural parts of the state. Findings indicated that video self-monitoring improved the instructional performance of the pre-service teachers in the study. It also gave the pre-service teachers the ability to receive feedback from the supervisor without the supervisor being present. The supervisor was able to watch videos and provide the feedback to support the pre-service teachers in making necessary changes to specific teaching behaviors (Alexander, Williams, & Nelson, 2012).

### **Video Capture Technology**

Video capture, through Behavior Imaging™, is a tool that allows the consumer to have digital documentation available at their fingertips by the use of a smart device. Digital footage of interactions in the classroom can be used to facilitate observational, analytical, and collaborative needs of behavioral healthcare workers as well as educators in school settings or in the community (Oberleitner et al., 2007). Behavior Imaging™ digital capture application has been used as a diagnostic tool to confirm or rule out ASD (Resnik, 2015; Oberleitner, Abowd, & Suri, 2013; Oberleitner, Elison-Bowers, Reischl & Ball, 2007), and

as a functional behavioral assessment tool in schools for students with ASD and other developmental disabilities (Goff et al., 2015). At present however, there are no previous studies examining the use of Behavior Imaging™ technology as a distance feedback tool to enhance professional development in school-based settings.

The likely benefits of using video capture as a feedback tool for teachers includes its efficiency and low cost, the ability to share information in a timely manner, adherence to privacy and security laws to ensure confidentiality, and ease of access to files (Oberleitner et al., 2007). By using smart device which are commonly available, digital footage can be recorded and uploaded to a secure server that is then sent out to an instructor who then can provide feedback based on specific performance criteria (Behavior Imaging, 2015). The Behavior Imaging™ technology allows the expert to review self-recorded video footage, mark areas on the video where performance is correct and incorrect. The learner then views the footage with the markers and specific feedback added.

In-service training through distance mechanisms promotes the application of advanced technologies to support rural, remote, and urban settings. Extending previous research on the use of feedback to increase the efficacy of in-service training especially through distance delivery may also enhance outcomes for students in school settings. Alexander, Ayres, and Smith (2015) recommended that future research should evaluate how technology can play a role in distance education for teachers learning strategies that support students with autism.

### **Significance of the Study**

The basis for this study is founded in the principles of normalization and more recently social role valorization upon which inclusion in school settings rests. Inclusion is

viewed as a human right and should not be denied to any person because of a particular disability. In this study, the focus was on supporting inclusion for students with autism spectrum disorder. The increasing prevalence of ASD supports the need to implement effective inclusive practices to improve outcomes for people with ASD.

Barriers to inclusion are linked to attitudes, lack of skill and knowledge of evidence-based practices, and lack of support or resources in the classroom (Alkharusi, Kazem, and Al-Musawai, 2011; Hettiarachchi and Das, 2014; Male, 2011; Urton, Wilbert, & Hennemann, 2014). Further, specific training opportunities for general educators to learn and practice skill acquisition is limited, especially in rural communities (Lavay, Guthrie, and Henderson, 2014; McQuivey et al., 2012).

Researchers suggest that evidence-based practices (EBPs) are primarily focused on and implemented in special education classrooms when a need also exists in general education classrooms (Alexander et al., 2015). Implementing specific training in evidence-based strategies with general education teachers, while providing feedback and support, could promote more inclusive practices in the classroom to support learners with ASD. Using Behavior Imaging™ digital capture technology may foster timely feedback of skill performance at a distance and increase participation by teachers in rural communities.

Observational learning and specifically self-observation and feedback provided the theoretical framework for the instructional component of this study. Two instructional modules of basic evidence-based practices were created to be viewed at a distance. The modules were provided in prerecorded webinar format that included written vignettes of examples and non-examples of behavior-specific praise and prompting in inclusive settings. Following instructional webinars, general education teachers uploaded digital files of

themselves in the classroom using praise and then prompting. Specific and targeted feedback was then provided by the instructor using Behavior Imaging™ software. This technology is unique in that it is used with smartphone technology, making it affordable and efficient for the user and the distance education provider. A social validity measure and brief phone interview was completed to assess satisfaction with the training and the technology.

Results from this study extend previous research on ways to enhance teachers' use of evidence-based practices in inclusive settings. The research also extends the growing literature base on the use of distance learning to support teacher in-service training and specifically, it added to the literature about ways to efficiently promote inclusive practices in school settings.

## CHAPTER THREE: Methodology

The purpose of this research was to assess the effects of distance education webinars and video-based performance feedback using smart devices and Behavior Imaging™ technology on the acquisition of general education teachers' use of praise and prompting in the classroom with students diagnosed with autism spectrum disorder and other disabilities. Attitudes and self-efficacy were assessed to gauge how participants felt about their competence to teach students with ASD and other disabilities in the general education setting. A social validity questionnaire and brief phone interview were used to determine how participants perceived the training experience.

This chapter summarizes the research methodology used in the study. Included is a description of participants, settings, materials, measures, procedures, and data analysis. Instrumentation and observational protocol were designed based on findings of a pilot study conducted with two teachers. The initial observational protocol was refined to capture correct use of the dependent variables, behavior-specific praise and prompting within an instructional sequence. During the pilot phase, the observation protocol did not capture correct use of behavior-specific praise or the type of prompting used within an instructional sequence. See Appendix A for a summary of the pilot study. This study was approved by the University of Idaho Institutional Review Board.

### **Participants**

**Recruitment.** To recruit participants for this study, the researcher emailed elementary school principals and special education directors in forty-six rural Oregon schools. Follow-up emails were sent to the principals to request permission to recruit in their buildings. Principals from seven schools granted their permission to recruit teachers for the



study. The researcher then emailed every first through fifth grade elementary teacher in those schools with an invitation to participate. To be included in the study each teacher had at least one student diagnosed with ASD and/or another developmental disability in their classroom, and they did not have an endorsement or degree in special education. Four teachers agreed to participate. One of the participants dropped out early in the process and the other three remained throughout all phases of the research. Each participant signed an informed letter of consent and parents of all students in each classroom consented to allow their child to participate during video-taping sessions. Example letters of consent are in Appendix B.

**Participant I.** Participant I was a first-grade teacher in a rural school with ten years teaching experience. Her highest degree obtained was a master's degree. During her teacher preparation program, she reported that she did not earn any special education credits. She also reported that she did not have any special education in-service training hours in the past year. There were seventeen students in her classroom. Of the seventeen students, there were two students with an individualized education program (IEP). One student was diagnosed with ASD, and one student with a developmental disability and a learning disability. The participant was instructed to video record instructional sessions only when students with IEPs were present in the classroom.

**Participant II.** Participant II was a first-grade teacher in a rural school with eleven years teaching experience. She obtained a reading endorsement and a bachelor's degree. During her teacher preparation program, she reported that she received four to six special education credits. She also reported that she did not participate in any special education in-service training hours in the past year. There were twenty students in her classroom, of

those, one student had an individualized education program (IEP), and one student had a 504 plan. One student had a diagnosis of ASD, and another student had a learning disability and a developmental disability. The participant was instructed to video record instructional sessions only when students with IEPs and 504 plans were present in the classroom.

**Participant III.** Participant III was a third-grade teacher in a rural school with four years teaching experience. Her highest degree obtained was a master's degree. During her teacher preparation program, she reported that she received one to three special education credits. She also reported that she had three special education in-service training hours in the past year. There were twenty-two students in her classroom. Of the twenty-two students, there were six students with an individualized education program (IEP) and one student with a 504 plan. One student was diagnosed with autism spectrum disorder, three students with a developmental disability, and three students with a developmental disability and learning disability. The participant was instructed to video record instructional sessions only when the students with IEPs and 504 plans were present in the classroom.

### **Settings**

There were two types of settings used in this study, instructional and performance settings. The instructional settings took place through two separate distance platforms. First, the participating teachers accessed self-paced instructional modules through the University of Idaho Blackboard Collaborate™ site, an online learning platform used to support distance education and interactions. Second, through Behavior Imaging™, a secure video capturing system, teachers uploaded video recordings of their teaching episodes and reviewed instructor feedback associated with the video samples. Each teacher used their individual computers, either in their classrooms or in their homes after school hours to access

instruction and feedback. The performance setting took place in each participating teachers' classroom, where implemented strategies were learned through the webinars (i.e., behavior-specific praise and prompting) and instructional interactions were digitally recorded. Each teacher chose the 20-minute time slot to video record their use of evidence-based strategies. The time of day nor the subject matter was consistent within or across classrooms.

### **Materials**

Three instructional webinar modules were housed on the University of Idaho Blackboard Collaborate™ site. The participants registered for professional development credit to access the webinar modules. Behavior Imaging™ software and a secure server were used to upload and store instructional sessions of the three participating teachers. The researcher also provided feedback through the Behavior Imaging™ platform. The participants used iPads to record their teaching interactions. Trained data collectors and the researcher used a specifically designed observational protocol to score the participants' use of the dependent variables through the video recordings. Questionnaires were used to collect information on participants attitudes toward inclusion, self-efficacy, and to assess social validity.

**Instructional webinar modules.** Three self-contained instructional webinar modules included a rationale or purpose statement, learning objectives, examples and non-examples, opportunity to practice, and a review of content. The content was designed using principles of instruction as outlined in a review of effective instruction literature (Rosenshine, 2012).

The first module focused on the use of the Behavior Imaging™ technology to record and upload videos of teaching interactions in each classroom to the secure server. Examples

and non-examples were not used in this module. The instruction was provided through PowerPoint slides with voice-over by the instructor on how to (a) access the Behavior Connect website, (b) self-record videos of teaching episodes in the classroom through the Behavior Capture Application, and (c) how to access instructor feedback embedded in the uploaded videos. To check for understanding, the instructor modeled and gave the participants an assignment to create a video introduction and upload it using the technology.

The second and third modules were also PowerPoint slides with voice-over instruction. Module two was on the use of reinforcement/praise which included: (a) purpose for the module, (b) objectives, (c) instruction on reinforcement with picture examples of positive and negative reinforcement and verbal scenarios, (d) instruction on praise and behavior-specific praise, (e) rationale for using praise including research evidence, (f) steps to use behavior-specific praise and written vignettes for the participants to identify the steps and correct responses, (g) written and verbal examples and non-examples of behavior-specific praise along with what to avoid, (h) instruction on negative comments with examples and ways to rephrase negative comments to shift to positive comments, (i) helpful tips to remind participants to use behavior-specific praise in the classroom, and (j) review of the content connected to the webinar objectives.

The third module was on the use of prompting in the classroom and included: (a) purpose for the module, (b) objectives, (c) rationale for using prompting, (d) instruction on the types of prompting, including picture examples with verbal scenarios, (e) prompting procedures with examples and non-examples through written vignettes with the opportunity for participants to distinguish between example and non-examples, (f) prompting hierarchies (least-to-most and most-to-least), (g) verbal and written examples of types of prompts used

for practice by participants, and (h) review of the content connected to the webinar objectives.

To assess the content validity of the instructional modules, three experts reviewed each webinar and provided feedback. See Table 3.1 for a summary of expert feedback on instructional design.

Table 3.1

*Summary of Expert Feedback on Content and Instructional Design of Modules*

Expert Credentials	Instructional Design		Changes Made Summary
	Feedback Summary	Content Validity Feedback Summary	
Expert #1-Ph.D. in Special Education	There are some minor syntax changes that need to be made.	The content in the modules looks great. It is important to make sure the content objectives are written in measurable terms. There are some absolute statements that need to be changed. For example, by reinforcing the behavior, the child may do the same behavior next time to achieve the same outcome. It is not guaranteed that the child will do the same, but it may happen.	The instructor made all of the experts recommended changes to the webinar modules prior to recording them.
Expert #2-Ed.D. in Special Education	Using a video model of the instructor using the technology would add to the instructional design. Also, make sure all three module slides match for consistency.		
Expert #3-Ph.D., LBA, BCBA-D			

Based on the feedback, changes were made and the webinar modules were recorded. The webinar modules were not assessed again after the initial feedback was provided by the expert reviewers.

**Blackboard Collaborate™.** The online collaborative platform used for the participants to access the webinar modules was Blackboard Collaborate™ through the University of Idaho. This platform can be used both synchronously or asynchronously. Through this study, the participants were able to view the three webinar instructional modules asynchronously. This platform also has the capability to collect data on the amount of times that the participants viewed the webinar instructional modules.

**Behavior Imaging™ software.** Behavior Imaging™ is a type of video capture that has been used to facilitate observational, analytical, and collaborative needs of behavioral healthcare and special education professionals (Behavior Imaging, 2014). It allows the consumer to have digital documentation available at their fingertips by the use of a smart device. It includes Behavior Connect™ which is a platform to manage data (Oberleitner, Abowd, & Suri, 2013). In this study Behavior Connect™ is used as a place to upload and store videos along with feedback from the instructor. It also includes the Behavior Capture App through a smart device to allow the user to upload videos directly into the user's "My documents" folder. The Behavior Imaging™ software meets both the Family Educational Rights and Privacy Act (FERPA) and Health Insurance Portability and Accountability Act (HIPPA) security requirements (Behavior Imaging, "Security", 2014). In this study, the uploaded digital recordings were tagged and paired with written feedback for the participants to review.

**Smart devices.** The participants used iPads to collect the video recordings of their teaching interactions in the classroom. Each recording was uploaded by participants to the secure server. Two of the participants used iPads that belonged to their respective schools. The researcher loaned an iPad to one of the participants for use in the study. The researcher and two data collectors reviewed the video recordings to assess the dependent variables through the secure server.

## **Measures**

**Dependent Variables.** The primary dependent variables in this study were behavior-specific praise and correct use of prompting in an instructional sequence. Additionally,

negative comments and general praise statements were measured. Each is defined as follows:

*Praise.* A praise statement is a positive comment delivered to an individual or group (a) following a specific behavior or behaviors, or b) a general positive statement. Table 3.2 includes examples of behavior-specific praise and general praise for both the individual and group.

Table 3.2

*Examples of Behavior-specific and General Praise*

Recipient	Behavior-specific Praise	General Praise
Individual	Sam, you completed five questions correctly, congratulations	Susan, so great to have you with us today.
	Ben, thank you for talking quietly.	You are marvelous, Ryan.
	Jenny, your drawing is beautiful. I like the colors you chose.	Well done, Vince!
		Nice one, Cameron.
Group	Nice work cleaning up before lunch everyone.	I am so proud of all of you.
	I like the way you are all reading silently to yourselves.	Great job, class.

*Negative comments.* The use of negative statements connotes a lack of positive qualities or productiveness including sarcasm, or tone of voice including criticism and demeaning remarks directed to an individual or group. Table 3.3 includes examples of specific negative comments and general negative comments for both the individual and group.

Table 1.3

*Examples of Specific and General Negative Statements*

Recipient	Specific Negative Comments	General Negative Comments
Individual	Johnny, you are acting like a kindergartner, not a 5 <sup>th</sup> grader.  Emily, quit throwing a fit.	Jake, you are always daydreaming instead of working.  Megan, it takes forever to get you to finish a task.
Group	It is so loud in here, I thought I was in a zoo.	We have never had everyone on task in class.

*Prompting.* A prompt is a verbal statement, gesture, model, or physical assist given to learners either prior to a specific response following an instruction or after an error has occurred (Wong et al., 2014). Table 3.4 includes examples of types of prompting for an individual.

Table 3.4

*Examples of Types of Prompting*

Recipient	Verbal	Gesture	Model	Physical
Individual	The teacher tells the student to wash their hands.	The teacher points to the water to encourage the student to wash their hands.	The teacher tells the student, "Watch me, and I will show you." The teacher washes her hands.	The teacher may touch the student's elbow to guide the student to turn on the faucet to wash their hands.

**Knowledge Tests and Questionnaires.** To assess knowledge acquisition, attitudes, self-efficacy and satisfaction, additional measures were used. Description of each follows.

*Pre/Post Knowledge test.* There were two pre/post knowledge tests administered on the use of praise and prompting. The knowledge test consisted of 20 true and false questions



designed by the researcher. The test questions were generated from content contained in the instructional webinars. The knowledge test for praise is located in Appendix C and the test for prompting is contained in Appendix D.

To assess the content validity of the knowledge tests, three elementary grade teachers not associated with the study viewed the webinar modules and completed pretests and posttests for each module. One of the teachers taught at a private school for students on the autism spectrum, and the other two teachers taught in public schools. On the praise knowledge test, teacher one had 80% correct responses on the pretest and 90% correct on the posttest. Teacher two had 85% correct responses on the pretest and 100% correct on the posttest. Teacher three had 70% correct responses on the pretest and 100% correct on the posttest. All three teachers demonstrated growth in correct responses after viewing the praise module. Based on interviews with the teachers, it was determined that the test items for the module on reinforcement/praise adequately represented the content and thus no changes were made.

