EVALUATING THE EFFECT OF A STAFF TRAINING PACKAGE FOR PARAPROFESSIONALS TO TEACH COMMUNICATIVE BEHAVIOR TO STUDENTS WITH SPECIAL NEEDS

BY

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DISSERTATION

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Abstract

The use of paraprofessionals to support the education of students with disabilities is increasingly common in special education. Too often, paraprofessionals are expected to assume instructional roles without sufficient preparation and supervision. Children with severe disabilities reportedly receive a high percentage of their education from paraprofessionals. Because these students learn best from carefully implemented systematic instruction, receiving instruction from adults with insufficient training puts these students at a high risk of not learning the skills required for lifelong independence. In this study, these concerns were addressed by teaching paraprofessionals to facilitate communicative behavior in children with disabilities by (a) setting up salient situations that increase the likelihood of child communication, (b) allowing sufficient response time, (c) using a systematic prompting strategy, (d) providing error correction, and (e) honoring children’s requests.

Keywords: paraprofessionals, training, severe disabilities, communication
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Chapter 1: Introduction

Evaluating the Effect of a Staff Training Package for Paraprofessionals to Teach Communicative Behavior to Students with Special Needs

Deploying paraprofessionals to support classroom education in U.S. schools has increased dramatically over the past 20 years (French, 2003). In 1986, approximately 150,000 paraprofessionals were employed in schools nationwide (McKenzie & Lewis, 2008). By 2010, that number had risen to 1,223,400 paraprofessionals (Bureau, 2014). As of 2014, paraprofessionals now are employed in 91% of public schools, further increasing the likelihood of students’ exposure to paraprofessionals (Ashbaker & Morgan, 2012, p. 322). By 2022 the total number of employed paraprofessionals is expected to increase by 9%, or 105,000 jobs (Bureau, 2014). Paraprofessionals are particularly common in special education classrooms and inclusive educational settings. Many stakeholders (e.g., teachers, parents, and administrators) view inclusion as “more acceptable when the child is accompanied by a paraeducator and that paraeducators are a necessary component of inclusion” (French, 2003, p. 2). Parents cite issues such as students’ social and academic opportunities, as well as concerns about health and safety, as reasons for needing paraprofessional support.

Once primarily a clerical position that supported the teacher by performing non-instructional tasks (i.e., copying, collating), the role of the paraprofessional has become increasingly one of “hands-on” work with students. Typical responsibilities are adapting materials, assisting with group activities, facilitating peer interactions, providing one-on-one instruction, participating on Individualized Education Plan (IEP) teams and other school teams, assisting with personal care, and providing behavioral supports (Giangreco, Yuan, McKenzie, Cameron, & Fialka, 2005; Minondo, Meyer, & Xin, 2001).
One role of increasing prevalence is that of paraprofessionals as primary instructors for students with disabilities; however, deploying paraprofessionals in this manner is quite controversial (Downing, Ryndak, & Clark, 2000). Suter and Giangreco (2009) asserted that there is “no sound conceptual or theoretical rationale supporting the notion that students with disabilities should receive primary or extensive instruction from the least trained, lowest paid staff” (p. 82). Brown, Farrington, Ziegler, Knight, and Ross (1999) shared similar concerns, suggesting that the complex educational and personal support needs of students with intellectual disabilities necessitate instruction from teachers and related-service providers who are highly qualified in specialized instructional practices. Instead, particularly in inclusive settings, students with more significant disabilities may receive the majority of their instruction from paraprofessionals. Even when ongoing training is provided, some researchers question whether paraprofessionals can provide students with a Free and Appropriate Public Education (FAPE), as mandated by the Individuals with Disabilities Education Act (IDEA; Giangreco et al, 2005).

Given this level of instructional responsibility, the training of paraprofessionals would seem to be a high priority for districts. However, too often it is not apparent that school districts prioritize paraprofessional training opportunities. Ghere (2003) explained that school districts often miss the mark in this area, as job training for paraprofessionals is often ineffective, inadequate, and at times nonexistent. This leaves many paraprofessionals unprepared to do the jobs they are expected to perform (Suter & Giangreco, 2009), as they assume responsibilities for which they are neither qualified nor adequately compensated (French, 2001; Giangreco & Broer, 2005; Suter & Giangreco). Paraprofessionals themselves have reported receiving insufficient training to perform many of their duties, particularly related to behavior management and curricular modification (Marks, Shrader, & Levine, 1999). They often rely on observation, on-
the-job experience, and self-instruction to learn the key skills needed in classroom settings (Downing et al., 2000). According to Riggs and Mueller (2001), paraprofessionals consider the support received from other paraprofessionals to be their greatest resource. While this is a positive informal option, it can create a system where insufficiently trained employees train newly hired employees. Without proper training, paraprofessionals may not know appropriate strategies to support children’s intellectual, behavioral, social-emotional, and motor development.

Children who require high levels of adult support remain dependent on others if they are not systematically taught otherwise (Shabani et al., 2002). Paraprofessionals are rarely taught to provide this type of support, which may include the use of systematic instructional procedures. These procedures include cueing responses, allowing sufficient response time (or latency) before intervening, using individualized prompting levels, correcting errors, and following through on student requests. These procedures are essential for promoting independence, which is the primary educational focus for many children with severe disabilities and complex communication needs.

In the current study, paraprofessionals were taught five instructional skills to encourage children to initiate requests during snack time: (a) arranging salient situations that increase the likelihood of child communication, (b) allowing sufficient response time (wait time), (c) correctly using a systematic prompting strategy (most-to-least supports), (d) correcting child errors, and (e) responding to the children’s communicative attempts in a way that fulfills their request. The purpose of this study was to determine the extent to which paraprofessionals could learn and correctly perform these skills when supporting students with special needs.
Chapter 2: Literature Review

Children with severe intellectual disabilities often experience challenges as they try to access their daily environments. These may include difficulties with social interactions and communication, slower learning and processing speed, physical features that impede moving around independently, and other safety and health issues (Hume, Loftin, & Lantz, 2009). These challenges often result in restricted engagement with peers and staff, difficulty following a daily schedule, and the need for increased adult guidance during activities. Support is often physical (as evidenced by an adult safely manipulating the child’s body to then perform steps of an activity) and/or verbal (the adult verbally tells the child what to do). Support may also be in the form of visual cues (Quill, 1997), such as tactile objects, picture symbols, and written directions, which encourage students to be independent. In reporting findings of a qualitative study, Hanline and Correa-Torres (2012) reported that paraprofessional supports for peer interactions were primarily for assisting students and teaching communication skills. Based on classroom observations and interviews, the paraprofessionals were found to use the following strategies with the children: assisting children with disabilities to participate in activities with peers without disabilities, modeling appropriate communicative and interactive behaviors, and guiding peers to interact with the children with disabilities.