For the knowledge test on the prompting module, teacher one had 74% correct responses on the pretest and 95% correct on the posttest. Teacher two had 50% correct responses on the pretest and 90% correct on the posttest. Teacher three had 60% correct responses on the pretest and 95% correct responses on the posttest. All three teachers demonstrated growth in correct responses after viewing the prompting module. Based on interviews with the teachers, one question on the prompting knowledge test was changed due to lack of clarity.

*Pre/Post Attitude Survey.* The pre/post attitude questionnaire was used in another study designed to measure teacher perceptions about inclusion by teachers in Taiwan (Hsu,

T., 2010). The questionnaire (See Appendix E) contains nineteen Likert scale items (1=Strongly Disagree, 2=Disagree, 3=Neutral 4=Agree, 5=Strongly Agree). The statements were divided into four predetermined categories which included: philosophical orientation (i.e., questions 1, 2), practical application (i.e., questions 3, 4, 9, 10), benefits to students with disabilities (i.e., questions 5, 6, 12, 13, 14, 15, 16, 17), and benefits to students without disabilities (i.e., questions 7, 8, 11, 18, 19). Table 3.5 includes an interpretation of the scores in relation to attitudes by category. The Cronbach Alpha Coefficient of Reliability of internal consistency was reported at .826 Cronbach's Alpha value, and a .831 Cronbach's Alpha based on standardized items (Hsu, T., 2010 p., 46). See Table 3.5 to see the score interpretation.

Table 3.5

*Attitude Survey Score Interpretation*

Category	Attitude		
	<u>Negative</u>	<u>Neutral</u>	<u>Positive</u>
Philosophical Orientation	<6.00	6.00	>6.00
Practical Application	<12.00	12.00	>12.00
Benefits to Students with Disabilities	<24.00	24.00	>24.00
Benefits to Students without Disabilities	<15.00	15.00	>15.00

In the current study, the questionnaire was modified by reversing the wording in the following questions 3, 4, 10, 12, 17, and 19 so that all questions were posed in the positive. The survey was given prior to baseline and then again at the end of the study after all observational data had been collected.

*Pre/Post Teacher Efficacy for Inclusive Practice (TEIP) Scale.* The pre/post TEIP scale was previously used in another study designed to measure teachers' perceived efficacy for inclusive practices (Sharma et al., 2012). The scale consists of eighteen items using a

Likert scale (1=Strongly Disagree, 2=Disagree, 3= Disagree Somewhat, 4=Agree Somewhat, 5=Agree, 6=Strongly Agree) to measure teachers' perceived efficacy for inclusive practices (See Appendix F). A sample size of 607 pre-service teachers from four different countries was used in the scale development of the instrument (Sharma, et al., 2012). The items were divided into three predetermined categories which included: efficacy in using inclusive instruction (i.e., items 5, 6, 10, 14, 15, 18), efficacy in collaboration (i.e., items 3, 4, 9, 12, 13, 16), and efficacy in dealing with disruptive behaviors (i.e., items 1, 2, 7, 8, 11, 17). Reliability was computed using Cronbach's Alpha with coefficients for the three factors of the scale ranging from 0.85-0.93 with 0.89 for the total scale. The findings for this scale indicate that it has strong validity and reliability. Table 3.6 includes an interpretation of the scores in relation to perceived self-efficacy by category. Study participants were given the instrument prior to baseline data collection and again after all observational data was collected.

Table 3.6

*Teacher Efficacy for Inclusive Practice (TEIP) Scale Score Interpretation*

Category	Perceived Efficacy			
	<u>Low</u>	<u>Average</u>	<u>High</u>	<u>Very High</u>
Efficacy in Using Inclusive Instruction	<21.00	21.00	>21.00	≥31.00
Efficacy in Collaboration	<21.00	21.00	>21.00	≥31.00
Efficacy in Dealing with Disruptive Behaviors	<21.00	21.00	>21.00	≥31.00

*Social Validity Questionnaire and Interview.* The social validity questionnaire created by the researcher assessed the participants' opinions on the following five categories: (1) training was worth the time (i.e., items 16, 17, 19, 20), (2) video technology was manageable (i.e., items 1, 2, 3, 4), (3) training was valued to support teacher's professional practice (i.e., items 5, 6, 7, 8, 9), (4) student outcomes (i.e., items 11, 12, 18),

and (5) teacher outcomes and future use (i.e., items 10,13, 14, 15). The questionnaire (See Appendix G) consists of 20 items that include Likert scale response options (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree) and a text box for any additional comments. Following the completion of the questionnaire, participants engaged in a phone interview that included five open-ended questions (See Appendix H).

### **Measurement Procedures**

The participating teachers recorded 20-minute instructional sessions during classroom instruction at times when each teacher deemed it feasible and when students with a diagnosis of ASD and/or other disabilities were present in the classroom. Participant I and Participant III recorded twenty-eight sessions and Participant II recorded thirty-nine sessions. The teachers began collecting instructional sessions following completion of the first module on how to video record instructional sessions with iPads and upload the videos on the Behavior Imaging™ secure server website. Observational data was collected by two trained observers on behavior-specific praise (BSP), prompting within the instructional sequence, general praise, and negative comments by viewing uploaded video samples.

**Praise.** Behavior-specific praise, general praise, and negative comments were measured by tallying the occurrence of each comment made during 20-minute sessions. The frequency of each type of comment was converted to a percent by dividing the number of comments per category by the total number of comments and multiplying by 100 ( $\% = n/\text{total} * 100$ ). The percent of each type of comment was graphed for visual inspection.

**Prompting.** A prompt was recorded as occurring correctly if it was delivered within an instructional sequence as an antecedent prompt. To be recorded as a correct response, the teacher first had to give an instruction to a specific target student (e.g., John, open your book

to page 3). Next, the teacher had to pause for approximately 3 seconds. If the student did not respond, the teacher was to provide a prompt. If the student responded correctly, the teacher was to praise or acknowledge their response. If the student response was incorrect, even after the prompt, the teacher was to provide corrective feedback. For each instructional sequence, the type of prompt used was also noted (V=verbal, G=gestural, M=model, P=physical). Observers and the researcher watched the videos as many times as was necessary for accurate recording.

All prompting in an instructional sequence was analyzed to determine if the prompt occurred in sequence correctly. A percentage was created for correct prompting by adding the number of prompts delivered correctly and dividing by the total prompt sequences used and multiplying by 100. Percent correct prompting in an instructional sequence was recorded on a graphic display. The type of prompts used were also totaled for each session and were converted to a percentage for each category. This measure was used for each video recorded session throughout the study.

### **Pre/Post Knowledge Test**

The pre/post knowledge tests assessed the participant's knowledge of the evidence-based practices of praise and prompting. One of the tests was based on the praise webinar, and the other test was based on the prompting webinar. The praise knowledge test had a total of 20 true and false questions gauging the participant's understanding and knowledge of reinforcement, specifically general praise, behavior-specific praise, and negative comments. The second knowledge test had a total of 20 questions gauging the participant's understanding and knowledge of prompting and the types of prompting. Both measures were

administered prior to intervention phases and then again at the end of the study using Qualtrics online survey software.

### **Experimental Design:**

The experimental design for this study was a Multiple Element, Multiple Baseline Design across Behaviors (praising and prompting) which included: **A-1 Baseline** where teachers were taught through a webinar module to take videos of themselves actively engaged in teaching until they were successfully and consistently uploading usable footage; **B-1**, knowledge pretest on praise; **B-2**, webinar training on praise; **B-3**, video-based feedback on praise; **C-1**, knowledge pretest on prompting; **C-2**, webinar training on prompting; **C-3**, video-based feedback on prompting.

Across all experimental conditions, the participating teachers recorded 20-minute video sessions of active interactions with students either during instruction and/or independent seat work. Each video was then uploaded to the Behavior Imaging™ secure server for tagging and analysis.

**A1-Baseline.** A webinar module produced by the researcher was used to train all participants on the video recording technology. The participants were trained on how to capture 20-minute video sessions of their teaching interactions during the time when target students were in the classroom. No other instruction was provided. Baseline video capture continued until participants were: 1) accurately uploading video samples, and 2) baseline levels for praise were stable. Researcher and data collectors used the observation protocol data recording form (See Appendix I) to collect data for each recorded session. Once a stable baseline was obtained, the participants were moved into **phase B-1** (knowledge testing on praise occurred).

**B1-Intervention.** A knowledge test on praise was administered to the participants. Both praise and prompting occurrences continued to be measured.

**B2-Intervention.** The intervention phase B-2 was the praise module webinar training. Both praise and prompting continued to be measured until praise levels were stable.

**B3-Intervention.** The intervention phase B-3 was the video-based feedback on praise based on the uploaded videos of teaching interactions in the classroom. The instructor tagged different parts of the video session and provided written feedback that went with each tagged video segment. The participants then viewed the video footage of themselves along with the feedback from the instructor within the uploaded video. The instructor emailed each participant with instructions to view the feedback footage and requested each participant to reply to the email once feedback had been reviewed. Both praise and prompting continued to be measured until praise levels were stable. Once praise levels were stable, the instructor discontinued providing feedback on praise.

**C1- Intervention.** A knowledge test on prompting was administered to the participants. Both praise and prompting occurrences continued to be measured until prompting levels were stable.

**C2- Intervention.** The phase C-2 intervention was the prompting module webinar training. Both praise and prompting continued to be measured until prompting levels were stable.

**C3-Intervention.** The intervention phase C-3 was the video-based feedback given by the instructor on prompting. The instructor tagged different parts of the video session and provided written feedback that went with each tagged segment. The participant was able to access the feedback from the instructor within the uploaded video. The instructor emailed

each participant with instructions to view the feedback footage and requested each participant to reply to the email once the feedback had been reviewed. Both praise and prompting continued to be measured until prompting levels were stable. Once prompting levels were stable, the instructor discontinued providing feedback on prompting.

### **Data Analysis**

The results of the study were analyzed to determine (1) if there were any pre/post difference on knowledge tests, attitudes toward inclusion, and self-efficacy; (2) if the instructional modules had an impact on praise or prompting behaviors as previously defined; and (3) if video-based feedback impacted teachers use of praise or prompting. A post assessment of teacher satisfaction was assessed.

**Pre/Post Attitude Survey.** The pre/post attitude on inclusion survey data was collected in Qualtrics. Descriptive statistics on mean difference in attitude between the pre and post survey are presented in the results.

**Pre/Post Teacher Efficacy for Inclusive Practice (TEIP) Scale.** The pre/post Teacher Efficacy for Inclusive Practice (TEIP) Scale data was collected in Qualtrics. Due to the smaller sample size, data was analyzed by determining the mean score for each factor. Factors include efficacy to use inclusive instruction, efficacy in collaboration, and efficacy in dealing with disruptive behavior. The mean score in each factor was compared to determine if there was a change from the pre and post TEIP scale.

**Pre/Post Knowledge Test.** The pre/post knowledge test data for both praise and prompting was collected in Qualtrics. Data was analyzed by calculating the number of



correct responses out of total questions. A visual display was created to see the difference between the pre/post knowledge correct responses for both praise and prompting.

**Observation Protocol Data.** A visual analysis of percentage data through graphic displays was analyzed. During baseline, a minimum of three observation periods across consecutive sessions was evaluated to determine level stability and data trend. Once baseline was stable, intervention began. Stability was reached when 80% of the data points fell within 20% of the median level of data points of the data series. Both the level and trend were analyzed to determine experimental control. The visual analysis was based on the mean level which is the sum of the data-point values divided by the number of data points. Split-middle method was used to identify the trend direction by relying on the middle dates and median ordinate values to estimate the trend across a condition. Trend stability was also determined by 80% of the data points falling within the stability envelope. Data was analyzed to determine if there was a functional relationship between the dependent and independent variables and if there was a behavior change that could be attributed to each separate independent variable.

**Social Validity Questionnaire and Interview.** A social validity questionnaire was administered to elicit feedback from the participants on the value of the content in the trainings, instruction, feedback provided, and the use of Behavior Imaging™ throughout the study. The social validity questionnaire data was collected in Qualtrics. To analyze the questionnaire, a value was assigned to each response (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree). The total responses in each category were calculated to find the mean for the three participants, which was divided by the highest value possible for each category to determine the mean percentage. Each participant was asked five questions

related to their experience in this study during a phone interview. The interviewer transcribed the participants' responses to the questions. Data from the phone interview were summarized and categorized into themes.

**Procedural fidelity of the independent variable.** The procedural fidelity included the amount of time each participant viewed each webinar accessed through Blackboard Collaborate™. It also included the feedback video segments accessed through the Behavior Imaging™ technology which included feedback tags and written comments for the digital footage that was uploaded to the secure server.

**Content validity of the independent variable.** The researcher sent the webinar modules to three content experts to review and rate the validity of the training webinar modules. Prior to implementation of the webinar modules, adjustments were made based on feedback from the content experts (See Table 3.1).

**Inter-observer Agreement.** Two people were trained as observers for this study with a PowerPoint presentation that included the definitions and examples for each of the behaviors. They were specifically trained in observing and identifying the following behaviors in video sessions: (1) general praise, (2) behavior-specific praise, (3) negative comments, (4) prompting in an instructional sequence, and (5) specific types of prompting. Observers practiced recording dependent variables from videos examples collected from the pilot study. The researcher shared verbal examples of what to look for when the behaviors, such as prompting in an instructional sequence, were not present in the video sessions. It took a total of three meetings to review definitions of observed behaviors and view video sessions to meet reliability criteria which was a point-by-point or interval-by-interval method to determine that 80% agreement was achieved.

The researcher checked for inter-observer agreement in every session. When there were discrepancies in data which went below 80% agreement, the researcher had the observers watch the session again and record data until they reached agreement and reliability criteria was met. To ensure the observers were matching the researcher's data collection response, there were additional booster trainings for calibration where video sessions were tagged and watched for agreement. The researcher also created a video training model to identify correct steps of prompting in an instructional sequence. Observers reported that they watched the video model multiple times to ensure they were documenting the data correctly. Throughout each video session, the observers filled out the observation protocol data recording forms and then calculated the totals. Also to help with calibration, the researcher had the data collectors time stamp the prompting in an instructional sequence to easily review the segments if needed. Inter-observer agreement was met at the 80% criteria throughout the study.

## CHAPTER FOUR: Results

The purpose of this research was to assess the effects of distance education webinars and video-based performance feedback using smart devices and Behavior Imaging™ technology on the acquisition of general education teachers' use of praise and prompting in the classroom with students diagnosed with autism spectrum disorder and other disabilities. Attitudes and self-efficacy were assessed to gauge how participants felt about their competence to teach students with ASD and other disabilities in the general education setting. A social validity questionnaire and phone interview were used to determine how participants perceived the training experience.

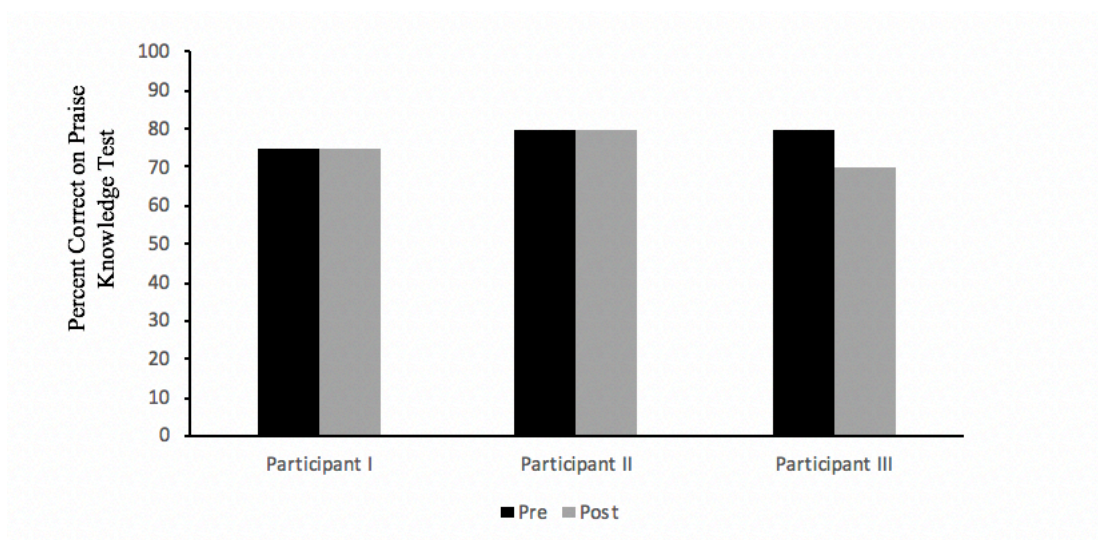
The chapter presents the results of the study as guided by the research questions which are as follows:

1. To what extent does the distance training package change teachers' knowledge of behavior-specific praise and prompting as measured on pre and posttests?
2. To what extent does a distance training package (i.e., rationale, modeling, examples, and non-examples) change teachers' use of behavior-specific praise, prompting, and negative comments in the general education classroom?
3. To what extent does feedback on video samples (using video capturing technology) impact teachers' use of behavior-specific praise, prompting, and negative comments in the general education classroom?
4. To what extent does the webinar training package change teachers' attitudes and self-efficacy about inclusion?
5. To what extent do teacher participants value the content, instruction, feedback,

and video capturing technology they received during the course of the study?