A key concern for children with disabilities is their struggle to communicate their wants and needs, and to comment to peers and adults. Odom, Hoyson, Jamieson, and Strain (1985) reported that nearly one-third of interactions between students with disabilities and their peers required adult prompting. Their research suggests that while children who are early communicators may require adult support for interactions with others as they learn to express messages successfully, there is also a concern that this adult presence may, in fact, hinder
opportunities for relationship development and self-directed behavior in the long term (Hume, Loftin, & Lantz, 2009). Communication is a building block for other areas of development, such as cognitive, academic, and functional (daily living) skills. Because of the importance of early communicative competence, a primary focus of the current study was to enhance the communicative competence of the child participants.

The purpose of this literature review is to: (a) examine the impact of long-term adult support on individuals across the lifespan; (b) examine the historical role, as well as current practices of paraprofessionals in schools; (c) identify the impact of paraprofessionals in the schools; (d) discuss paraprofessional competencies; (e) explore teachers’ roles as supervisors, and (f) examine research supporting the use of the five instructional skills taught in this study.

**Impact of Adult Support on Individuals across the Lifespan**

**Self-determination.** Self-determination is “the capacity of humans to override other determinants or causes of their behavior so as to act based on their own will or volition, where ‘volition’ refers to making conscious choices or the power or will to make conscious choices” (Wehmeyer et al., 2007, p. 5). Although originally this topic focused on adults with disabilities, research now shows that teaching self-determination in early childhood has a positive effect on future outcomes (Wu & Chu, 2012). According to Wu and Chu, young children often require assistance as they learn to control their environments. In fact, these researchers noted that environments that afford numerous opportunities for children to express themselves are highly valued by young children with and without disabilities. Choice making is often controlled by caregivers. Therefore, they must provide many options to children, including preferred and less-preferred options.
**Dependency issues.** The perceived need for additional support frequently results in children with intellectual disabilities being closely supervised and assisted by adults in school environments, and, later, in vocational and community settings. It is not necessarily a knowledge deficit that causes dependency; rather, it may be difficulties with initiation, task completion, and an overreliance on adult prompting (Hume et al., 2009). For children with autism, for example, underlying deficits in motor planning are a likely contributor to over dependency (Hume et al.). Information-processing deficits and the need for specific and consistent environmental cues may also contribute to dependency (Pelios, MacDuff, & Axelrod, 2003). This excessive dependence on adults results in limited initiation, even with skills and routines that have been previously taught and mastered (Pelios et al.).

Many individuals with intellectual disabilities are thought of as needing supervision and support to remain on task and engaged across environments (Dunlap & Johnson, 1985; Dunlap, Koegel, & Johnson, 1987; Stahmer & Schreibman, 1992). A major concern is that the assistance of an adult, while often required for skill acquisition, will be necessary for continued production of target skills long after the behavior has been learned. Prompt dependency refers to the continued need for verbal, gestural, or physical prompts prior to performing a skill. To become truly self-sufficient, an individual must perform a skill in the absence of adult prompting. For students who are prompt dependent, removing adult support often results in loss of performance and reverting to off-task behaviors (Hume et al., 2009).

This notion of dependency on adults was addressed by Howlin, Goode, Hutton, and Ruller (2004) who interviewed 68 adults with autism who had documented childhood IQ scores over 50. More than half of the participants had adult outcomes described by the authors as “poor” or “very poor.” More than half were unemployed, few had friends, and only three lived
outside of their parents’ homes without intensive supports. Eaves and Ho (2008) reported similar findings in their study of 48 young adults with autism. Forty-four of the 48 participants lived with their families or in group homes. Approximately half had never been employed (including volunteer and sheltered work experiences); one person held a job and earned a competitive wage.

Similarly, Carter, Austin, and Trainor (2012) surveyed young adults with disabilities and reported that only 26% of adults with severe disabilities who graduated from high school in the last 5 years were employed. Communication skills impacted the likelihood of employment: capable communicators were 3-4 times more likely to be employed than those who were not highly communicative. Others more likely to be employed included those with strong self-advocacy skills and positive behavior, and those who could function independently in a school or work setting (Carter et al.). These findings indicate that individuals with severe disabilities are at risk for diminished opportunities for independent living and self-sufficiency if they do not learn independent skills, including independent communication, early in life.

Several studies have been conducted to explore independence in individuals with significant disabilities. MacDuff, Krantz, and McClannahan (1993) used photo cues to teach independent completion of a multi-step task. Graduated guidance by a staff member resulted in increases in the children’s on-task behavior. The participating children learned to follow multiple-step instructions and make transitions without assistance in multiple settings. The children also exhibited the target skill in the absence of a supervising adult or prompting system, although adults were present in the vicinity of the children. However, challenges to independence were reported in other studies. Researchers such as Pelios et al. (2003) noted that individuals with intellectual disabilities often continue to need adult prompts to ensure task
completion and to engage in appropriate behavior once a skill has been mastered. Given the importance of independence skills, and the need to skillfully execute both prompting and fading of the prompts, it is crucial for paraprofessionals who work with individuals with disabilities to be well versed in these instructional skills.

The Historical and Current Roles of Paraprofessionals

Paraprofessionals in the schools have been given many labels, including paraprofessionals, paraeducators, paras, instructional assistants, teaching assistants, and aides. Their roles have been defined as public school staff working with students with disabilities. They are supervised by certified or licensed teachers and other professionals. According to Pickett and Gerlach (1997), paraprofessionals’ job responsibilities encompass many aspects of student learning, including identifying students’ needs, creating programs to address these needs, monitoring student performance, determining whether the education program is successful, and assuming instructional responsibilities as assigned by supervising teachers or licensed professionals. This definition of the paraprofessional role is not a universally accepted one. In fact, the role of the paraprofessional is ambiguous and, often, inconsistent from school to school and classroom to classroom.

Job responsibilities. In practice, the role of the paraprofessional varies widely. Responsibilities may include supporting instruction, performing clerical tasks, adapting materials, supervising or otherwise assisting during group activities, facilitating peer interactions, assisting students with personal care, participating in IEP meetings and other teams, and providing behavioral support (Giangreco et al., 2005; Minondo et al., 2001). Research has shown that paraprofessionals are of most benefit to a school when they serve a supplementary role in the education of students, receive training on the implementation of teacher-designed
lessons, and receive continuous supervision and feedback (Suter & Giangreco, 2009).