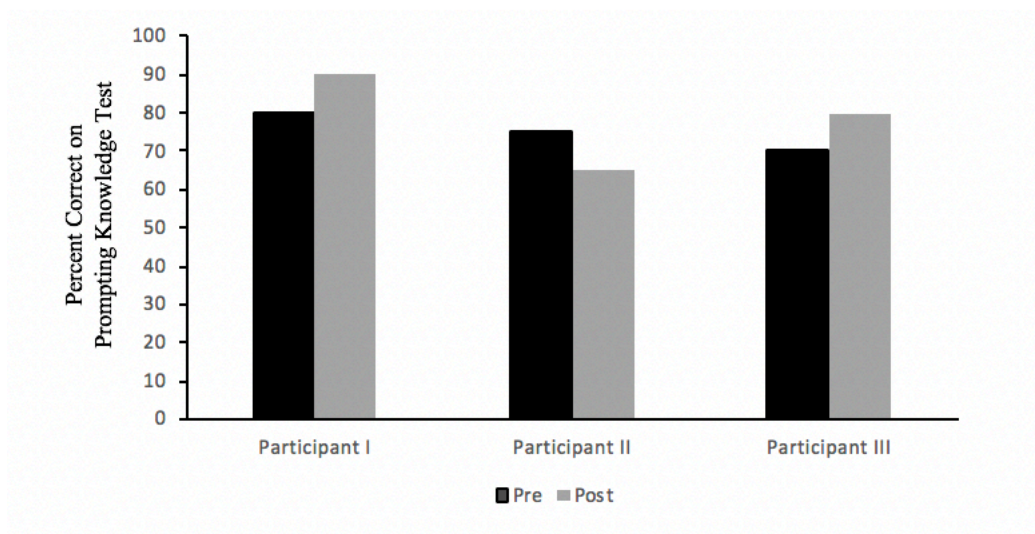
### **Knowledge of Behavior-Specific Praise and Prompting**

To measure knowledge acquisition associated with watching the instructional modules on praise and prompting, the three participating teachers completed a pretest and posttest for each module. Figures 4.1 and 4.2 display percent correct responding on pretest and posttest knowledge exams across participants.



*Figure 4.1.* Results of pretest and posttest knowledge exams on praise across participants.

Participant I answered 75% of the questions correctly on both the pretest and posttest for praise. Participant II answered 80% of the questions correctly on both the pretest and posttest. Participant III answered 80% of questions correctly for the pretest and 70% of the questions correctly on the posttest. There was no change in knowledge for Participant I and Participant II and the score for Participant III decreased by 10% from pretest to posttest.



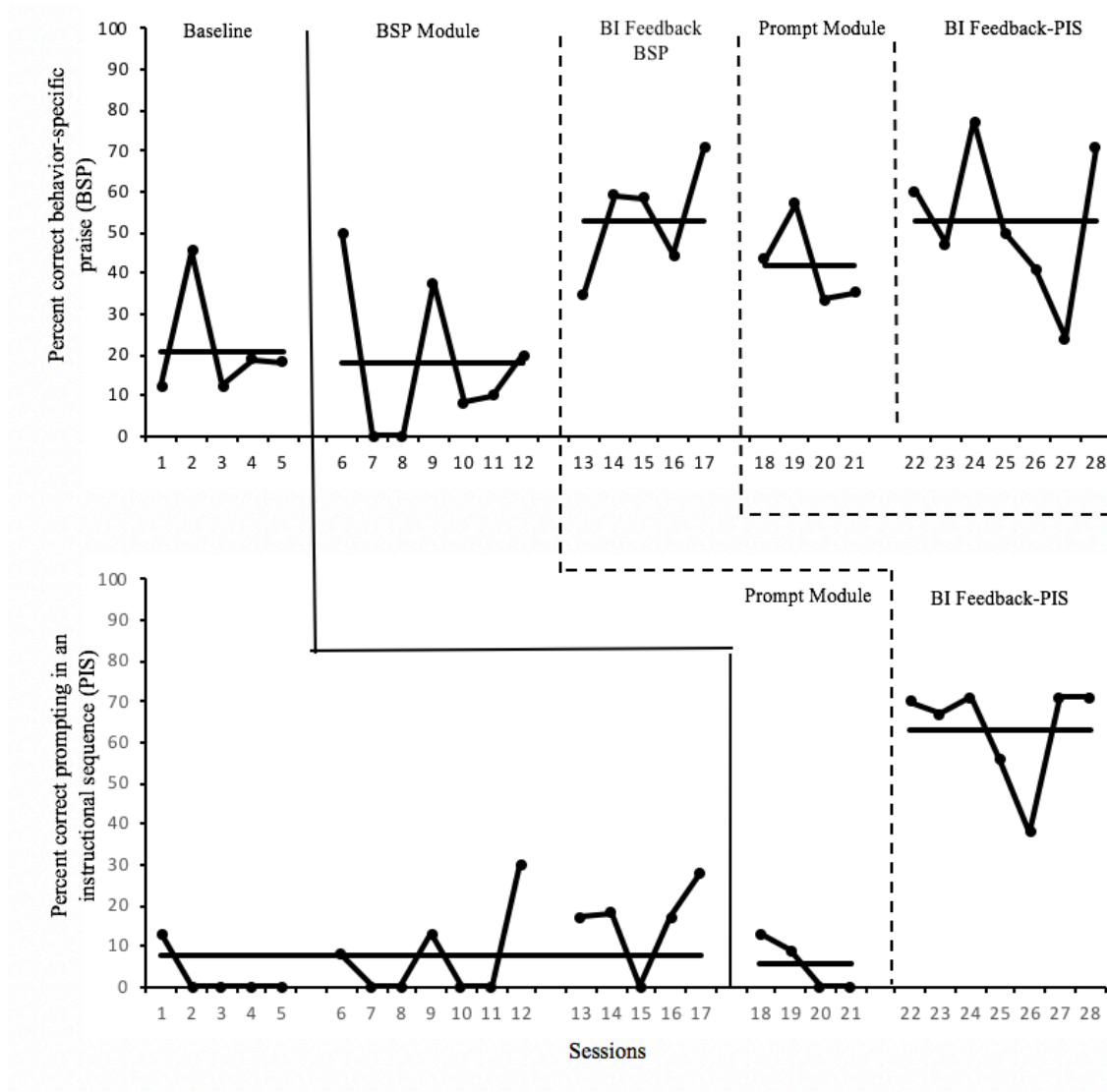
*Figure 4.2.* Results of pretest and posttest knowledge exams on prompting across participants.

On the prompting knowledge pretest, Participant I answered 80% of the questions correctly with 90% correct on the posttest. Participant II answered 75% of the questions correctly on the pretest and 65% on the posttest. Participant III answered 70% of the questions correctly on the pretest and 80% on the posttest. Participants I and III increased their scores by 10% from pretest to posttest. Participant II decreased her score by 10% from pretest to posttest.

### **Teachers Use of Praise and Prompting**

In a multiple baseline design across behaviors (i.e., behavior-specific praise and prompting with an instructional sequence), Figures 4.3, 4.4, and 4.5 display each participating teacher's use of praise and prompting with students in their respective classrooms. The experimental conditions for praise included: 1) baseline, 2) module instruction on praise, 3) video-based feedback on praise, 4) module instruction on prompting with no further feedback on praise, and 5) video-based feedback on prompting with no

further instruction on praise. The experimental conditions for prompting included: 1) baseline, 2) module instruction on prompting, and 3) video-based feedback on prompting within an instructional sequence.



*Figure 4.3.* Participant I correct use of behavior-specific praise and prompting within an instructional sequence across experimental conditions.

**Praise participant I.** During baseline, the correct use of behavior-specific praise (BSP) for Participant I ranged from 13% to 45%. Her mean level of performance was 22%. During module instruction of BSP, the performance ranged from 0% to 50% with a mean of

18%, which was a 4% decrease from baseline. During feedback on BSP, Participant I increased her performance with a mean of 53% and a range of 35% to 71%. Once video-based feedback was discontinued and the prompting module was viewed by Participant I, her use of BSP decreased slightly with a range of 33% to 57% and a mean of 42%. When video-based feedback for prompting in an instructional sequence was implemented, Participant I increased her mean use of praise to 53% with a range of 24% to 77%. Overall, Participant I demonstrated an increase in her use of BSP during video-based feedback on the use of praise, and interestingly, even more so, during video-based feedback on prompting.

**Prompting participant I.** During baseline of prompting in an instructional sequence, Participant I used prompts correctly with a mean of 8% and a range of 0% to 30% over seventeen sessions. Baseline levels were maintained throughout module training and feedback on praise, demonstrating experimental control of prompting as an independent behavior. However, the prompting module, had minimal effect and actually showed a decrease in correct use of prompts with a mean of 6% over four sessions and a range of 0% to 13%. During video-based feedback for prompting, Participant I increased her correct use of prompting to a mean of 63% and a range of 38% to 71% over seven sessions. This was the only substantial increase in correct prompting for Participant I. Because correct use of praise also increased during video-based feedback on prompting, it is likely that an increase in both behaviors was due to the focused attention on the instructional sequence which included feedback on both praise and prompting.



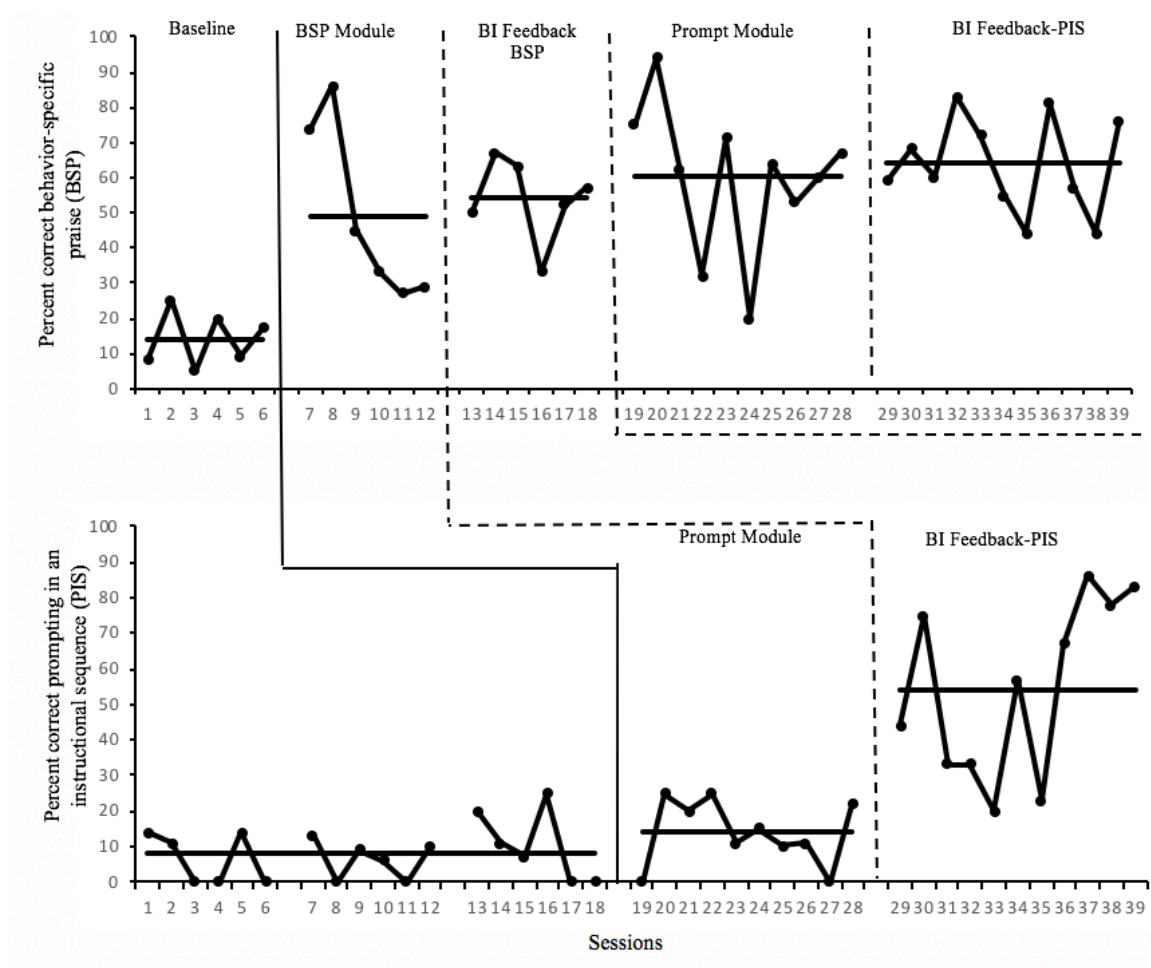


Figure 4.4. Participant II correct use of behavior-specific praise and prompting within an instructional sequence across experimental conditions.

**Praise participant II.** Baseline performance of BSP for Participant II ranged from 5% to 25% with a mean of 14%. After the BSP module, correct use of praise for Participant II ranged from 27% to 86% with a mean of 49%, which is a 35% increase from baseline. Following video-based feedback on BSP, Participant II increased her correct use of BSP with a mean of 54% and a range of 33% to 67%, which is a 40% increase from baseline. Once video-based feedback for BSP was discontinued and the prompting module was viewed by Participant II, her mean level of BSP was 60% with a range of 20% to 94%.

During video-based feedback on prompting, BSP for Participant II was at a mean of 64% and a range of 44% to 83%. Overall, Participant II demonstrated an increase in her use of BSP at each intervention phase with the most sustained performance during the video-based feedback on prompting. Again, this may be due to the inclusion of praise as part of the instructional sequence in which correct use of praise and prompting are embedded.

**Prompting participant II.** Baseline levels of correct prompting for Participant II ranged from 0% to 25% with a mean of 8%. After completing the prompt module, correct use of prompting increased to a mean of 13% and a range of 0% to 25%. During video-based feedback for prompting in an instructional sequence, correct prompting increased to a mean of 54% and a range of 20% to 86% over eleven sessions.

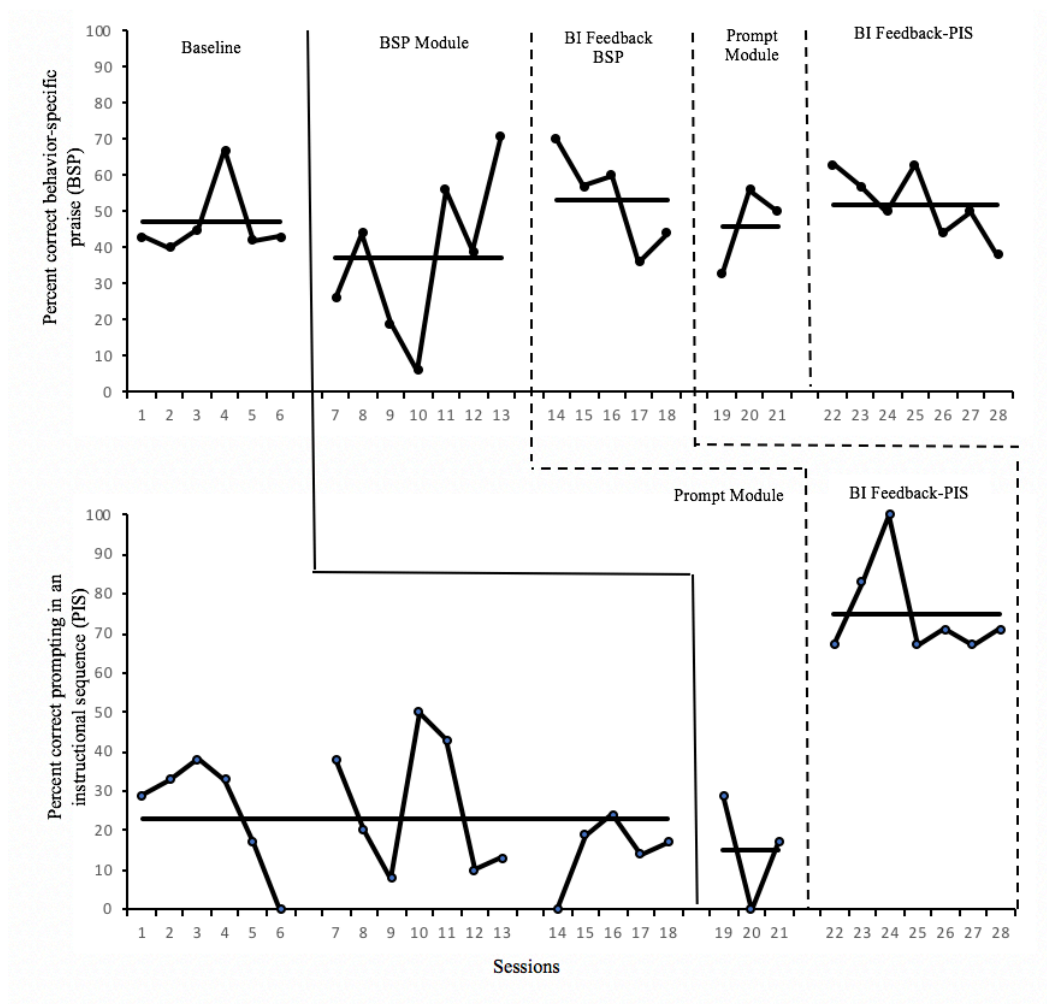


Figure 4.5. Participant III correct use of behavior-specific praise and prompting within an instructional sequence across experimental conditions.

**Praise participant III.** Baseline levels for correct use of BSP for Participant III ranged from 40% to 67% with a mean of 47%. After the BSP training module, Participant III decreased her correct use of praise to a mean of 37% and a range of 6% to 71%, which is a 10% decrease from baseline. Following video-based feedback on BSP, Participant III increased her correct usage of BSP to a mean of 53% with a range of 36% to 70%. Once feedback on praise was discontinued and the prompting module was viewed, Participant III showed a decrease in correct use of praise with a mean of 46% and a range of 33% to 56%.

When video-based feedback for prompting in an instructional sequence was implemented, correct use of BSP by Participant III increased again to a mean 52% with a range of 38% to 63%. The pattern of increased performance for correct use of BSP following video-based feedback on prompting within an instructional sequence was repeated for each of the three participants. The increased performance across participants is likely due to the instructors/researcher's feedback which focused on both prompting and praising within the instructional sequence.

**Prompting participant III.** During baseline, Participant III used prompting correctly with a mean of 23% and a range of 0% to 50% over eighteen sessions. Baseline levels were fairly stable throughout interventions of BSP, demonstrating experimental control and independence of praise and prompting. After completing the module training on prompting, Participant III decreased her performance on the correct use of prompting with a mean of 15% and a range of 0% to 29% over three sessions. This decrease in performance from baseline levels after training modules were introduced occurred with Participant I as well, and to a lesser extent Participant II. During video-based feedback on correct use of prompting in an instructional sequence, Participant III increased her performance to a mean of 75% with a range of 67% to 100% over seven sessions. Again, this finding was reproduced across all participants which indicates that training and feedback on the instructional sequence that includes prompting and praise was more effective than the training modules alone.

### **Participants Use of General Praise**

Figures 4.6, 4.7, and 4.8 demonstrate the participants' use of general praise across the experimental conditions.

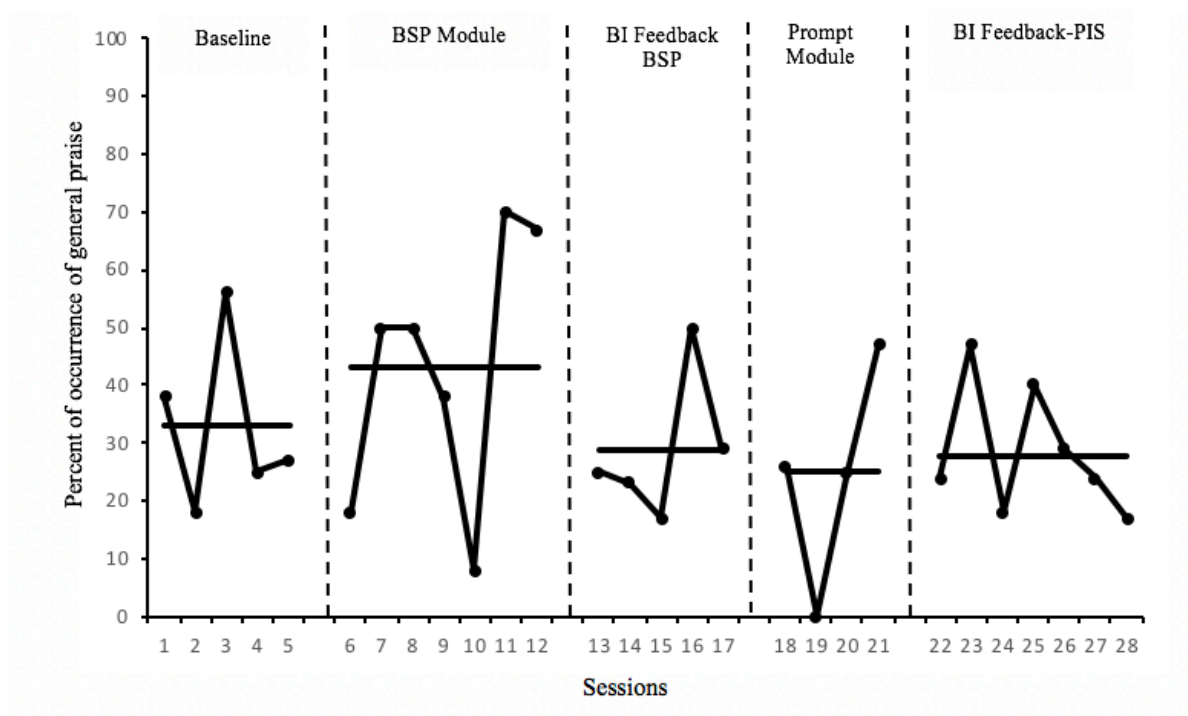


Figure 4.6. Participant I occurrence of general praise across experimental conditions.

**Participant I general praise.** Figure 6 demonstrates the use of general praise by Participant I across experimental conditions. During baseline, Participant I engaged in general praise with a mean of 33% and a range of 18% to 56%. After viewing the module on praise, general praise increased to a mean of 43% with a range of 8% to 70%. Once Participant I received video-based feedback on BSP, her use of general praise decreased to a mean of 29% and a range of 17% to 50%. When the prompting module was viewed, she continued to decrease her use of general praise to a mean of 25% with a range of 0% to 47%. During the final intervention phase, video-based feedback for prompting in an instructional sequence, Participant I was using general praise with a mean of 28% and a range of 17% to 47%. Overall, while there was fluctuation in general praise across conditions, the mean percentages did not appear to change dramatically across conditions.

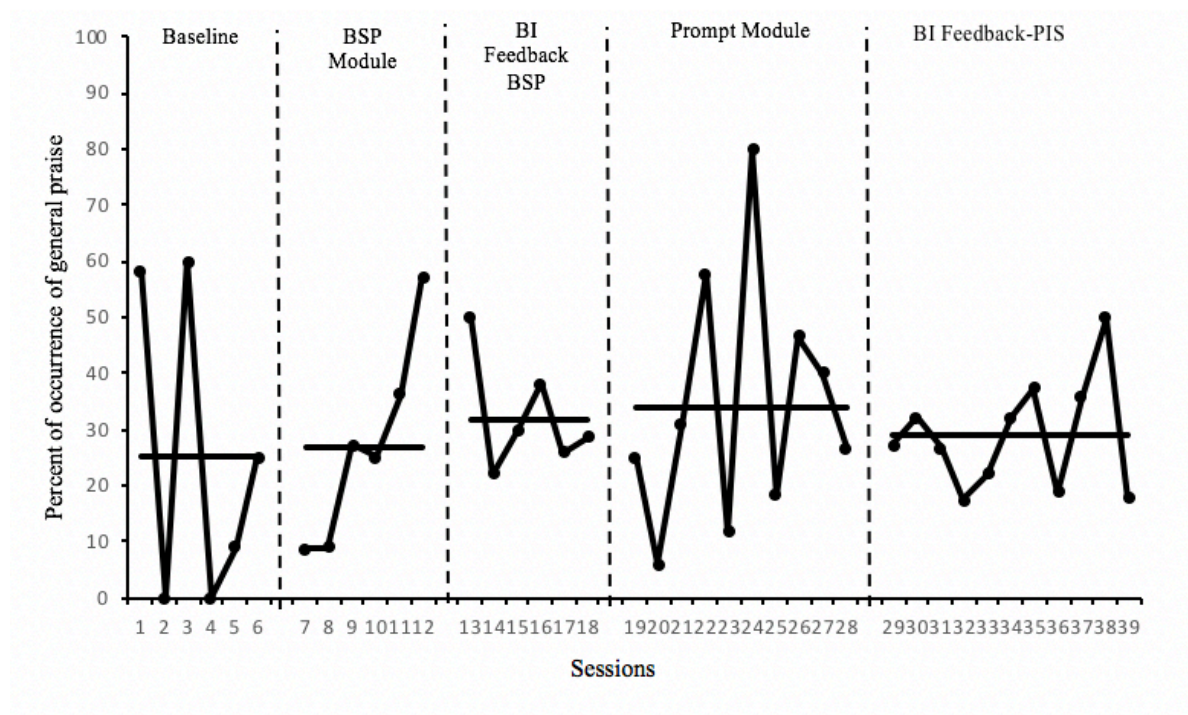


Figure 4.7. Participant II occurrence of general praise across experimental conditions.

**Participant II general praise.** Figure 7 demonstrates the use of general praise across experimental conditions for Participant II. During baseline, Participant II used general praise at a mean of 25% and a range of 0% to 60%. After viewing the module on praise, her use of general praise increased very slightly to a mean of 27% and a range of 9% to 57%. Once Participant II received video-based feedback for BSP, her use of general praise increased to a mean of 32% and a range of 22% to 50%. When the prompting module was viewed, Participant II continued to increase her use of general praise with a mean of 34% and a range of 6% to 80%. During the final intervention phase, video-based feedback on prompting in an instructional sequence, Participant II used general praise with a mean of 29% and a range of 17% to 50%. Overall, her mean use of general praise was similar across conditions and while the range fluctuated from 0% use to 80%, the pattern was relatively

stable and did not appear to be impacted by training or video-based feedback in praise or prompting.

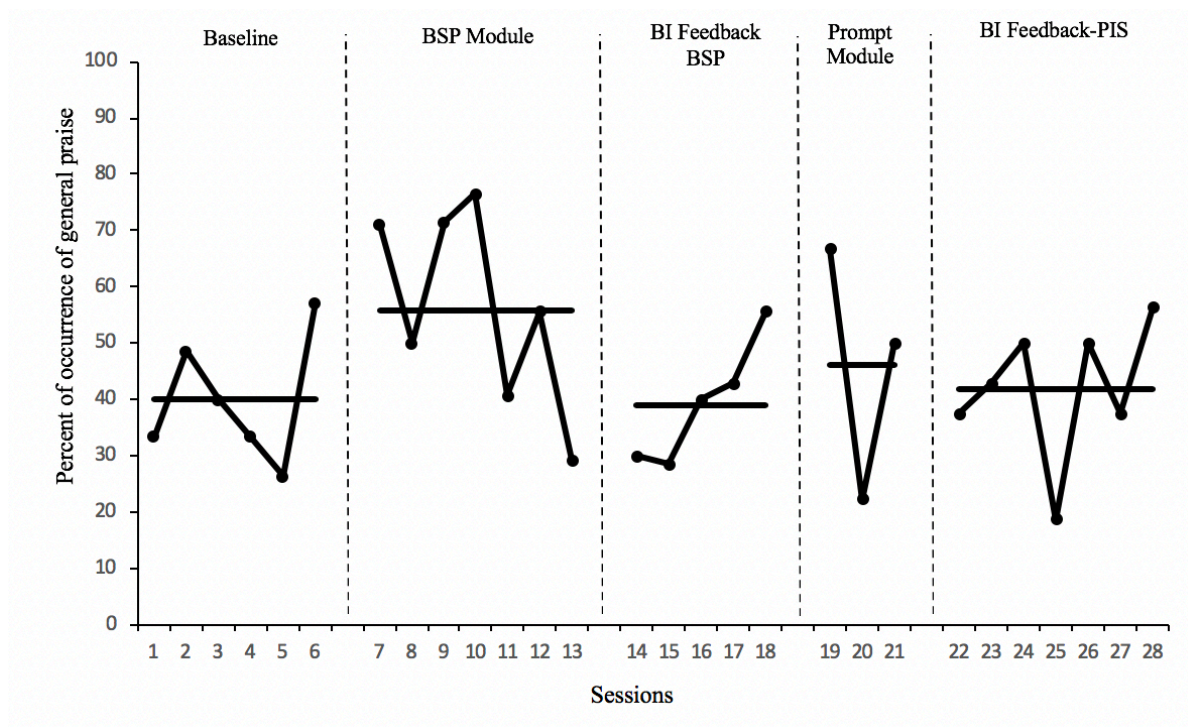


Figure 4.8. Participant III occurrence of general praise across experimental conditions.

**Participant III general praise.** Figure 8 demonstrates the use of general praise across experimental conditions for Participant III. During baseline, Participant III used general praise with a mean of 40% and a range of 26% to 57%. After viewing the module on praise, her usage of general praise increased to a mean of 56% and a range of 29% to 76%. Once Participant III received video-based feedback for BSP, her mean use of general praise decreased to 39% with a range of 29% to 56%. When the prompting module was viewed, Participant III increased her use of general praise to a mean of 46% with a range of 22% to 67%. During the final intervention phase, video-based feedback for prompting in an instructional sequence, her mean use of general praise was 42% with a range of 19% to



56%. For Participant III, her use of general praise increased the most during the instructional module on BSP. However, similarly to the other two participants, her overall mean scores did not fluctuate much across conditions. It appears that general praise was not impacted by training or video-based feedback on BSP or prompting.

### Participants Use of Negative Comments

Figures 4.9, 4.10, and 4.11 demonstrate the participants' use of negative comments across experimental conditions.

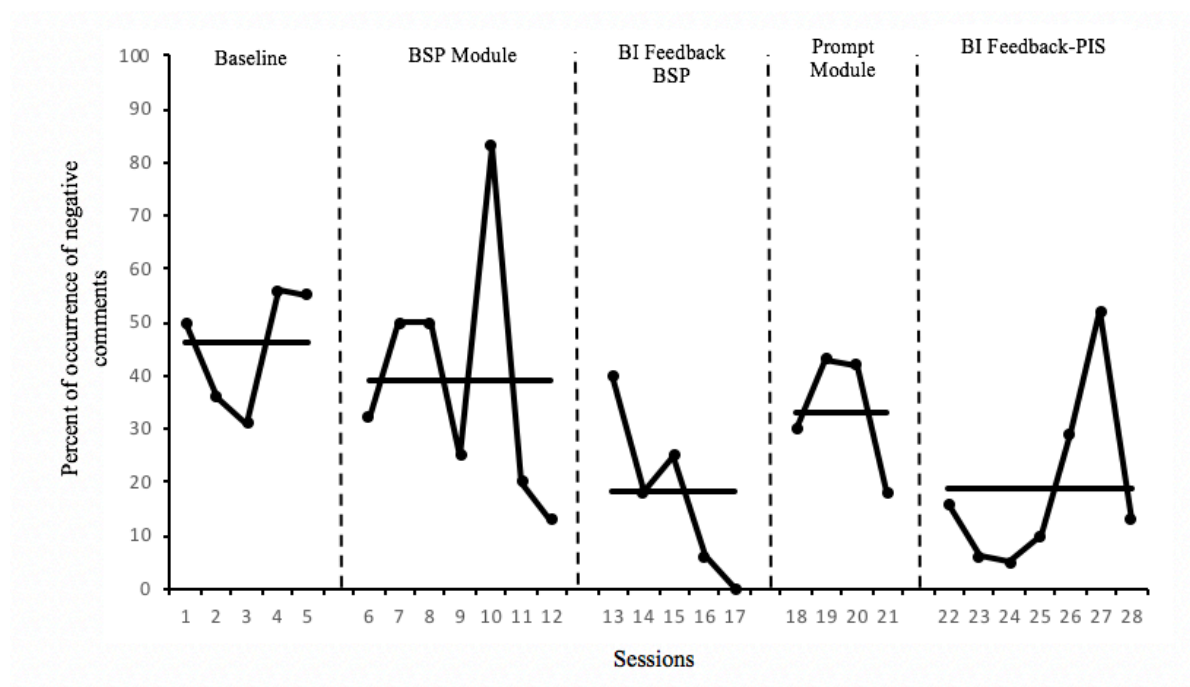


Figure 4.9. Participant I occurrence of negative comments across experimental conditions.