Paraprofessionals are frequently asked to assume responsibilities considered inappropriate for their positions (Minondo et al., 2001). In particular, the use of paraprofessionals as primary instructors for students with disabilities is an increasingly prevalent practice. In a study by Suter and Giangreco (2009), educators in Vermont reported that they spent an average of 39% of their time providing instruction, while their paraprofessionals spent nearly 58% of their time providing instruction. According to Marks et al., (1999; as cited by French, 2003), “[P]araeducators perceived that their job responsibilities included: (a) keeping students with disabilities from “bothering” general education classroom teachers, (b) creating all modifications and adaptations for the child, and (c) maintaining responsibility for all aspects of the child’s education” (p. 4).

**Legal issues.** The increasing prevalence of inclusive practices in schools is a likely reason for the increased instructional roles of paraprofessionals (French, 2003). The IDEA mandated that all students be educated in the Least Restrictive Environment (LRE) to the maximum extent appropriate (U.S. Department, 2012). Paraprofessional support is commonly indicated as a supplementary aid on IEPs for students with severe disabilities who participate in general education settings (Smith, Polloway, Patton, & Dowdy, 2012).

The role of paraprofessionals as primary instructors for students with disabilities is not without controversy (Downing et al., 2000). Brown and colleagues (1999) suggested that the complex educational and personal support needs of students with disabilities result in the pressing need for instruction from highly qualified teachers and related-service providers. Yet, particularly in inclusive settings, students with more significant disabilities may receive the vast majority of their instruction from paraprofessionals. As noted by Fisher and Pleasants (2012),
paraprofessionals “are given—particularly in the case of students who have high support needs and receive services in general education settings—responsibility for the implementation of student programs” (p. 287). According to Giangreco (2003), it is not uncommon in inclusive classrooms for general educators to assume that one-on-one paraprofessionals are sufficiently trained to allow the paraprofessionals to take over complete responsibility for the students with IEPs. This places a high level of responsibility on paraprofessionals to provide most of the education to the students they supervise.

Even when paraprofessionals are sufficiently trained and supervised, it is possible that they may not be qualified to provide students with a FAPE (Giangreco et al., 2001). The instructional skills of paraprofessionals with limited professional development are of increasing concern, particularly at the middle and high school levels, where academic content is particularly challenging (Giangreco et al., 2005). According to Giangreco et al. (2005), some paraprofessionals do not possess sufficient mastery of oral and written language (as evidenced by spelling and grammatical errors) to appropriately model these skills to students with learning difficulties.

Relying on paraprofessionals to provide educational instruction to students with disabilities also presents a legal risk to schools. For example, in 2004, the Linn-Mar Community School District in Iowa failed to provide a FAPE to a student with autism who received the majority of his instruction from his individual aide. According to the judge, the paraprofessional was “improperly responsible for the student’s instruction, the selection of instructional materials, data collection, and behavior management” (Etscheidt, 2005, p. 68). The result of this case has changed the way FAPE is provided to students with severe disabilities, and the responsibilities of paraprofessionals. This case clearly demonstrates the importance of paraprofessionals as
supplementary supports, rather than primary instructional supports.

**The Impact of Paraprofessionals in Schools**

Despite these concerns, research has shown that paraprofessionals can have a positive impact on schools when they serve a supplementary role (supporting teachers), are properly trained, and receive ongoing supervision and job performance feedback (Causton-Theoharis & Malmgren, 2005; Devlin, 2005; Lane, Fletcher, Carter, Dejud, & Delorenzo, 2007; McDonnell, Johnson, Polychronis, & Risen, 2002; Vadasy, Sanders, & Peyton, 2006). When trained and supported by teachers, paraprofessionals can successfully facilitate the inclusion of students with disabilities by encouraging interaction with peers without disabilities and by providing access to instruction from their teachers (Hill, 2003).

Paraprofessionals also can have a positive impact on teachers and schools overall. As Berecin-Rascon (2008) succinctly explained, “Paraprofessionals may possess particularly desirable characteristics such as diverse backgrounds, extensive classroom experience, willingness to work with the most difficult students, knowledge of the school and the surrounding community, and a long-term commitment to stay in the profession.” In a study by French and Chopra (1999), parents indicated improved school-home relationships when paraprofessionals were involved. In fact, the parents often identified paraprofessionals as their primary source of contact with the school. Because paraprofessionals are more likely than teachers to live in the school’s neighborhood, they often serve as a crucial link between the school, parents, and community at large (French & Chopra). Paraprofessionals also tend to be more familiar with the student population and can relate to the day-to-day experiences of the families, while providing information on community resources. According to French and Chopra, surveyed parents stated that paraprofessionals were more important to their children’s
inclusion experience than the teachers. At the same time, however, the parents also stressed the importance of paraprofessionals knowing when to back away and allow their children to be independent during activities and within interactions. Thus, while parents highly value paraprofessional support, they do have concerns regarding the interactions of paraprofessionals with their children in inclusive classrooms.

**Paraprofessional Competencies**

In an effort to identify the training needs of paraprofessionals, the Council for Exceptional Children (CEC) published in 1999 a framework of core competencies for special education paraprofessionals. The eight competencies include an awareness of: (a) philosophical, historical, and legal foundations of special education; (b) characteristics of learners; (c) assessment, diagnosis and evaluation; (d) instructional content; (e) supporting the teaching and learning environment; (f) managing student behavior and social interaction skills; (g) communication and collaborative partnerships with other adults; and (h) professionalism and ethical practices. Paraprofessional development should address these competencies to enable paraprofessionals to more effectively perform their jobs.

Paraprofessionals report that they do not receive sufficient training to perform many of their duties, particularly related to behavior management and curricular modification (Marks et al., 1999). Other topics often omitted from training include general disability information, health and safety procedures, the purposes and rationale for inclusion, guidelines for communicating with parents and other staff, facilitating friendship development, the use of augmentative communication, the IEP process, and special education law, including liability issues (Downing et al., 2000; Marks et al., 1999; Riggs & Mueller, 2001). When district-level training is offered for paraprofessionals, it is typically the same training available to teachers, with little, if any,
differentiation between the roles, needs, and experience levels of these staff members (Giangreco et al., 2005). Thus, paraprofessionals often consider these professional development sessions irrelevant (Riggs & Mueller). According to Yoon, Duncan, Lee, Scarloss, and Shapley (2007), didactic training, which occurs outside the natural classroom environment, is often ineffective to teach paraprofessionals to use new teaching skills in the classroom. While some of the skills may be learned didactically, it is challenging for paraprofessionals to transfer instructional skills to teaching students. Targeted trainings and ongoing, specific feedback must be provided to paraprofessionals to support them in their roles with students with disabilities.