**Participant I negative comments.** Negative comments were measured across all experimental conditions of the study. Figure 9 demonstrates the use of negative comments by Participant I. During baseline, Participant I used negative comments with a mean of 46% and a range of 31% to 56%. After viewing the module on praise, her usage of negative comments decreased to a mean of 39% and a range of 13% to 83%. Once Participant I



received video-based feedback on BSP, her use of negative comments decreased to a mean of 18% with a range of 0% to 40%. After viewing the module on prompting, her mean use of negative comments increased to 33% with a range of 18% to 43%. During the final intervention, video-based feedback on prompting in an instructional sequence, Participant I decreased her overall usage of negative comments to a mean of 19% with a range of 5% to 52%, which is a 27% decrease.

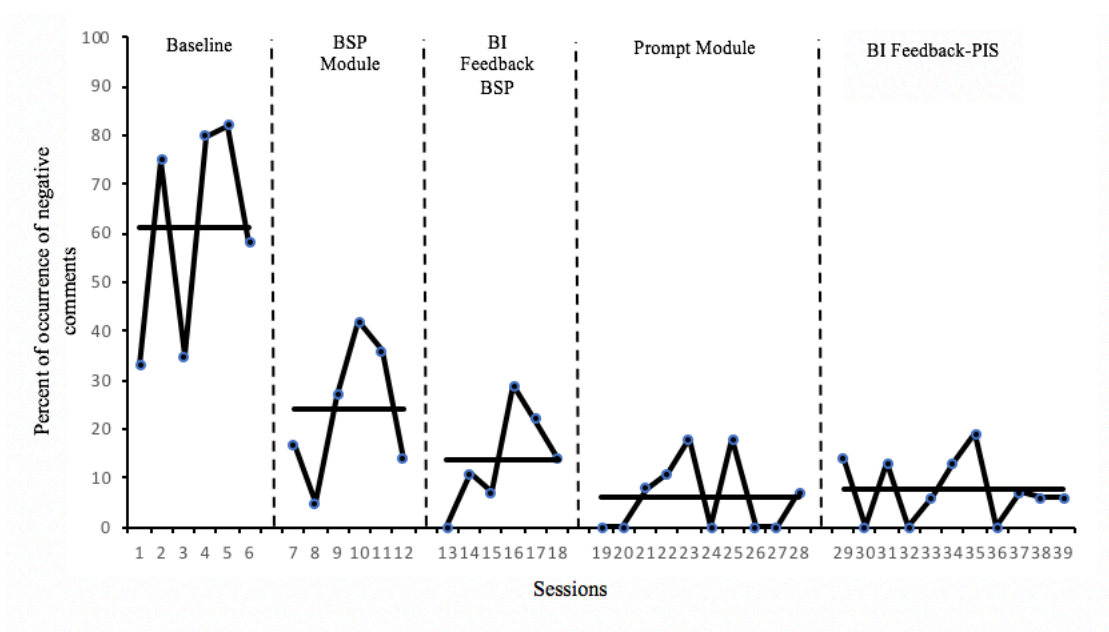


Figure 4.10. Participant II occurrence of negative comments across experimental conditions.

**Participant II negative comments.** Figure 10 demonstrates the use of negative comments by Participant II across experimental conditions. During baseline, she used negative comments with a mean of 61% and a range of 33% to 82%. After viewing the module on praise, her use of negative comments decreased 37% to a mean of 24% and a range of 5% to 42%. Once Participant II received video-based feedback for BSP, her use of

negative comments decreased to a mean of 14% and a range of 0% to 29%. After viewing the module on prompting, her mean use of negative comments decreased to 6% with a range of 0% to 18%. During the final intervention phase, video-based feedback for prompting in an instructional sequence, Participant II used negative comments with a mean of 7% and a range of 0% to 19%, which is a 54% decrease.

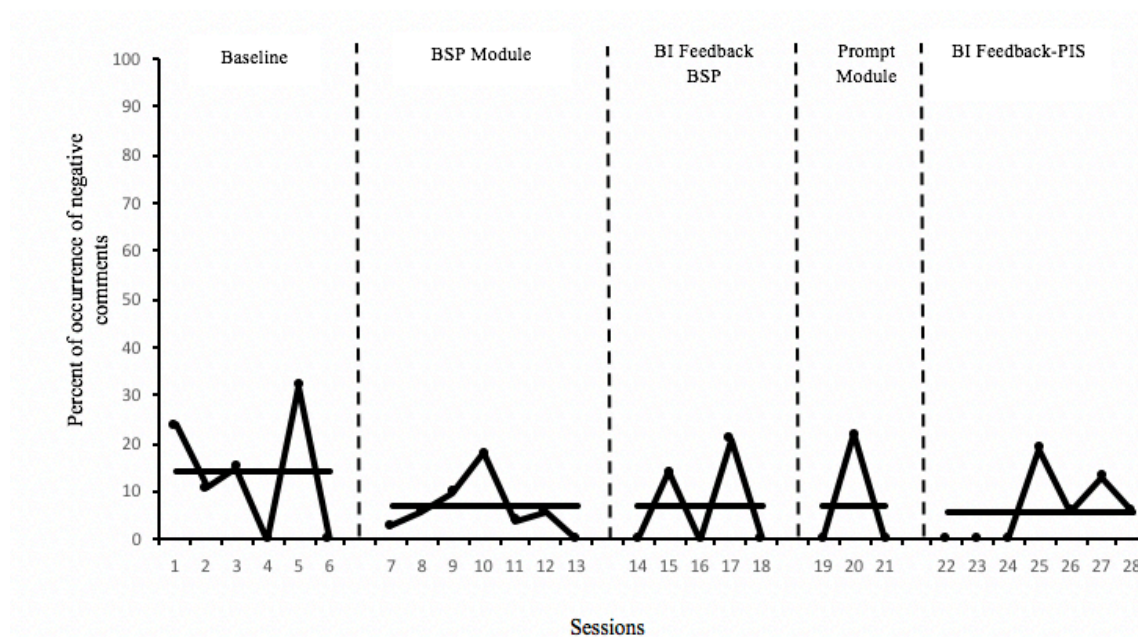


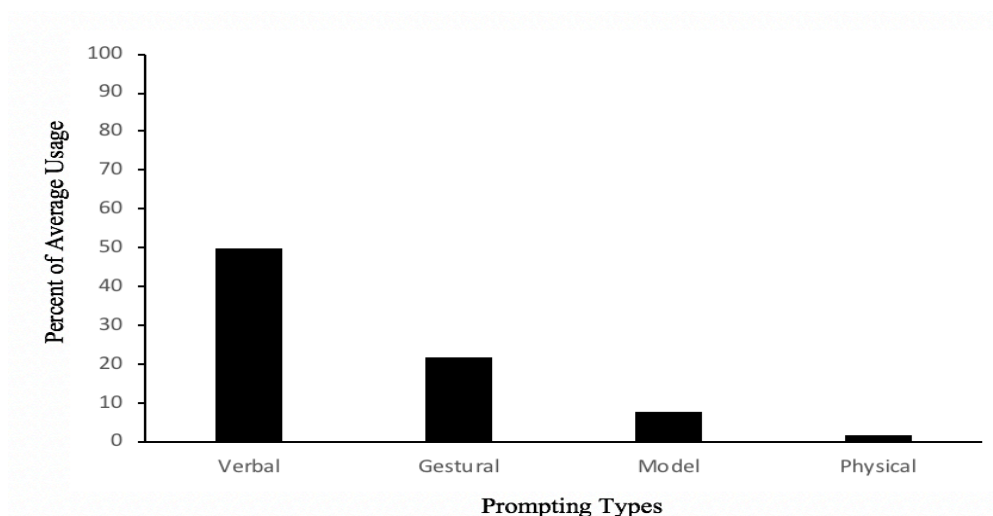
Figure 4.11. Participant III occurrence of negative comments across experimental conditions.

**Participant III negative comments.** Figure 11 demonstrates the use of negative comments by Participant III across experimental conditions. During baseline, she used negative comments with a mean of 14% and a range of 0% to 32%. After viewing the module on praise, her usage of negative comments decreased to a mean of 7% and a range of 0% to 18%. During video-based feedback on BSP, Participant III maintained a mean of 7% use of negative comments and a range of 0% to 22%. After viewing the module on prompting, Participant III maintained the same mean of 7%. During the final intervention

phase, video-based feedback on prompting in an instructional sequence, Participant III used negative comments with a mean of 6% and a range of 0% to 19%, which is an 8% decrease.

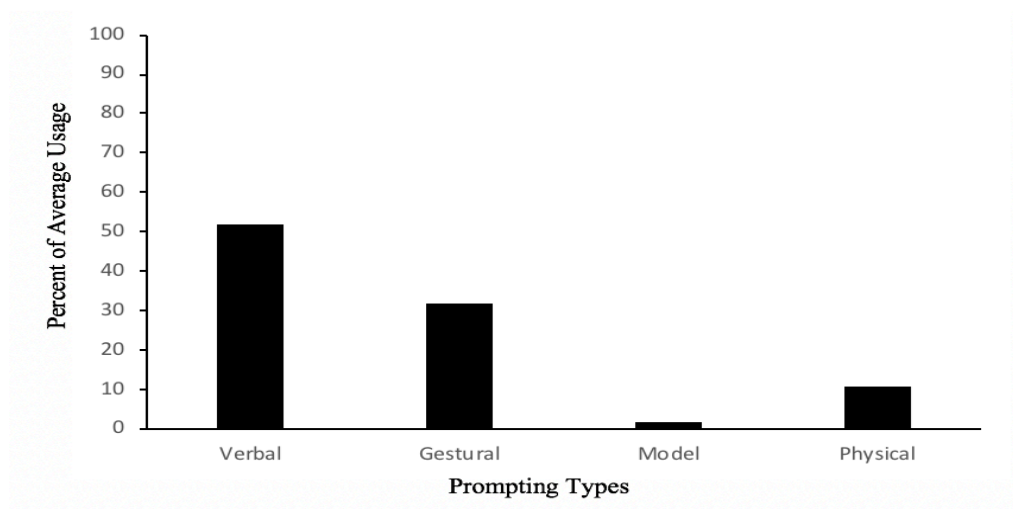
### Participants Use of Prompting Types

Participants were evaluated on the correct use of prompting in an instructional sequence and the types of prompts that were used throughout each session. Figures 4.12, 4.13, and 4.14 demonstrate the types of prompting the participants used in each of the sessions.



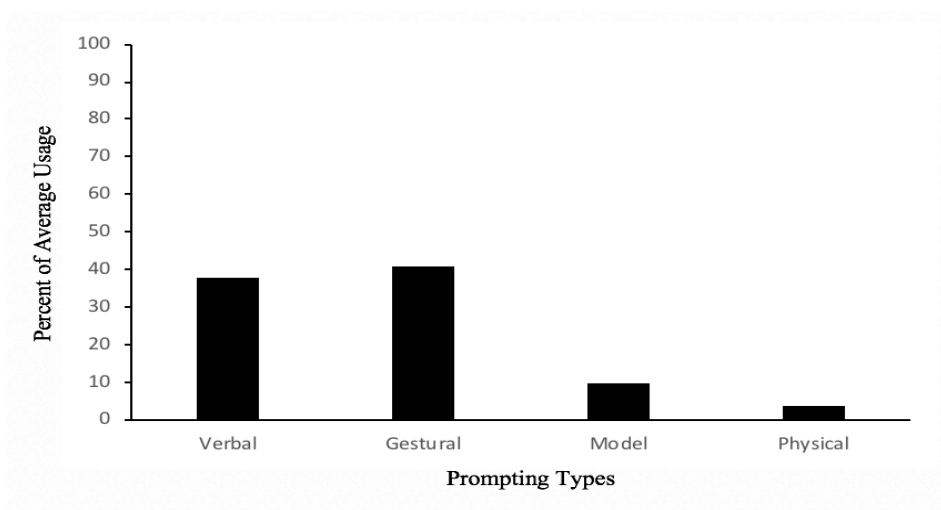
*Figure 4.12.* Participant I-Average use of prompting types.

On Figure 4.12, Participant I used verbal prompting 50% of the time across sessions. She used gestural prompting an average of 22% across sessions, and model prompting an average of 8% across sessions. Physical prompting was used on an average of 2% across sessions.



*Figure 4.13.* Participant II-Average use of prompting types.

As shown in Figure 4.13, Participant II used verbal prompting 52% of the time. She used gestural prompting an average of 32% across sessions, and model prompting an average of 2% across sessions. Physical prompting was used on an average of 11% across sessions.



*Figure 4.14.* Participant III-Average use of prompting types.

As shown in Figure 4.14, Participant III used gestural prompting 41% of the time. She used verbal prompting an average of 38% across sessions, and model prompting an

average of 10% across sessions. Physical prompting was used on an average of 4% across sessions.

All three participants in this study demonstrated similar use patterns of prompting strategies. Verbal prompting was used the most. Gestural prompting was the next most commonly used prompt but at much reduced frequency than verbal prompting. Modeling and physical prompting were used the least across participants.

### **Pre/Post Attitude Survey**

The attitude questionnaire included 19 statements that were rated by the participants based on a 1-5 Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=Strongly agree). Each statement was categorized into four predetermined subsections that included: philosophical orientation (i.e., questions 1, 2), practical application (i.e., questions 3, 4, 9, 10), benefits to students with disabilities (i.e., questions 5, 6, 12, 13, 14, 15, 16, 17), and benefits to students without disabilities (I.e., questions 7, 8, 11, 18, 19). See Table 4.1 for the mean results on the attitude questionnaire.

Table 4.1

*Attitude Survey Results by Participant and Category*

<u>Category</u>	Participant I		Participant II		Participant III		Total Mean Scores	
	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
Philosophical Orientation	6	7	7	7	10	9	7.67	7.67
Practical Application	13	14	12	11	13	12	12.67	12.33
Benefits to Students with Disabilities	26	26	24	23	22	25	24	24.67
Benefits to Students without Disabilities	18	20	17	11	18	24	17.67	18.33

*Note.* The scores represented are for the participants individually and the total mean scores.

Based on the attitude questionnaire used in this study, there was very little difference between the pretest and posttest on teachers' attitudes toward inclusion of students with disabilities in the classroom. In general, across all participants, attitudes fell between somewhat neutral to slightly positive across categories. It appears that participating in the study did not change the participants' attitudes toward inclusion of students with disabilities in the general education classroom.

### **Pre/Post Teacher Efficacy for Inclusive Practice (TEIP) Scale**

The Teacher Efficacy for Inclusive Practice (TEIP) Scale results were analyzed by determining the mean score for the pretest and posttest for the three participants for three different factors. The mean scores are broken up into three factors including measured efficacy to use inclusive instruction in the classroom, measured efficacy in collaboration, and measured efficacy in dealing with disruptive behaviors. Table 4.2 includes the results.

Table 4.2

*Teacher Efficacy for Inclusive Practice (TEIP) Scale Results by Participant and Category*

<u>Category</u>	<u>Participant I</u>		<u>Participant II</u>		<u>Participant III</u>		<u>Total Mean Scores</u>	
	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
Efficacy to Use Inclusive Instruction	32	32	27	31	29	28	29.33	30.33
Efficacy in Collaboration	26	32	29	29	33	30	29.33	30.33
Efficacy in Dealing with Disruptive Behaviors	30	33	28	28	30	29	29.33	30.00

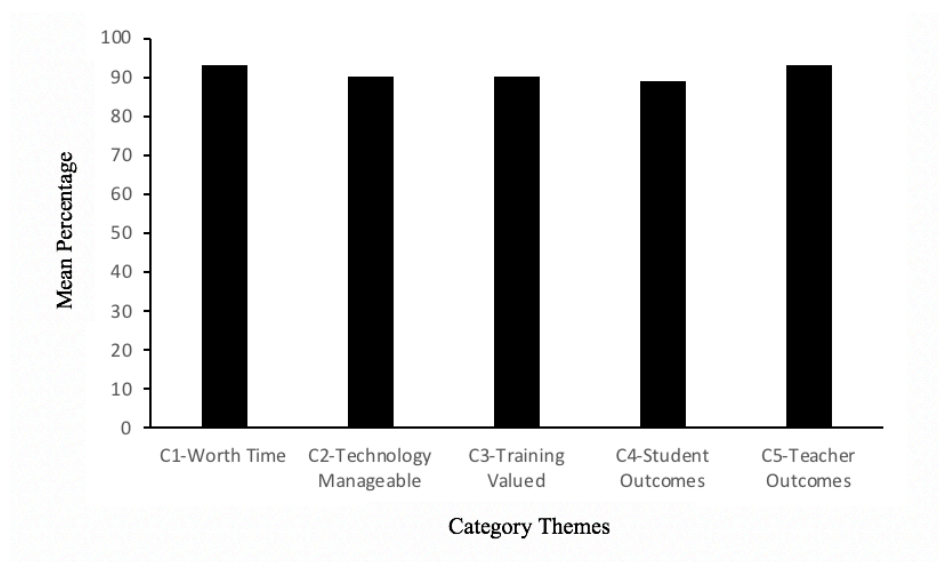
*Note.* The scores represented are for the participants individually and the total mean scores.

Based on the TEIP Scale used in this study, teachers already demonstrated a high level of perceived efficacy for inclusive practices in their classroom. Findings confirmed very little difference between the pretest and posttest on teachers' perceived efficacy to use inclusive instruction, collaborate, and deal with disruptive behaviors in the general education

classroom. It appears that participating in the study did not change the participants' level of high perceived efficacy for inclusive practice.

### Social Validity Questionnaire and Interview

The social validity questionnaire was comprised of twenty questions that consisted of five categories including C1-training was worth the time, C2-video technology was manageable, C3-training was valued to support teacher's professional practice, C4-student outcomes, and C-5 teacher outcomes and future use. Figure 4.15 demonstrates the combined average mean response in each category for the participants.



*Figure 4.15.* Social validity questionnaire mean percentage across participants in each category.

The total responses in each category were calculated to find the mean for the three participants. In category one, the mean was 93% for the participants stating that it was worth their time to participate in the study. For category two, the mean was 90% stating that the technology was manageable. Category three focused on the participants' view of the value of the training, which had a mean of 90%. For category four, the mean was 89% reported for

student outcomes. The final category, teacher outcomes and future use, had a mean score of 93%. The highest rated categories reported were the training was worth the time and in the teacher outcomes and future use. The lowest rated category reported was in student outcomes. See Table 4.3 for results by participant.

Table 4.3

*Social Validity Questionnaire Percentage by Participant in Each Category*

Category	Participant I	Participant II	Participant III
Worth Time	100	80	100
Technology Management	100	80	90
Training Valued	100	80	88
Student Outcomes	87	80	100
Teacher Outcomes	100	80	100

In an effort to obtain more in-depth feedback, phone interviews were arranged with each participant. There were five questions asked during the interview. Table 4.4 includes the questions and responses.

Table 4.4

*Interview Questions and Participant Responses*

<u>Question</u>	<u>Response</u>
What was the most valuable to you as a participant in this study?	<p>R1-I felt I was able to grow as an educator—not only for my students but for myself. My students saw how, together, we were helping each other. The participant expressed that her students knowing that she was participating in the study and learning through training made an impression on her class. She stated that her students felt that they were working together to learn.</p> <p>R2-What I was trying to do was very specific, and I could see an immediate difference. Affirming positive behavior developed a positive classroom environment. Positive feedback to the behaving children impacted all students.</p>



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What was the most difficult part of the study as a participant?

R3-Videotaping myself and getting feedback from the researcher was awesome. I found the process to be eye-opening and feel like it made a lasting change.

R1-The time management was most difficult. Super easy to implement the strategies and record. Finding time at the end of the year was the only hard part.

R2-At first, I had confusion on thinking that I had to teach in 20-minute time chunks which is hard for first grade. The researcher explained that transitions and group instruction can also be included in the video sessions.

R3-The timing (scheduling) was the most difficult aspect of the study. My students are mostly of low socio-economic status and English language learners. Testing is hard, lengthy, and stressful for my kids. There was a lot of testing at the time of the study, which made it more difficult to find times that I could record videos.

If this study were to be repeated in the future, what would you recommend for the researcher to change?

R1-I don't know that I would change anything. The researcher was prompt, supportive, and patient.

R2-The experience was very positive. It would have been helpful to know when the end date of the video recording would be, but I don't see how it could be predicted. A general idea of a timeline of how many weeks or months would be helpful.

R3-I wouldn't change anything. The aspects of the study under the researcher's control were great. The study was easy to do and the researcher was great-responsive and patient.

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If this study were to be repeated in the future, what would you recommend for the researcher to keep the same?

R1-The technology was easy to use once I understood how to use it. The researcher gave excellent feedback, and she used consistent terminology.

R2-I liked the specific feedback on the video recordings. I liked that the researcher was positive and specific to me. She modeled what she asked me to do.

R3-Communication was great. The researcher was understanding and flexible. She gave awesome feedback.

What is the most important thing that you learned as a participant in this study?

R1-The positive feedback to give the kids, and the order to give it in. Correct prompting and redirecting based on what you asked them to do is good and useful for all students. This strategy didn't cost anything or take the time you don't have. Just verbal cues and changes that anyone can do.

R2-To stop and think before I react to my students: How can I make this positive instead of highlighting negative behavior? This was a great study and worthwhile to participate in. I received great feedback, and I plan to carry this forward. Overall, I think it has changed my teaching.

R3- The most important thing I learned was how to use prompting correctly. I also saw that I used negative feedback and praise more often than I knew. By learning to use behavior-specific praise and prompting, I saw a change.

The following is a summary of the results of the phone interview separated into five categories based on the five questions including most valuable part of the study, difficulties in the study, recommendations for changes in the study, recommendations for keeping the study the same if repeated, and most important thing learned in the study.

**Most valuable part of the study.** In response to the most valuable part of the study, one participant felt that she was able to grow as an educator, not only for her students but for herself. She shared with her students that she was participating in a study and then reported that her students felt like they were working together to learn. Another participant went on to say that she valued that what she was trying to do in the study was very specific and she could see an immediate difference. She also reported that affirming the positive behavior developed a positive classroom environment where providing positive feedback to behaving children impacted all of the students. Lastly, the other participant valued the opportunity to videotape herself and receive feedback from the researcher. She found the study to be eye-opening and felt like it made a lasting change.

**Difficulties in the study.** One participant found that time management was the most difficult. She found it really easy to implement the strategies and video record herself but found it difficult to find time at the end of the year. Another participant reported that she was confused and thought she had to teach in 20-minute time chunks which she found difficult in a first-grade classroom. However, she continued to explain that the researcher was able to explain that transitions and group instruction could also be included in the video sessions. Lastly, the other participant reported that she found the timing (scheduling) to be the most difficult aspect of the study. She went on to explain that her students were mostly English language learners and learners from a low socio-economic status and were impacted by having to do a lot of testing at the time of the study which made it more difficult to find times that she could record videos. She also went on to say that her students find testing hard, lengthy, and stressful.

**Recommendations for changes in the study.** One participant said that she would not change anything and went on to report that the researcher was prompt, supportive, and patient. Another participant explained that it would have been helpful to know when the end date of the video recording, but then said that she doesn't see how the end date could be predicted. She said a general idea of how many weeks or months would be helpful. Lastly, the other participant also said that she wouldn't change anything. She expanded by reporting that the aspects of the study under the researcher's control were great and that the study was easy to do and that the researcher was responsive and patient.

**Recommendations for keeping the study the same if repeated.** One participant stated that the technology was easy to use once she understood how to use it. She also went on to report that the researcher gave excellent feedback and used consistent terminology. Another participant mentioned that she liked the specific feedback on the video recordings and that the researcher was positive and specific to her. She also reported that she liked how the researcher modeled what she was asking her to do. Lastly, the other participant stated that the communication was great and that the researcher was understanding, flexible, and gave awesome feedback.

**Most important thing learned in the study.** One participant found the most important thing that she learned was to provide positive feedback to the kids and the order to give it in. She also explained that correct prompting and redirecting based on what you asked the students to do is good and useful for all students. She also liked that they were free strategies that didn't take the time you don't have, but simply using verbal cues and changes that anyone can do. Another participant found the most important thing that she learned was to stop and think, how can I make this positive instead of highlighting negative behavior,

before reacting to her students. She also reported that she received great feedback that she plans to carry forward and that overall, she thinks it has changed her teaching. Lastly, the other participant found the following as her most important things learned in this study: how to use prompting correctly, viewing herself and learning how often she was using negative feedback and praise, and by using behavior-specific praise and prompting, she saw a change.

### **Summary of Findings**

All participants showed sustained increases in BSP and the correct use of prompting when specific video-based feedback was provided during “prompting in the instructional sequence phase” of the study. The distance training modules had little impact on the participants’ knowledge of behavior-specific praise and prompting as measured by the pretest and posttest knowledge exams, which indicated relatively high knowledge scores on the pretest. Only one teacher increased her use of behavior-specific praise from baseline levels following module training, however the increase was not sustained. None of the participants showed an improvement in the correct use of prompting in an instructional sequence following the module on prompting. This might be due to the fact that the module training did not focus on how and when to prompt, but rather, on the types of prompts used and under what circumstances.

Negative comments across all participants decreased from baseline levels through the experimental conditions to near zero levels. From the participants’ self-reports, the overall experience helped them focus more on making positive rather than negative comments. One participant claimed, that through the training, she saw how making positive comments to students increased the positive climate in the classroom. The use of general praise statements did not change appreciably across conditions for any of the participants.

Participants' responses on the attitude questionnaire fell between neutral to slightly positive across categories on both the pretest and posttest. Also, the participants' self-efficacy for inclusive practice were generally high in the pretest with little to no change on the posttest. Lastly, participants reported that they valued the content, instruction, and feedback provided. They also indicated that the Behavior Imaging™ technology was convenient and easy to use.

## CHAPTER Five: Discussion

The purpose of this research was to assess the effects of distance education webinars and video-based performance feedback through Behavior Imaging™ technology on the acquisition of general education teachers' use of two evidence-based practices, behavior-specific praise (BSP) and prompting in the instructional sequence, in rural classrooms to promote inclusion of students diagnosed with ASD and other disabilities. This chapter presents major findings and implications, limitations, future research, and concluding remarks.

### Major Findings and Implications

The findings of this study suggest that distance training platforms can be effectively used to promote the use of evidence-based practices by general education teachers especially when feedback is provided on their performance within an instructional sequence. Behavior Imaging™ technology was noted by the participants as easy to use and an inexpensive means to solicit feedback from experts. This was the first known study using this technology platform for distance education teacher training purposes. The findings also indicated that negative comments can be systematically decreased within a classroom when behavior-specific praise increases. The knowledge performance of the participants in this study did not increase appreciably, nor did pretest and posttest scores on attitude or self-efficacy. These findings and the implications are discussed as follows.

**Feedback within an instructional sequence.** One of the most salient findings in this study is that all three participants showed marked increases in their correct use of both BSP and prompting in an instructional sequence during the video-based feedback condition on

prompting. BSP also increased somewhat during the feedback condition on BSP for participants one and three, but not for participant two.

The reason for the increases in both behaviors (BSP and prompting) during the video-based feedback condition on prompting within the instructional sequence was likely due to feedback on both examples and non-examples of correct use of BSP and prompting within each instructional sequence recorded by individual teachers. For example, to be counted as a correct response, BSP had to occur following a correct response only after a clear instruction had been provided. Prompting had to occur following a clear instruction, after a pause by the teacher, and either before the student responded (antecedent prompt) or when the student did not respond.

Feedback on the use of BSP did not produce sustainable increases across participants; however, when combined with the application of prompting in the instructional sequence, both praise and prompting increased. The implication is that instructional strategies should be taught in context and within a sequence of expected behaviors or systematic instruction (i.e., call for response, pause, prompt, correct or incorrect response, praise or correction procedure). While this study did not explore the impact of praise and prompting on students in the classroom, other researchers have demonstrated the effectiveness of embedded instruction or explicit systematic instruction in the general education classroom (Jimenez & Kamei, 2013). In order to increase the use of evidence-based practices in the general education setting for students with ASD or other disabilities, it is not enough to provide didactic instruction on isolated practices such as BSP and prompting. But rather, the findings from this study indicate that teachers can increase their



use of evidence-based practices when feedback is provided on the entire instructional sequence used in systematic instructional routines.

To adequately promote inclusion, general education teachers should use evidence-based practices known to impact student learning, especially learners with ASD and other disabilities (Lavay, Guthrie, & Henderson, 2014; McQuivey et al., 2012). Findings from this study suggest that BSP and prompting can be enhanced by specific video-based feedback using examples and non-examples from participants own video samples which supports and extends previous research on the importance of feedback for skill development of school-based personnel (Akalın & Sucuoglu, 2015; Espasa & Meneses, 2010; Hawkins & Heflin, 2011; Sweigart, Collins, Evanovich & Cook, 2016).

**Negative comments.** In this study, the use of negative comments for all participants systematically decreased across all experimental conditions. Interestingly, the initial juxtaposition of high negative comments to low positive comments among two of the participants during baseline conditions was also reported in other studies (Beaman & Wheldall, 2000; Gable et al., 1983; Gorman-Smith, 2003; Shores, Gunter, & Jack, 1993; Wehby et al., 1995). Simultaneously increasing behavior-specific praise while decreasing negative comments may create a more positive climate in classrooms (Hollingshead et al., 2016; Rathel, Drasgow, Brown, & Marshall, 2014). Positive classroom environments are purported to promote inclusion (Mastropieri & Scruggs, 2001). The participating teachers in this study indicated that their involvement helped to increase the positive climate in their respective classrooms. While this statement was not verified empirically, their impressions are important to note for future research.

**Impact of webinars on BSP and prompting.** The webinar modules had minimal to no impact on the participants' use of BSP or prompting in an instructional sequence. Participant I and Participant III's use of BSP decreased after viewing the praise module, but their use of general praise increased. One possible explanation for the slight increase in general praise was that during baseline the participants were unaware of what behaviors were being observed. After viewing the module, their awareness that praise statements were the focus may have impacted their general praise statements. Seemingly, the participants in this study did not clearly differentiate general praise from behavior-specific praise until feedback was provided within the instructional sequence during the last phase of the study.

The implication is that the modules may not have been explicit enough to inform practice. The online module training focused on the least-to-most prompting hierarchy, the different types of prompts, and matching the type of prompts with picture examples. The module did not explicitly give examples and non-examples of prompting as it is used within an instructional sequence. The use of live video examples and non-examples, although more expensive and time consuming to produce may have yielded greater impact on the use of BSP and prompting. The modules did include picture examples and vignettes of examples and non-examples, however, research on observational learning suggests that juxtaposing video samples may have been more impactful (Catania, Almeida, Liu-Constant, & Digennaro-Reed, 2009; Kong, 2010; Piwowar, Thiel & Ophardt, 2013).

Finally, and perhaps most importantly, it is likely that instruction on use of praise and prompting with the instructional sequence would have led to increased performance after viewing the modules. Again, this is relevant to the seeming importance of training general education teachers to use an embedded systematic instruction format for evidence-

based strategies in the classroom with students with a diagnosis of ASD or other disabilities (Jimenez and Kamei, 2013).

**Knowledge testing.** As noted by Gulamhussein (2013), this study did confirm that knowledge on a particular evidence-based practice, in this case praise and prompting, did not transfer to practice in the classroom. The teachers in the present study all scored relatively well on the knowledge exams, yet their performance in the classroom, for the most part, did not reflect that knowledge. Additionally, their performance was not appreciably impacted by the training modules. Continuing to support training in the absence of intentional opportunities for practice accompanied by quality feedback is misguided (Piwowar, Thiel, & Ophardt, 2013; Scheeler, Ruhl, & McAfee, 2004). Researchers over decades continue to demonstrate that training in the absence of feedback does not produce meaningful changes in behavior (Alexander, Williams, & Nelson, 2012; Digennaro-Reed, Coddling, Catania, & Maguire, 2010; Hawkins & Heflin, 2011; Scheeler, Ruhl, & McAfee, 2004).

**The role of technology.** Previous research identified a need to provide more training for general education teachers in rural communities (Hannum, et al., 2009). Increasingly, technology plays an important role in distance education for teachers to learn strategies that support students with ASD and other disabilities (Alexander et al., 2015). The participating teachers in this study were located in rural schools. They were all able to easily access instruction and feedback at a distance within a reasonable time frame.

The technology was used in two ways. First, instructional modules were viewed at a distance by the participants through the Blackboard Collaborate™ platform. Second, the Behavior Imaging™ technology allowed teachers to easily upload videos of their teaching

interactions to a secure server. The instructor/researcher, participating teachers, and data collectors were able to repeatedly access the videos over time. As the participants reported, this technology was easy to use and affordable, since smart devices are readily available to the general public and in most school settings. Also, the feedback mechanism allowed the instructor/researcher in this study to tag individual video segments of examples and non-examples and associate those tags with written feedback. This system of feedback produced marked changes in both BSP and prompting as previously described. Since this is the first known study to apply this type of technology for in-service distance teacher training, further research is needed to explore its benefits and potential limitations.

**Social validity.** The participant responses to the social validity questionnaire and phone interviews indicated that the instructional process changed their practice and was worth their time. They indicated that their students benefited and that they were able to foster a more positive classroom environment as a result of participating in the study. These responses align with previous research on the benefits of using behavior-specific praise in the classroom. Specifically, the participants' concluded that the training created a positive learning environment, worked for learners with and without disabilities, and encouraged desired behaviors from students by teaching new behaviors (Allday, Hinkson-Lee, Hudson, Neilsen-Gatti, Kleinke, & Russel, 2012; Chalk & Bizo, 2004; Dweck, 2007; Madsen, Becker, & Thomas, 1968). Finally, as others reported, the teachers in this study recognized the need to make changes to their practice after participating in distance education (Hanline, Hatoum, & Riggie, 2012).