In her discussion of paraprofessional training, French (2003) offered key recommendations. First, the roles and responsibilities of paraprofessionals must be clearly delineated. Second, schools and districts must ensure appropriate supervision by properly trained, well prepared teachers. Teachers, particularly novice or nontenured teachers, are often unprepared to provide this level of supervision. Few teacher training programs provide such instruction in supervising adults; rather, teachers tend to learn these skills on the job through trial-and-error (French). In a 2001 study, French reported that, while approximately 75% of participating teachers supervised paraprofessionals, most reported on-the-job experience as their primary source of training about supervisory practices. Although much of the literature on supervision indicates that face-to-face contact is a crucial component of the supervisory relationship, 30% of the teachers stated that they never met with their paraprofessionals (French, 2003). One likely reason for this is the limited time available for meetings. Paraprofessionals are typically hourly employees who work only when the students are present (French & Chopra, 1999). Thus, teachers have little preparation to supervise paraprofessionals, and little time to meet with them during the school day. This presents a real concern that those paraprofessionals
“may be working without direction or with hastily constructed or easily misconstrued oral directions” (French, 2003, p. 8).

**Teachers as Supervisors**

Teachers are often unprepared to assume the role of adult supervisor because most personnel preparation programs do not provide training in supervisory skills (Morgan, Forbush, Nelson, & Christensen, 2003). Perhaps because of this lack of preparation to adequately supervise, teachers often prefer to work with paraprofessionals who are able to perform their responsibilities with only verbal instruction, as opposed to written guidelines (French, 1998). These verbal directions are typically given informally, throughout the day. Due to scheduling conflicts, there is often little opportunity for collaborative planning within classroom teams (French, 2001). While teachers are expected to develop lesson plans for their students, they are not required to write detailed plans for their paraprofessionals. When plans are written, the emphasis is typically placed on the procedures for a specific activity and how to manage challenging behaviors (French, 1998). IEP goals, questioning strategies, and documentation procedures are often omitted from lesson plans (French, 2001). However, for paraprofessionals to truly understand what is being taught and why it is a focus of instruction, they need to be familiar with their students’ goals and objectives, as well as the requirements for skill mastery (French, 2001).

Multiple researchers have identified key areas of supervisory competency for teachers, typically including (a) communicating with paraprofessionals, (b) planning for and scheduling all staff in the classroom, (c) providing instructional guidance and support, (d) modeling strategies, (e) relating to the public, (f) providing appropriate training, (g) understanding the legal limits of a paraprofessional’s authority, (h) engaging in creative problem solving, (i) conflict
management, (j) task delegation, and (k) being aware of liability issues related to having paraprofessionals deliver IEP services (French, 1998; Wallace, Shin, Bartholomay, & Stahl, 2001). These responsibilities may be overwhelming, particularly for novice educators, but skills in these competency areas help teachers support paraprofessionals.

**Paraprofessional Training and Supervision**

There is a growing research base on the use of different training strategies with paraprofessionals in an effort to ameliorate the lack of training received through their employers. However, much of this research has focused on teacher training. Because of this, the articles presented here reflect research with both teachers and paraprofessionals. The assumption is that the same procedures that are effective with teachers also have the potential to be effective with paraprofessionals. Also, much research that involves paraprofessionals as instructors is focused on the student outcomes as opposed to the paraprofessional outcomes.

There is a general consensus on the importance of ongoing training and supervision of paraprofessionals. The status quo has long been group inservice sessions, yet information provided in these events does not lead to consistent change in the classroom (Stockall, 2014). Research has shown that a combination of in-service training with follow-up feedback or coaching can be highly effective for educators to learn new instructional strategies and use them with fidelity in the classroom (Jackson et al., 2006; Kretlow & Bartholomew, 2010; Kretlow, Cooke, & Wood, 2012; Kretlow, Wood, & Cooke, 2010; Steinbacher-Reed & Powers, 2012; Yoon et al., 2007). Multi-component programs (MCPs) are interventions that include multiple types of training components. Nearly all reviewed studies may be considered MCPs, but only a few researchers specifically identified their interventions in this way. In most studies, researchers identified multiple-training strategies implemented with participants. Rather than
looking at these training components separately, it may be more valuable to consider them as a package. For example, in a multiple-component intervention that included supervisory feedback, self-recording, and graphic feedback, VanVonderen and DeBresser (2005) successfully increased the accuracy of the interventions provided by four caregivers at a child care center during one-to-one work with children with disabilities. Supervisory Performance Feedback (PFB) was sufficient to increase staff accuracy; self-recording and graphic feedback resulted in the successful maintenance of accuracy in the majority of adult participants. Brown, Stephenson, and Carter (2014) successfully taught four teachers of students with severe disabilities to use a simultaneous prompting procedure. The MCP strategy included didactic video lectures, one-on-one coaching with role play, and PFB. Information in the video lecture was the same for all four teacher participants, but the coaching and feedback were individualized to each participant. The authors reported experimental control across all four participants with the MCP strategy.

Bolton and Mayer (2008) used a rapid training protocol to teach three newly hired paraprofessionals to use discrete trial teaching (DTT) procedures with individuals with autism. Components of the training included presenting information on the procedures for DTT and practicing until mastery was achieved on 10 different DTT programs. General case (GC) instruction was utilized to promote generalization to other DTT programs the paraprofessionals were responsible to teach. PFB was provided on an ongoing basis by the paraprofessionals’ supervisors. Results indicated that paraprofessionals were able to apply the DTT procedures to the work setting, and they successfully generalized their use of the procedures to teaching other skills following the DTT format.

PFB is feedback provided to participants about their correct and incorrect behaviors during or after an instructional session. Originally used in organizational and institutional
settings, in recent years PFB has also been utilized in school settings (Duham, Mesmer, Gregerson, & Witt, 2009). Frequent PFB has been shown to be highly effective to help paraprofessionals transfer didactically learned instructional skills into the classroom setting (Yoon et al., 2007, p.15). Previous research has reported PFB as effective in improving teachers’ implementation of academic interventions (Mortenson & Witt, 1998; Noell, Gresham, & Gansle, 2002; Witt, Noell, LaFleur, & Mortenson, 1997), teachers’ use of contingent praise (Jones, Wickstrom, & Friman, 1997; Martens, Hiralall, & Bradley, 1997), and fidelity in using a data-based problem-solving model (Burns, Peters, & Noell, 2008). PFB also has been utilized in studies aimed at increasing the accurate implementation of behavior management plans in general education settings (DiGennaro, Martens, & McIntyre, 2005; Noell et al., 2002) and self-contained settings (Codding, Livanis, Pace, & Vaca, 2005; DiGennaro, Martens, & Kleinmann, 2007).

Arco (2008) conducted a literature review of observational studies that examined the use of PFB for staff training in behavioral treatment programs. According to Arco,

[P]rocess and outcome feedback is crucial to connecting staff behavior with its resulting effects on client behavior. Once connections are established, staff are more likely to experience positive and natural changes in client behavior, which then presumably lessen the need for continued process feedback. (p. 51)

Several steps critical to the effective use of PFB were identified. First, prior to implementing PFB procedures, the desired outcomes for students must be clearly identified. Second, functionally related staff behavior/skills are identified. This functional relationship should guide the decision-making process for selecting training procedures. Third, frequent, immediate process- and outcome-focused feedback must be provided to staff while also teaching
staff to “self-generate their own feedback” (Arco, 2008, p. 57). As the training continues, PFB focuses on outcomes (student performance) rather than process (staff behavior). Training ends when staff members reach the predetermined mastery criteria.

Duhon et al. (2009) investigated the impact of receiving PFB in a group setting on the integrity of teachers’ implementation of Response to Intervention (RtI). In this study, the authors observed teachers in their classrooms and provided PFB during RtI team meetings. During these team meetings, participants were informed of their adherence to RtI plans as recorded during the researcher’s observation. This public sharing of results led participants to increase the accuracy of implementation of students’ RtI plans. While the procedures were effective, the authors did caution about the potential aversive effect of such a public disclosure of performance. In another study, Witt et al. (1997) examined the impact of PFB on general education teachers’ implementation of a reinforcement-based behavior program. Teacher training was conducted on the first day of intervention. During this session, a consulting researcher observed the participating teachers’ classrooms to assist them in the use of the behavior program. After training, the teachers implemented the program independently. PFB was provided daily throughout the intervention phase of the study, when the consultant and teachers met to review data on student and teacher performance. Graphic displays were created to monitor daily treatment integrity. The missing/incorrect steps were identified, and the consultant provided recommendations for improved implementation of the program. According to the authors, teachers achieved 100% treatment integrity following training, but the integrity rate decreased during the maintenance phase. When PFB was then reintroduced, teachers’ integrity increased dramatically. Thus, PFB was found to be more effective than direct training alone, although reactivity to the consultant’s presence was not addressed. Also, the use of permanent products
(i.e., daily graphs) is believed to have positively contributed to high fidelity levels.

**Instructional Skills for Paraprofessionals**

All learners can benefit from high-quality instructional practices. Because students with severe disabilities tend to struggle to learn skills through non-instructional experiences in the classroom, they often require specialized, systematic interventions. It is important to train and supervise paraprofessionals in the use of effective instructional practices because they often provide instruction to students with significant disabilities who typically require intensive supports across domains. If instruction is to be effective, paraprofessionals must have a repertoire of evidence-based strategies to use with their students with disabilities. Grow et al. (2009) compared the efficacy of correctly implemented instructional procedures to variably implemented procedures. While both were effective in teaching new skills, the accurately implemented procedures were more effective. Thus it is important for paraprofessionals to not only be familiar with effective instructional strategies, but to also implement these strategies with integrity (Grow et al.). The strategies selected for the current study are five of those that Grow and colleagues studied. These included: (a) cueing children to request, (b) providing a consistent wait time or time delay, (c) using a decreasing prompting strategy, (d) stopping and correcting errors, and (e) honoring (fulfilling) in a way that fulfills their requests.

**Creating requesting via cueing.** As early communicators learn to express themselves in a more conventionally understood manner, their communication partners must encourage them by providing more frequent opportunities for communication. These may be naturally occurring (i.e., events that occur naturally in the environment, such as a child finishing a puzzle and wanting a different one) or adult-created (e.g., strategically placing materials out of reach, asking a question, or providing insufficient materials for an activity). Sigafoos, Kerr, Roberts, and
Couzens (1994) taught five teachers in special education settings to encourage requesting behavior in 26 students with moderate/severe disabilities. Cueing strategies focused on missing-item (i.e., sabotage by giving the student all but one needed material for an activity), interrupted-chain (i.e., child was momentarily prevented from continuing an ongoing activity), and delayed assistance (i.e., teacher blocked an activity for 3 sec). All five teachers increased their rate of providing requesting opportunities. Student performance data were not provided.

Keen, Sigafoos, and Woodyatt (2001) taught paraprofessionals to encourage functional communication in prelinguistic children. The paraprofessionals created opportunities during group time by asking the children if they wanted a turn, while simultaneously presenting a photo of the activity/toy and giving and displaying an expectant facial expression (for up to 10 sec if needed). The researchers reported successful outcomes for the participating paraprofessionals. In another study, Downs, Downs, and Rau (2008) identified the provision of cues as an important step in the DTT process. The authors included cueing as part of a 30-item checklist that they developed to monitor participants’ accuracy with DTT procedures. An 8-hour training session was insufficient to enable participants to reach the desired level of mastery (90%); it was not until supervision and oral/written feedback were provided, using the implementation checklist, that participants’ performance reached mastery criterion (p. 242). While many studies only briefly (if at all) mentioned creating opportunities, some studies, like this one, provided details specific to the successful provision of cues in instruction.

**Time delay.** Another commonly used strategy, time delay, is the strategic use of wait time to encourage independent student responses. This strategy is often used when teaching students with severe disabilities (Waugh, Alberto, & Frederick, 2011). There are two types of time delay procedures: constant and progressive (Hughes, Frederick, & Keel, 2002). Both
strategies are considered near-errorless learning methods because the maximum assistance required for correct student response is provided immediately after the allotted response time (Waugh et al.). In constant time delay (CTD), the length of wait time between the stimulus and the adult support remains constant across instructional sessions. The most common delay time is 4 sec (Dogoe & Banda, 2009), but it must be individualized to the processing times of individual students. In progressive time delay (PTD), the wait time between the stimulus and prompt starts at 0-sec, and is systematically increased across instructional sessions contingent of performance. In both methods, the minimum support required to ensure a correct response is provided as soon as the time delay expires; in many cases, the type of prompt provided is physical support or modeling (Hughes et al.). Research on CTD indicates that it has been effective in teaching a variety of skills. Zisimopoulos, Sigafoos, and Koutromanos (2011) successfully used CTD in combination with video prompts to teach students with intellectual disabilities to conduct internet searches. Dogoe, Banda, Lock, and Feinstein (2011) used CTD with young adults with autism to teach generalized reading of product warning labels. Results indicated both participants went from near-zero baseline levels of reading product labels to identifying labels with 100% accuracy. Other skills that have effectively been taught using CTD as part of a treatment package include: literacy skills, such as sight words (e.g., Gast, Ault, Wolery, Doyle, & Belanger, 1988) and spelling (e.g., Gast, Doyle, Wolery, Ault, & Baklarz, 1991), as well as multiplication skills (e.g., Koscinski & Gast, 1993). CTD also has been shown to be effective in teaching life skills, such as cooking (Schuster, Gast, Wolery, & Guiltinan, 1988), banking (Donnel & Fergusson, 1989), and purchasing desired items (McDonnell, 1987). CTD has also been useful for minimizing disruptive behaviors (Heckaman, Alber, Hooper, & Heward, 1998).
Reviews of the literature have shown CTD to be effective with a range of students and skills (Dogoe & Banda, 2009), yet there is an acknowledged gap between preservice teacher training and teacher use of the strategy. Although preservice special education teachers may learn about time delay in university coursework, this knowledge doesn’t often carry over into use with students in their classrooms (Dogoe & Banda).