**Attitudes and self-efficacy results.** The participants in this study demonstrated negligible changes in pretest and posttest results on the attitude and self-efficacy

questionnaires. This may have been a selection error. All three participants initially demonstrated high perceived efficacy with slightly positive attitudes toward inclusion of students with ASD and other disabilities. Had a different group of teachers been selected based on their initial low scores, the study process may have produced differentiated results. Interestingly, teachers in this study demonstrated high perceived efficacy which previous research highlighted as the only provable influence on attitudes (Urton, Wilbert, & Hennemann, 2014). Based on the survey results, the participants all were seemingly comfortable with including students with disabilities in their classrooms and had okay attitudes about inclusion. Similarly, research identified the correlation between self-efficacy and attitudes on the ability to teach in inclusive settings (Segall & Campbell, 2012; Urton, Wilbert, & Hennemann, 2014). Perhaps, the future of inclusion lies with first choosing teachers with more positive attitudes about inclusion, providing instruction on strategies that promote instruction, and then testing self-efficacy.

### **Limitations of Study**

Single subject design studies in applied settings often face time constraints, especially when multiple baselines are used to demonstrate experimental control. This study was conducted across three teachers in three different rural schools using a multiple element, multiple baseline design. To demonstrate the effects of each independent variable, (i.e., the intervention package) on BSP and prompting, each variable was introduced one at a time. Further, to demonstrate experimental control, the introduction of each package variable was staggered across the dependent variables (BSP and prompting). Due to the amount of time it took to recruit teacher participants and the design of the study, time was constrained at the end of the school year and maintenance effects were not assessed. In

similar studies, previous researchers indicated that once feedback was withdrawn the performance of newly learned behaviors decreased (Artman-Meeker & Hemmeter, 2013; Hawkins & Heflin, 2011). Although, in the current study, feedback on the use of prompting within an instructional sequence did produce dramatic level increases across all participants that were sustained for the duration of the study, the extent that treatment effects would maintain throughout summer months and into the next school year was not assessed. Because maintenance effects of any teacher training program speaks to the validity of the intervention, future studies should be explicitly designed to assess not only whether behaviors maintain past training, but what methods are necessary to promote the on-going application of acquired skills.

Another limitation was related to the design of the study. In a multiple-baseline, experimental control is established with each replication. Three replications across variables, person, settings, or behaviors, is considered standard (Gast, 2010). However, in the present study only two dependent variables were measured, BSP and prompting, thus limiting experimental replication and the determination that a functional relationship between the dependent variable and the independent variables was established. It is clear that experimental control was established across all participants as prompting remained stable and at low levels until the introduction of the feedback phase. However, to increase the experimental validity of the findings, in future research, a third behavior should be added. It is plausible that negative comments could be included as a third leg, although there seemed to be a strong relationship between the increase of BSP and the decrease of negative comments thus limiting the independence of the behaviors.

Participant recruitment was another limitation of this study for a couple of related reasons. First, the researcher planned to recruit five to ten participants from rural elementary schools but was only able to recruit four. One of the four participants dropped out of the study. Recruitment was difficult for several reasons. Teachers reported being too overwhelmed to participate, principals would not allow recruitment in their buildings, and some teachers reported that they did not think it would be worth their time or were simply not interested in taking on something additional. Second, each of the three remaining volunteer participants were not necessarily a representative sample of elementary school teachers in rural or urban communities. In fact, the participants in this study could be viewed as somewhat homogenous. They each came into the study with relatively high knowledge scores, seemingly positive attitudes toward inclusion, and with the perceived ability to teach in inclusive classrooms, as measured through the self-efficacy questionnaire. In a future study it would be interesting to recruit, if possible, a large cohort of teachers with varying degrees of knowledge, attitudes, and self-efficacy. In general, the small number of participants in the current study and the homogenous nature of the three volunteers limits the extent that any generalizations can be made beyond the study sample.

Another potential limitation of the study was the fact that although participants scored 70% or above on the knowledge tests prior to viewing the instructional modules, they did not demonstrate notable growth on the posttests. The limited change in posttest scores may have been because the posttests were not administered until the end of the study. The lapse of time between intervention and posttest completion may have been too vast to recall the specific details of the modules. The other factor may be that the participants did not

receive feedback on the pre/post knowledge exams to highlight the areas in which they were knowledgeable and areas they needed more opportunities to learn.

After viewing the instructional modules on praise and prompting, there were minimal changes in the participants' use of either dependent variable. One clear instructional design flaw in the modules was that specific examples on the use of praise and prompting within an instructional sequence were not included. It could be that with more explicit instruction on the systematic instructional sequence and the use of BSP and prompting within the sequence would have resulted in improved performance prior to the feedback condition. Further, while feedback on the instructional modules was garnered from three experts in the field, once modifications were made based on the feedback, the researcher did not seek further input.

Finally, this study would have been strengthened by including outcome measures on student performance. Clearly, the purpose of the study was to examine teacher behavior, but change in teacher behavior that does not result in student change is somewhat vacuous. The participants in this study anecdotally described the benefits of the study on students and on classroom climate. Including actual measures of student responses and their perceptions would be beneficial in future research.

### **Future Research**

Based on the findings of this study and the limitations, there are several suggestions for future research. First, replication studies are necessary to generalize findings to broader populations including paraprofessionals, preservice teachers, special educators, and other itinerate staff (e.g., school psychologists, speech language pathologist, occupation and physical therapist). A modified replication of this study to assess the value of a systematic



instructional sequence as the context for embedding evidence-based practices into natural educational routines is warranted.

Since the knowledge modules did not impact behavior in a measurable way, perhaps embedding feedback into the instructional package would prevent participants from practicing errors over time. It was not until video-based feedback was applied that there were measurable changes in behavior. Future research should focus on decreasing the amount of errors teachers practice while establishing a functional behavioral repertoire on evidence-based practices.

In line with the notion that efficiency is necessary to ward off practicing errors, it seems important to explore the level of coaching/feedback necessary to obtain measurable and sustained change in teaching performance. From the results of this study, instruction and coaching could be combined to lessen the time and effort of the instructor and the participant. Perhaps coaching alone without the instructional modules would have produced greater results more efficiently. In a similar vein, in order to view the researcher's feedback on the video uploads, the participants in this study also viewed their own teaching interactions. The impact of self-observation and analysis on the specific use of evidence-based practices is another potential research pursuit.

The focus of this study was clearly on teacher behavior. However, the study would be strengthened if student behavior change was measured as well. A potential future research question could focus on the impact of teachers' correct use of BSP and prompting within an instructional sequence on student engagement, academic performance, and/or classroom socialization. Further, assessing the impact of peer relationships toward students with ASD in response to teacher use of evidence-based practices would also be meaningful.

The participants in this study answered questions posed on both a social validity questionnaire and phone interview. The teachers' responses to these measures were meaningful in that they highlighted perceptions that were not quantitatively measured. While the purpose of the study was not to delve deeply into a qualitative analysis, certainly a replication study would consider a mixed method inquiry that would allow the researcher to probe more deeply into the participants' experiences. A more thorough qualitative review could highlight aspects of the training experience that were the most and least beneficial.

If the goal is to promote inclusive practices, training an entire school staff to use evidence-based practices in the context of a systematic instructional sequence may produce more meaningful changes in attitudes and self-efficacy. In this study, the three participants who volunteered for the study clearly already demonstrated both positive attitudes and social efficacy toward inclusion. Providing training to all teaching staff would certainly show variance in attitudes and efficacy and could promote a system change not only in the school building but perhaps in the community as well.

Lastly, as previously noted, this was the first in-service training application of the Behavior Imaging™ technology. Future research should focus on this and other technology supports to provide meaningful response feedback. The benefit of Behavior Imaging™ as a platform, is the ability to tag specific examples and non-examples of behaviors. Other technologies should be explored that have similar capabilities. Further, additional research is needed to identify what aspects of the feedback actually helped to produce the difference in behavior performance.

## Conclusion

Although the limitations of this study make conclusions and generalizations difficult, the results support the use of video-based feedback in the context of a systematic instructional sequence to increase the use of evidence-based practices in the general education classroom. Because this was an applied study in three different general education settings with many uncontrolled variables, the importance of this finding is amplified. To garner such an increase in correct performance across participants when feedback was applied within an instructional sequence lends support to the use of embedded instruction to enhance inclusion of students with ASD. A notable result that bears additional mention is that all participants' use of negative comments decreased over the course of the study as their use of behavior-specific praise and prompting in an instructional sequence increased. The teachers in this study clearly stated that their participation was worth their time, changed their practice, benefited all students, and fostered a more positive classroom environment. Finally, providing distance education with video-based feedback through Behavior Imaging™ produced a low cost and accessible option for professional development to promote inclusive practices in both rural and urban communities.

In closing, students with autism spectrum disorder and other disabilities should be included in the general education classroom. Video-based feedback on the use of evidence-based practices within an instructional sequence can be utilized to train and support skill acquisition of teachers to promote inclusive practices. Rural teachers in this study reported that by participating in this study from a distance, they were able to recognize the need to make changes to their practice, noticed that all students benefited, and were able to foster a more positive classroom environment by changing their practices. Future research may

extend the findings in this study while continuing to promote inclusive practices in general education classrooms to support learners with ASD and other disabilities.

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## Appendix A: Pilot Study Methodology

### **Participants and Setting**

The participants in the pilot study included two general education teachers from a charter school in rural Idaho and one general education teacher from a public school in rural Oregon. Participant I had twenty-three second graders. Of the twenty-three students, three had a developmental disability, and one had a learning disability. Participant II had eleven fourth graders. Of the eleven students, there was one student with ASD and three students with a developmental disability, and one student with a learning disability. Participant III had twenty-six second graders. Of the twenty-six students, one student had a diagnosis of ASD, five of the students had a developmental disability, and one student had a learning disability. Participant III dropped out of the study after participating in the first webinar on technology usage.

Instruction was accessed by the teachers through Blackboard Collaborate™, a distance-webinar platform. The implementation of the strategies learned through the webinar (i.e., behavior-specific praise, and prompting) took place in the general education classrooms for Participant I and Participant II. The participants digitally recorded their teaching sessions via Behavior Imaging™ technology and uploaded videos to a secure server.

### **Materials**

Materials included three instructional modules, a webinar platform, Behavior Imaging™ technology, and data recording forms. The three instructional modules include: (1) the use of the Behavior Imaging™ technology, (2) praise, and (3) prompting. Blackboard Collaborate™ was used to host the instructional webinars. Behavior Imaging™

technology was used to facilitate observational analysis of digital samples uploaded by each participant in the study. Smart devices were used to collect the recordings of the participants engaged with learners in the classroom. The researcher and two data collectors reviewed the recordings to assess the dependent variables including behavior-specific praise, prompting, general praise, and negative praise. Data collection forms include (1) observational protocol for the dependent variables, (2) attitude surveys, (3) knowledge tests, (4) teacher efficacy for inclusive practice scale survey, and (5) social validity questionnaire.

### **Measurement Procedures**

Behavior-specific praise, negative comments, and general praise were measured by tallying the occurrence of each comment made during 20-minute sessions. The frequency of each type of comment was converted to a percent by dividing the total number of comments by the specific category of comments and multiplying by 100 ( $\% = n/\text{total} * 100$ ). The percent of each comment by total comments was graphed for visual inspection.

Prompting was measured through observation of the 20-minute uploaded video sessions by tallying the occurrence and type of each prompt administered. The frequency of each type of prompt was converted to a percent by dividing the total number of prompts administered by the specific type of prompt and multiplying by 100 ( $\% = n/\text{total} * 100$ ). The percent of each type of prompt used was graphed for visual inspection.

### **Experimental Design:**

The experimental design was a Multiple Elements, Multiple Baseline Design across Behaviors (praising and prompting). The design included: **A-1 Baseline** where teachers are taught through a webinar module to take videos of themselves actively engaged in teaching until they were successfully and consistently uploading usable footage; **B-1**, knowledge

pretest on praise; **B-2**, webinar training on praise; **B-3**, video-based feedback on praise; **C-1**, knowledge-testing on prompting; **C-2**, webinar training on prompting; **C-3**, video-based feedback on prompting; and **A-2** maintenance check. During this study, Participant I and Participant II completed the following: A-1, baseline; B-1, knowledge pretest on praise; B-2, webinar training on praise; C-1, knowledge-testing on prompting; and C-2, webinar training on prompting.

Due to the timing of the study, the two participants did not complete all of the phases of the study. However, the data collected provided evidence that the observation protocol data recording form needed revisions to make it a more sensitive measurement tool. The observation protocol data recording form was able to capture that the participants were using different types of prompting, but it did not measure if the prompting was being used correctly or being used within an instructional sequence. By changing the tool, data could demonstrate the types of prompting and if prompting was used correctly within an instructional sequence. None of the other measures were changed for the current study.

## Appendix B: Letters of Consent



**Informed Consent Form  
Teacher**

**Title of study:** Training and Supporting General Education Teachers to Promote Inclusive Practices

**Principal Investigator:** Julie Fodor, Ph.D.

**Principal Researcher:** Carrie B. Hall, ABD.

**Sponsor:** University of Idaho

**Approved:** This study has been certified as exempt by the University of Idaho Institutional Review Board.

**PURPOSE AND BACKGROUND**

The purpose of this study is to prepare general education teachers to implement specific skills that promote inclusion of students with Autism Spectrum Disorder and other developmental disabilities through distance learning webinars and Behavior Imaging technology to a) increase positive attitudes about inclusion, b) improve knowledge and acquisition of specific skills, and c) give timely accurate feedback on skill development.

**PROCEDURES**

If you agree to be in this study, you will participate in the following:

- Participate in taking an attitudinal survey on inclusion at the beginning and end of the study.
- Participate in taking a teacher efficacy survey at the beginning and end of the study.
- Participate in three different webinar modules.
- Participate in taking two pre/post knowledge tests.
- Agree to video self-record your teaching for 20 minute increments multiple times in the study.
- Agree to receive feedback from the researcher.
- Agree to complete an end of study satisfaction questionnaire on your experience in the study.

**RISKS**

While on the study, the risks are minimal:

- The potential loss of confidentiality.
- Due to the fact that children will be included in the study, any indication of abuse must be reported by the research team to the appropriate state authorities.
- The inconvenience and time necessary for video self-recording and participating in three webinar training modules.
- The inconvenience of completing surveys and pre/post knowledge tests during study.

**BENEFITS**

Teachers will have the opportunity to learn about two evidence-based practices and how to implement them in the classroom to promote inclusion. The students will benefit from having peers with and without disabilities working together in the general education classroom. Teachers will receive feedback on implementation of the strategies learned in the study. Teachers will receive one professional development credit and a \$50 Visa gift card for participation.

**EXTENT OF CONFIDENTIALITY**

Efforts will be made to keep your personal information confidential. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. Your identity will be held in confidence in reports in which the study may be published and databases in which results may be stored.

**PARTICIPATION IS VOLUNTARY**

You do not have to participate in this study if you do not want to. You may also refuse to answer any questions you do not want to answer. If you volunteer to be in this study, you may withdraw from it at any time without consequences of any kind.

**QUESTIONS**

If you have any questions or concerns about your participation in this study, you should first talk with Carrie Hall @ 971-645-6853. You may also contact the principal investigator, Julie Fodor @ 208-885-6128.

If you have questions about your rights as a research participant, you may contact the University of Idaho Institutional Review Board (IRB), which is concerned with the protection of volunteers in research projects. You may reach the board office between 8:00 AM and 4:30 PM, Monday through Friday, by calling (208) 885-6162 or by writing: Institutional Review Board, Office of Research Assurance, University of Idaho, PO Box 443010, Moscow, ID 83844-3010.

**DOCUMENTATION OF CONSENT**

I have read this form and decided that I will participate in the project described above. Its general purposes, the particulars of involvement and possible risks have been explained to my satisfaction. I understand I can withdraw at any time.

---

**Printed Name** of Study Participant

---

**Signature** of Study Participant

---

Date

---

**Signature** of Person Obtaining Consent

---

Date





## Training and Supporting General Education Teachers to Promote Inclusive Practices

University of Idaho

### VIDEOTAPE/AUDIO RELEASE FORM

Your child's classroom teacher has expressed interest in participating in a study to promote inclusive practices. This study has been approved by the principal of your child's school. Throughout this study, the classroom teacher will be video-recording themselves teaching in their classroom. The researcher is observing the behaviors of the teacher, and not the students. Your child may end up in the video or audio recording depending on where the video equipment is set up in the classroom. The classroom teacher, the researcher, and two trained observers will be the only people observing these video/audio recordings. The video-taped images or audio recordings **will not** be shared in project publications, or in educational related training materials.