While published research has focused on the effectiveness of the CTD procedure itself, researchers have typically offered a limited discussion of the procedures for training participants to use time delay. There are some exceptions, including studies by Browder and Shear (1996) and Wolery, Anthony, Snyder, Wertz, and Katzenmeyer (1997). Browder and Shear (1996) provided details regarding the two training sessions with teachers to promote treatment integrity and fluency on skills sequences. In their research report, the authors described the use of written instructions, verbal directions, skill modeling, and role play to prepare teachers to use CTD procedures. The student participants successfully learned 10 new sight words during the study. Wolery et al. developed a training package for general education teachers on the use of CTD. A written training manual, a brief (30-45-min) training session, and 5 days of PFB were provided to participating teachers. The procedures and written materials were effective and reported by teachers to be helpful and easy to follow.

Wall and Gast (1997a) successfully taught four caregivers (using modeling of the procedure in combination with written cues and verbal prompts) to use a 4-sec CTD instructional sequence when instructing their family members with disabilities (Wall & Gast 1997b). Similarly, Hughes et al. (2002) taught CTD procedures to educators using written materials and two training sessions. Teachers used scripts from Stevens and Schuster (1988) to role play with researchers to 100% accuracy on the teacher behavior checklist. Upon reaching performance
criterion, each teacher practiced with a nonparticipating student, then implemented instructional procedures with the target student. Results indicated that, while they learned to use the procedures accurately, they did not maintain this accuracy over time. This is consistent with the findings of other researchers (Fuchs & Fuchs, 1998; Mastropieri & Scruggs, 1998). In the Hughes et al. study, error correction was studied within a framework of instructional package. Rather than addressing it in isolation, it was presented as one of five instructional components. By incorporating it into the instructional process, it is possible that it would be utilized more long term by the paraprofessionals.

**Most-to-least prompting hierarchy.** When used properly, adult-administered prompts are highly specific, consistent, and appropriate to the task being learned. The most-to-least hierarchy minimizes opportunities for student error, so the student only produces primarily correct responses (Meadan, Ostrosky, Santos, & Snodgrass, 2013). The intrusiveness of the prompt starts at the highest functional level, decreasing as the child shows progress and requires less intrusive supports. Eventually, the child should reach the point of independence, or performing the target skill in context without adult prompting. Nonverbal prompts may include physical support (e.g., hand-over-hand guidance or a tap to the arm) and gestural support (e.g., pointing or facial expressions). The most common prompts, verbal prompts, are used with students with disabilities, yet these are also the least likely to result in correct student response in comparison with nonverbal methods (Repp, Barton, & Brulle, 1981). In their study, Repp et al. found that therapists were most likely to use single verbal prompts with students. In another study on the impact of paraprofessionals’ prompting on students with disabilities, Young, Simpson, Smith-Myles, and Kamps (1997) reported that participating paraprofessionals used gestures or nonverbal cues less than 1% of the time, despite students’ struggles with verbal
instructions. Their research indicated that verbal prompts are commonly used but largely ineffective in terms of prompting correct student responses, likely due to poor perceptive skills.

Other studies have demonstrated that teachers often use multiple verbal prompts rather than more transparent prompts (i.e., modeling or physical assistance). Grow et al. (2009) reported that four children, aged 6-9 years, learned the targeted skills when instructors used multiple verbal prompts. However, the authors noted several caveats about this strategy. First, the opportunity to make repeated errors may hinder skill acquisition. Second, students who demonstrate noncompliant behaviors may become frustrated by repeated incorrect responses and subsequent delays in reinforcement. Third, participants who struggle to attend to and process auditory stimuli may be limited in their ability to correctly respond to repeated verbal stimuli. Individuals with severe disabilities commonly struggle to comprehend and respond to auditory input (Quill, 1997). Visual comprehension is often much stronger for children with disabilities.

According to Quill (1997), children “are better able to focus their attention on visual materials than attend to the rapidly changing social and communicative events inherent to instruction and social-communicative interaction” (p. 707). Thus, the use of visual cues (e.g., modeling, gestures, picture symbols and concrete tangible objects) is often easier for students to process and respond to. In summary, while verbal prompting may be easier to implement than seemingly more laborious supports, the potential risks (i.e., it is challenging to fade verbal prompting, there is a potential for repeated errors, and auditory input is difficult to process) render this strategy questionable and that its use should be minimized with students with significant disabilities. While there are times when it may be appropriate, it is possible that students with language challenges may encounter difficulty quickly responding to and integrating verbal information (Quill).
Additionally, students with significant disabilities can become prompt dependent, requiring specific prompts to perform already-learned skills. Verbal prompts are more difficult to fade than nonverbal (i.e., physical or modeling), thus they increase the risk of prompt dependency for students. While verbal prompts are often effective, they are also easily overused by adults (e.g., too many, for too long). As students become accustomed to hearing the verbal prompts before they perform the skill, they become dependent on hearing the prompts in order to perform. Because other types of prompts are easier to fade (e.g., gradually providing lesser levels of physical support), students are more likely to develop independence. Additionally, because students with significant disabilities are already at risk for lifelong dependency on adult support, verbal prompts should be limited or avoided whenever possible. Hall, McClannahan, and Krantz (1995) taught paraprofessionals to reduce the number of verbal and gestural prompts they used with their students, and to provide only physical prompts. The paraprofessionals successfully reduced their use of verbal and gestural prompts, and students demonstrated significant increases in engagement and initiations. Boucher and Lewis (1989) studied the effects of visual cues on task performance by children with autism. The children’s task performance improved when written instructions were added to the spoken and/or modeled directions. Thus, research has shown that it is possible to teach adults, including paraprofessionals, to decrease their use of verbal prompts and positively impact student performance.

**Error correction.** Limited research exists on the impact on student outcomes when paraprofessionals receive training in the use of error correction. The existing research demonstrates improved student outcomes in academics (Barbetta, Heron, & Heward, 1993; Barbetta & Heward, 1993; Brophy & Good, 1986; Carlson & Francis, 2002; Drevno et al., 1994;
Rosenshine & Stevens, 1986). O’Keefe, Slocum, and Magnusson (2013) taught five paraprofessionals, who provided supplemental reading interventions to students with learning disabilities, to implement a fluency training protocol to students with fluency deficits. According to the researchers, the participants successfully increased their correct use of error correction after a 5-hour fluency training package that addressed presentation rates, praise rates, and error correction accuracy. Paraprofessionals successfully used the error correction strategies, though students did not have high levels of fluency improvement. While these results are of concern in regards to student progress, they indicate that paraprofessionals can learn to use error correction during instruction. Additional research addressing the impact of paraprofessionals’ behavior changes on the behavior of their students is needed. Without this information, we cannot know how to best influence skill growth in students.

**Honoring requests.** Literature on the topic of teaching adults to honor requests is also scarce. In one study (Bingham, Spooner, & Browder, 2007), three paraprofessionals were taught to increase their responsiveness to students’ requests. A training package was developed that included self-evaluation, modeling, and role play. By the end of the intervention, the paraprofessionals had increased their responsiveness from an average of <1 to an average of nine responses per 1-hour session. Functional Communication Training (FCT) researchers often make strategic use of request honoring by providing requested items only when requests meet specific criteria. This reinforcement serves as both motivator and tool for shaping the child’s behavior (Fisher, Thompson, Hagopian, Bowman, & Krug, 2000; Sidener, Shabani, Carr, & Roland, 2006). Similarly, in successful research using behavior modification methodology, requests are often honored for correct requesting once very specific situational criteria are met (Dixon & Cummings, 2001; Roane, Fisher, Sgro, Falcomata, & Pabico, 2004).
**The Current Study**

While the use of paraprofessionals as instructors for students with significant disabilities is controversial, the fact remains that it is a common practice in today’s schools. Yet, research indicates that paraprofessionals’ experiences with training and supervision are minimal at best. Students with intellectual disabilities typically benefit from repeated systematic and individualized interventions to gain the most from instruction. Despite their best intentions, untrained paraprofessionals often do not use evidence-based strategies when attempting to teach students with significant disabilities. Paraprofessionals also struggle to provide students with optimal support during interactions with peers and other adults. The importance of preparing paraprofessionals to utilize evidence-based supports with their students cannot be overstated. Paraprofessionals often incorrectly implement strategies such as CTD, prompting hierarchies, and honoring requests, which have been identified as effective evidence-based strategies for students with disabilities.

In the current study, paraprofessionals were taught to use instructional strategies that encourage student independent communication. Individual training sessions (direct instruction and role play) were conducted with participating paraprofessionals to teach the use of key instructional strategies. Paraprofessionals’ accurate use of these skills during snack time with targeted children was assessed several days a week, over the course of a full school year.

**Summary of the Purpose of the Study**

In Warren and Yoder’s (1996) overview of communication research at the John F. Kennedy Center at Vanderbilt University, the authors presented several premises on which their research was founded. Three of these premises are particularly relevant to this study. First, “an individual’s ultimate ability to communicate effectively will disproportionally determine his or
her success in school, work, and social relationships” (p. 120). As mentioned earlier, children with disabilities are at increased risk for lifelong dependency and a lesser quality of life in adulthood. Communication skills are a vital part of developing the self-determination to minimize this risk. This premise was a guiding focus for the current study.

Another relevant premise is the understanding that “the earlier we intervene to enhance communication, the better” (Warren & Yoder, 1996, p. 120). The paraprofessionals in this study were employed in inclusive early childhood special education settings, and their target children were between the ages of 3 and 5 years. All three participants were early communicators with limited verbal communication that was understood by others. Target students were at an appropriate age and skill level to focus on increasing the intelligibility of their communication and their competence to request desired items. The current literature base, as described previously, has clearly demonstrated that young children can learn a variety of functional and academic skills from appropriately prepared paraprofessionals. However, the majority of the studies do not provide procedural details on the type of training the paraprofessionals received. Instead, the authors often provided an overview of this information, while focusing more on student outcomes. In the current study, the focus was on the impact of training on paraprofessionals’ instructional behavior.

A third premise is “that the quality and quantity of input the young child receives from his or her environment is crucially important” (p. 121). Based on this, it stands to reason that inadequate input (in quality and quantity) can have a detrimental impact on a child’s development across skill areas. In many studies, the prompts and outcomes were of primary importance. Other issues, such as the creation of communication opportunities and the responsiveness of the adult partner, often received only minimal attention. Yet, these two
“bookends” are crucial to a successful communicative opportunity. In the current study, this premise was addressed by focusing equally on the responsiveness of the paraprofessional to the child, as well as arranging the environment to set the occasion for a request.

The following components of an instructional trial were addressed. Paraprofessionals were provided training on each component, in order to maximize the potential impact of instruction. The components included: (a) environmental arrangement for cueing opportunities; (b) response time, or time delay, between cue and prompt; (c) decreasing systematic prompting levels hierarchy; (d) error correction; and (e) honoring the child’s request. By delineating this instructional process, it was easier to evaluate successful and unsuccessful components. Key findings of this study may enhance future research efforts on the provision of instruction to students with disabilities.

As paraprofessionals were learning how to use an instructional strategy, they needed training that was specific to their unique situations with their target children. The majority of research in this area involves numerous components to ensure a favorable outcome. However, in many classrooms there is minimal time for team meetings, in-service sessions, or planning. Designing a training package that is less time and labor intensive may increase the likelihood of the procedures being used in the absence of a researcher. In this study, several brief training sessions and PFB were utilized with participants to address these concerns. The outcomes of this study shed new light on the possibilities of less intensive interventions taught to paraprofessionals who work with young children with severe disabilities.

The specific research question addressed in this study was:

What is the effect of a teaching and coaching intervention on paraprofessionals’ accurate implementation of instructional strategies (cueing, wait time, decreasing prompts, error
correction, and honoring requests) used to teach requesting behavior to children with severe intellectual disabilities?
Chapter 3: Methods

The goal of this study was to teach three paraprofessionals to facilitate independent requesting behavior in three preschoolers with disabilities by (a) cueing them to request, (b) allowing sufficient response time, (c) using a structured prompting procedure, (d) providing error correction, and (e) honoring correct requests. Each paraprofessional participated in three training sessions and received performance feedback (PFB), or coaching, to learn to implement the instructional strategies. Accuracy of implementation was coded by coding videotapes of each session.

Conceptual Model

The theoretical framework for this study is drawn from two approaches pertinent to intellectual disabilities: applied behavior analysis (ABA) and a supports-oriented approach (Luckasson et al., 2002; Shalock et al., 2007; Thompson, et al., 2004). The methods used in the study capitalize on behavior principles and the design is drawn from single-case research that is a component of ABA. The supports-oriented approach considers the social and environmental implications of disability. Rather than focusing solely on “fixing” an individual (such as with a deficit model), the supports-oriented model acknowledges disability as situational/conditional and thus identifies a learner’s intensity of support needs as opposed to the perception of what may be “inherently wrong” in the learner.