**Parents/Guardians:** Below, please initial the box if you give your consent. Please be sure that your child understands this agreement. Please return this completed form to your child's teacher.

My child may appear in videotaping/audio recording used for research analysis in this study. I understand that all of the videos and audio recordings will be kept confidential and not shared in any project publications, or educational related training materials.

AUTHORIZATION: I have read the above statement and I,  
 \_\_\_\_\_ (name of parent or guardian), related to the  
 student as \_\_\_\_\_ (relationship), agree to the  
 participation of \_\_\_\_\_ (name of student) in these  
 videotaping/audio recording activities. I understand that my child or I may later refuse  
 participation in these activities and that my child, through his/her own action or mine, may  
 withdraw from participation at any time. I have received a copy of this consent form for my  
 own records.

Parent or Guardian Signature:

\_\_\_\_\_

Date: \_\_\_\_\_

Consent to videotape and audio record





## Entrenando y apoyando maestros para promover prácticas inclusivas

Universidad de Idaho

### PERMISO DE GRABACIÓN DE VIDEO/AUDIO

El maestro(a) de la clase de su estudiante ha expresado interés en participar en un estudio para promover prácticas inclusivas. Este estudio ha sido aprobado por el director de la escuela. A lo largo de este estudio, el maestro(a) grabará su instrucción en el aula. La investigadora está observando el comportamiento del maestro(a) y no de los estudiantes. Su estudiante podría aparecer en el video o audio dependiendo de dónde se ubique el equipo de grabación en el aula. El maestro, la investigadora, y dos observadores capacitados serán las únicas personas que van a observar estos videos/audios. Las grabaciones de imágenes o audio **no serán** compartidas en proyectos de publicación o en materiales educativos para entrenamiento. The classroom teacher, the researcher, and two trained observers will be the only people observing these video/audio recordings.

**Padres/Apoderados:** Favor de poner sus iniciales abajo si usted da su consentimiento. Por favor asegúrese que su hijo entienda este acuerdo. Por favor regrese esta hoja completada al maestro(a) de su estudiante.

Mi hijo(a) o apoderado(a) puede aparecer en las grabaciones de video/audio usadas para el análisis de investigación de este estudio. Comprendo que todos los videos y audios serán mantenidos de manera confidencial y no serán compartidos en ningún proyecto de publicación o materiales de entrenamiento.

AUTORIZATION: Yo he leído la información anterior y yo,

\_\_\_\_\_ (*nombre del padre o apoderado*), relacionado con el estudiante como \_\_\_\_\_ (*relación*), estoy de acuerdo en la participación de \_\_\_\_\_ (*nombre del estudiante*) en estas actividades de grabación de video/audio. Comprendo que mi hijo(a) o apoderado(a) puede luego rehusar su participación en estas actividades y que mi estudiante, mediante su propia acción o la mía puede terminar su participación en cualquier momento. He recibido una copia de este consentimiento para mis propios récords.

Firma del padre o apoderado:

\_\_\_\_\_

Fecha: \_\_\_\_\_

Consent to videotape and audio records

## Appendix C: Pre/Post Knowledge Test-Praise

Please read each statement and respond by selecting true or false.

Question	Response	
	True	False
1. There is only one type of reinforcement.	<input type="checkbox"/>	<input type="checkbox"/>
2. Positive reinforcement is the removal of an aversive contingent with the goal of increasing the behavior.	<input type="checkbox"/>	<input type="checkbox"/>
3. Negative reinforcement is when a response is given immediately following a behavior, with the goal of increasing the behavior.	<input type="checkbox"/>	<input type="checkbox"/>
4. General praise can be negative.	<input type="checkbox"/>	<input type="checkbox"/>
5. "Jill, I like your new jacket" is an example of general praise.	<input type="checkbox"/>	<input type="checkbox"/>
6. "Great job" is not an example of general praise.	<input type="checkbox"/>	<input type="checkbox"/>
7. Contingent praise, specific praise, process praise, and positive recognition are different types of praise.	<input type="checkbox"/>	<input type="checkbox"/>
8. Behavior-specific praise is a positive comment that label's the behavior being praised.	<input type="checkbox"/>	<input type="checkbox"/>
9. "You are marvelous, Ryan" is an example of behavior-specific praise.	<input type="checkbox"/>	<input type="checkbox"/>
10. Only teachers can deliver behavior-specific praise in a classroom.	<input type="checkbox"/>	<input type="checkbox"/>

11. Using behavior-specific praise can increase on-task behavior, while decreasing disruptive behavior	<input type="checkbox"/> <input type="checkbox"/>
12. “Wow Becky, you are so smart!” is an example of behavior-specific praise.	<input type="checkbox"/> <input type="checkbox"/>
13. Behavior-specific praise should only be used every once in a while.	<input type="checkbox"/> <input type="checkbox"/>
14. Behavior-specific praise should only be given when a child has demonstrated noteworthy behavior.	<input type="checkbox"/> <input type="checkbox"/>
15. Nonverbal behavior of the teacher needs to be genuine and sincere for the behavior-specific praise to be meaningful.	<input type="checkbox"/> <input type="checkbox"/>
16. Behavior-specific praise only works when given publicly.	<input type="checkbox"/> <input type="checkbox"/>
17. “Ben, thank you for talking quietly” is an example of general praise.	<input type="checkbox"/> <input type="checkbox"/>
18. Describing the appropriate behavior is a step of effective praise?	<input type="checkbox"/> <input type="checkbox"/>
19. Positive consequences are not part of the steps of effective praise.	<input type="checkbox"/> <input type="checkbox"/>
20. “See what I mean?” is an example of rationale in the steps of effective praise.	<input type="checkbox"/> <input type="checkbox"/>

## Appendix D: Pre/Post Knowledge Test-Prompting

Please read each statement and respond by selecting true or false.

Question	Response	
1. Prompts can only be effective if given by an adult.	<input type="checkbox"/>	<input type="checkbox"/>
2. Prompting has a hierarchy.	<input type="checkbox"/>	<input type="checkbox"/>
3. Prompting can help students to stay on task when working.	<input type="checkbox"/>	<input type="checkbox"/>
4. Prompting is an errorless learning method.	<input type="checkbox"/>	<input type="checkbox"/>
5. Prompting can lead to positive reinforcement.	<input type="checkbox"/>	<input type="checkbox"/>
6. All types of prompts are appropriate to the students' abilities.	<input type="checkbox"/>	<input type="checkbox"/>
7. Prompting does not increase the ability to generalize the use of skills.	<input type="checkbox"/>	<input type="checkbox"/>
8. Prompting is difficult to implement in a classroom.	<input type="checkbox"/>	<input type="checkbox"/>
9. "Wash your hands" is an example of a physical prompt.	<input type="checkbox"/>	<input type="checkbox"/>
10. Physical prompts should always be given first.	<input type="checkbox"/>	<input type="checkbox"/>
11. During snack, the teacher mimics using a napkin to prompt a student to use a napkin. This is an example of gestural prompting.	<input type="checkbox"/>	<input type="checkbox"/>
12. A teacher washing her hands to show a student how to wash their hands is an example of a physical prompt.	<input type="checkbox"/>	<input type="checkbox"/>

13. Using prompting in the classroom benefits many of the students.	<input type="checkbox"/>	<input type="checkbox"/>
14. In least-to-most prompting, the person giving prompts starts with physical prompting.	<input type="checkbox"/>	<input type="checkbox"/>
15. There are five types of prompting in the prompting hierarchy.	<input type="checkbox"/>	<input type="checkbox"/>
16. A mother taps her daughter's hand to prompt her to use her fork when eating is an example of a physical prompt.	<input type="checkbox"/>	<input type="checkbox"/>
17. A teacher provides a learner with pictures of each of the steps for completing the morning activities is an example of a visual prompt.	<input type="checkbox"/>	<input type="checkbox"/>
18. In most-to-least prompting the person giving prompts starts with physical prompting.	<input type="checkbox"/>	<input type="checkbox"/>
19. A teacher makes a "fff" sound to prompt a learner to read the word fish. This is an example of a model prompt.	<input type="checkbox"/>	<input type="checkbox"/>
20. Pictures to represent different classroom routines is a type of prompting.	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix E: Pre/Post Attitude Survey

**ATTITUDES TOWARD INCLUSION OF STUDENTS WITH DISABILITIES: A  
SURVEY FOR TEACHERS**

Thank you for agreeing to participate in this important study. The enclosed survey includes 19 attitudinal questions. There is no 'right' or 'wrong' answer for each question. Please read the instructions and provide the response that most closely matches your beliefs.

To better prepare you for completing each question, terms that we used throughout the survey are defined below. Please read each definition carefully before answering any questions. Thank you for your cooperation and participation.

**Inclusion:** Inclusion is the practice of students with disabilities within the regular classroom. Students with disabilities regardless of their disabilities attend their neighborhood schools, participate equally in school activities, and receive instruction with support services to meet their needs in the regular classroom, both part-time and/or full-time. In this study, the term 'inclusion' and 'full inclusion' are used interchangeably.

**Students with disabilities:** It refers to students who meet one of 12 disability categories: Autism, Cognitive Development Delay, Development Delay, Health Impairment, Hearing Impairment, Learning Disability, Multiple Impairments, Physical Impairment, Visual Impairment, Severe Emotional Disturbance, Speech Disorder, and Other significant



10. I do not believe students with disabilities are more likely to be disruptive when they are placed in the regular classroom.	1	2	3	4	5
11. I believe the presence of students with disabilities in the regular classroom will not inhibit the progress of other students without disabilities.	1	2	3	4	5
12. I do not believe students with disabilities in a regular classroom will be treated differently (i.e. excluded, ignored, or bully) by other students without disabilities.	1	2	3	4	5
13. I believe that placement in a self-contained class has a negative effect on the social and emotional development of students with disabilities.	1	2	3	4	5
14. I believe that placement in a self-contained class has a negative effect on the academic and intellectual development of students with disabilities	1	2	3	4	5
15. I believe that placement in a regular classroom helps students with disabilities develop a more positive attitude toward school.	1	2	3	4	5
16. I believe students with disabilities will be more motivated to learn in a regular classroom.	1	2	3	4	5
17. I do not believe students with disabilities cannot make adequate academic progress when they are included into the regular classroom.	1	2	3	4	5
18. I believe inclusion of students with disabilities into the regular classroom will not harm the educational achievement of students without disabilities.	1	2	3	4	5
19. I do not believe students with disabilities included in the regular classroom will take away time from students without disabilities.	1	2	3	4	5



## Appendix F: Pre/Post Teacher Efficacy for Inclusive Practice (TEIP) Scale

**Teacher Efficacy for Inclusive Practice (TEIP) Scale**

This survey is designed to help understand the nature of factors influencing the success of routine classroom activities in creating an inclusive classroom environment. In an inclusive classroom, students from a wide range of diverse backgrounds and abilities learn together with necessary supports available to teachers and students.

Please select the number that best represents your opinion about each of the statements.

Please attempt to answer each question

1	2	3	4	5	6		
Strongly disagree	Disagree	Disagree somewhat	Agree somewhat	Agree	Strongly Agree		
		SA	D	DS	AS	A	SA
I can make my expectations clear about student behavior.		1	2	3	4	5	6
I am able to calm a student who is disruptive or noisy.		1	2	3	4	5	6
I can make parents feel comfortable coming to school.		1	2	3	4	5	6
I can assist families in helping their children do well in school.		1	2	3	4	5	6
I can accurately gauge student comprehension of what I have taught.		1	2	3	4	5	6

I can provide appropriate challenges for very capable students.	1	2	3	4	5	6
I am confident in my ability to prevent disruptive behavior in the classroom before it occurs.	1	2	3	4	5	6
I can control disruptive behavior in the classroom.	1	2	3	4	5	6
I am confident in my ability to get parents involved in school activities of their children with disabilities.	1	2	3	4	5	6
I am confident in designing learning tasks so that the individual needs of students with disabilities are accommodated.	1	2	3	4	5	6
I am able to get children to follow classroom rules.	1	2	3	4	5	6
I can collaborate with other professionals (e.g., occupational therapist or speech pathologists) in designing educational plans for students with disabilities.	1	2	3	4	5	6
I am able to work jointly with other professionals and staff (e.g., aides, other teachers) to teach students with disabilities in the classroom.	1	2	3	4	5	6

I am confident in my ability to get students to work together in pairs or in small groups.	1	2	3	4	5	6
I can use a variety of assessment strategies (e.g., portfolio assessment, modified tests, performance-based assessment, etc.).	1	2	3	4	5	6
I am confident in informing others who know little about laws and policies relating to the inclusion of students with disabilities.	1	2	3	4	5	6
I am confident when dealing with students who are physically aggressive.	1	2	3	4	5	6
I am able to provide an alternate explanation or example when students are confused.	1	2	3	4	5	6

Sharma, Loreman, Forlin (2012). Measuring teacher efficacy to implement inclusive practices. *Journal of Research in Special Educational Needs*, 12(1), 12-21.

## Appendix G: Social Validity Questionnaire

**Social Validity Questionnaire**

Please select the response that best represents your opinion about each of the statements.

Question	Rating Scale				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I was successful in learning Behavior Imaging Technology by watching the training webinar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The support from the instructor that I received beyond the webinar on how to use Behavior Imaging Technology helped me use the tool to video record and upload my teaching videos.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Recording my teaching was easy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Accessing the feedback from the instructor was easy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The content of the instruction in the <i>webinar trainings</i> enriched my teaching practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The information in the praise <i>webinar training</i> enriched my teaching practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Feedback from the instructor on the use of praise, behavior-specific praise, and negative comments was constructive to my teaching practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The information in the prompting webinar training enriched my teaching practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Feedback from the instructor on the use of prompting and prompting instructional sequence was constructive to my practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. My understanding of how to use praise and prompting increased when I watched the videos while reviewing feedback from the instructor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. My student's behaviors improved following my use of behavior-specific praise.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. My student's behavior improved following my use of prompting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Overall, my use of negative feedback decreased and my use of behavior-specific praise and prompting increased.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I plan to use behavior-specific praise in my classroom in the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I plan to use the correct prompting instructional sequence in my classroom in the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. This course on learning how to effectively use praise and prompting during the instruction with students on the autism spectrum was useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. This course on learning how to effectively use praise and prompting during instruction with students with developmental disabilities was useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Using evidence-based practices of praise and prompting, benefits all of my students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I recommend that other teachers participate in the webinar trainings in the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. The overall quality of this professional development was worth my time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix H: Interview Questions

### Phone Interview Questions

1. What was the most valuable to you as a participant in this study?
2. What was the most difficult part of the study as a participant?
3. If this study were to be repeated in the future, what would you recommend for the researcher to change?
4. If this study were to be repeated in the future, what would you recommend for the researcher to keep the same?
5. What is the most important thing that you learned as a participant in this study?

## Appendix I: Observation Protocol Data Recording Sheet

**Observation Protocol Data Recording Sheet**

Session Date: \_\_\_\_\_

Length of Video: \_\_\_\_\_

**Praise**

<b>General Praise Statement</b>	<b>Behavior-specific Praise</b>	<b>Negative Comments</b>

**Prompting**

EC=Error Correction, R=Reinforcement, V=Verbal, G=Gestural, M=Model, P=Physical

<b>SD Instruction</b>		<b>Student Response</b>		<b>Consequence</b>			<b>Prompt</b>	<b>Comments</b>
+	-	0	+	-	EC	R	A	
+	-	0	+	-	+	+	+	V G M P
+	-	0	+	-	+	+	+	V G M P
+	-	0	+	-	+	+	+	V G M P
+	-	0	+	-	+	+	+	V G M P
+	-	0	+	-	+	+	+	V G M P

Prompting Continued on Back

SD Instruction	Student Response		Consequence			Prompt	Comments
			EC	R	A		
+ -	0 + -	+ + +	V	G	M	P	
+ -	0 + -	+ + +	V	G	M	P	
+ -	0 + -	+ + +	V	G	M	P	
+ -	0 + -	+ + +	V	G	M	P	
+ -	0 + -	+ + +	V	G	M	P	
+ -	0 + -	+ + +	V	G	M	P	
+ -	0 + -	+ + +	V	G	M	P	
+ -	0 + -	+ + +	V	G	M	P	

**Error correction**-correcting a student's errors right when they happen to avoid repeating the error.

**Reinforcement**-involves consequences that strengthen a behavior.

**Acknowledgement**-the presentation of something pleasant or rewarding following a behavior (can be a positive verbal response).

**Student Response Key:** 0=No response, +=Correct Response, -=Incorrect Response