Dinaro (2014) and Ware (2009) pointed out that faulty assumptions about student capabilities exist and need to be corrected. These assumptions include undervaluing the capabilities of individuals with disabilities and placing a high value on minimizing perceived deficits. In reference to special education administrators’ conceptualizations of disability in schools and the need to question the assumptions of the medical/deficit model, Dinaro suggested “Using approaches that focus more on providing supports rather than delineating deficits”
In this study, the supports-oriented approach is reflected in the focus on staff training changes that affect learner outcomes, rather than narrowly focusing on the student’s target behaviors. The social and educational factors of having staff who are prepared to provide accurate amounts of support (not too much, not too little) can empower the student (Dinaro, 2014).

Research by leaders in the field of special education has shifted educational focus from assessing and making assumptions regarding learning and disability that focused on creating normalcy (perceptions of individuals as more like “typically developing” individuals) to a supports-oriented approach, in which the focus is on providing appropriate supports for optimal levels of independence (Thompson et al., 2004; Thompson, Wehmeyer, & Hughes, 2010). In the current study the emphasis is on prioritizing communication instruction and providing multiple opportunities for instruction with young children with intensive support needs. This focus is appropriate, timely, and important given that paraprofessionals spend substantial time with learners with severe disabilities, yet professional development is limited. In a school context, providing professional development to paraprofessionals with a supports-oriented model is relevant so that school staff learn the importance of access and opportunity regarding communication for independence and interdependence, with the emphasis on supports rather than deficits. Paraprofessionals also can focus on implementing practices consistently to improve the lives of learners with disabilities.

In summary, the supports-oriented approach as applied to this study offers a way of understanding disability in a school context with the idea of (a) prioritizing quality early intervention for the purpose of student empowerment, (b) increasing quality of life and student growth by targeting communication skills, and (c) emphasizing interactions and meaningful
opportunities with procedural detail to result in effective outcomes that contribute to paraprofessional empowerment (Warren & Yoder, 1996). Lastly, since the supports-oriented approach can help to “facilitate society’s response to individual support needs and promote person-referenced outcomes rather than program-referenced outcomes” (Schalock et al., 2009, p. 308), the underlying foundation of this research emphasizes the need to decrease external barriers such as limited paraprofessional training, to improve student communication skills and independence. The supports-oriented approach also applies to the provision of professional development to paraprofessionals. In this case, their supports were differentiated utilizing targeted professional development that identified what supports were necessary for individual paraprofessionals to be successful in their specific classroom environments and conditions.

**Participants**

**Recruitment.** Principals at two local early childhood at-risk/special education programs were contacted via e-mail in an effort to recruit participants. The principal at one of the schools was interested in having her staff participate. She identified several possible paraprofessional/child dyads and introduced the researcher to the staff members. The classroom teachers sent home an informed consent letter to each family to request permission for their child’s participation. Consent letters were similarly developed and distributed to the paraprofessionals. These letter included details about the study.

**Paraprofessionals.** Originally, four paraprofessionals were identified for participation; however, one stopped participating before the baseline phase officially began. Thus, three paraprofessionals in a public, early childhood program participated in this study. Eligibility for their participation was based on the following criteria: the paraprofessional (a) worked with a child who met the criteria for child participation for a minimum of 1 hour per day (out of a 2½
hour school day), and (b) consented to implement new instructional strategies during the intervention phase. The paraprofessionals each worked in different classrooms.

_Melissa._ The paraprofessional in Dyad 1 was the first to enter the training and implementation phase. Melissa identified herself as a Caucasian female in her late 40s. She had worked at this early childhood center for 2 years. She had participated in several school and district-wide in-service sessions, including Therapeutic Crisis Intervention (TCI), behavioral strategies, autism awareness, and other trainings specific to the needs of her target child. She had taken some college courses, but not completed a degree. It was her first year working with Evan.

_Elena._ Dyad 2’s paraprofessional was the second to enter training and implementation. Elena identified herself as a Hispanic-American woman in her early 20s. She had earned a bachelor’s degree, with a major in Spanish and a minor in Sociology. This was her first year with this school district, school, and child (Kevin). She reported no prior experience with individuals with disabilities. Throughout the school year she participated in several trainings offered by school district personnel, including TCI, language training, and watching videos about behavioral strategies and using choice language. Elena reported a desire to become more familiar with ways to encourage Kevin by making activities more challenging.

_Tonya._ Dyad 3’s paraprofessional, Tonya, identified herself as an African American female in her late 40s. Tonya had worked at this school for 1½ years; however, this was her first year with her partner child, Jacob. She had worked at other schools in the district for 7 years. Tonya had completed high school and she had taken several college courses. She also had participated in several trainings including: National Association for the Education of Young Children (NAEYC) quality guidelines, Positive Behavior Intervention Support (PBIS) practices,
Cardiopulmonary Resuscitation (CPR) certification, and TCI training. Tonya reported a desire to learn more about speech and language development and instructional strategies, as well as the proper use of the Picture Exchange Communication System (PECS).

**Child participants.** Three children were selected as participants based on recommendations from the principal. Criteria for child participation included: (a) spent at least 1 hour of a typical school day (regardless of activity) with his or her paraprofessional, (b) had a diagnosed disability, (c) used fewer than 10 functional words, and (d) was identified by the principal as someone who might benefit from an intervention to facilitate emerging communication skills.

**Evan.** Evan was 4 years old at the start of the study. His parents described Evan as a Caucasian male who lived primarily with his mother and two siblings, although his father shared custody of the children. Evan was diagnosed with a genetic disorder that impacted all areas of development. He was nonverbal and had a history of limited success with PECS. He was ambulatory but required constant supervision by an adult due to difficulties with motor skills (e.g., loss of balance, unstable gait, falling, and limited endurance). He showed limited tolerance for participating in structured classroom activities (such as group time), and did not focus on objects or activities for more than a minute (which occurred primarily with preferred activities, such as having a snack, playing with his iPad, and engaging in some gross motor activities). When not actively engaged by an adult, Evan tended to roam the room, picking up items to examine, orally stimulate, and drop to the floor. Communication goals for Evan centered on choice making, picture exchange, and using assistive technology (i.e., single switch devices and his iPad).
Kevin. Kevin was 3 years old at the start of the study. His parents described Kevin as an African American male who lived with both parents and a younger sibling. It was his first year in a school setting. Kevin had cerebral palsy and used several one-word utterances that typically consisted of the last word spoken by another person (echolalia). Kevin did not demonstrate functional communication other than these words and informal gestures (e.g., reaching for desired objects). He was learning to use a manual wheelchair and a walker to maneuver around the school. Kevin was unable to walk without this equipment unless he held both of an adult’s hands for stabilization and support. He was proficient with a modified crawling technique and he would revert to this skill if he wanted to move without assistance. Kevin was a determined child who would attempt challenging tasks for extended lengths of time without becoming frustrated. Kevin’s communication goals included increasing his independent language use (e.g., initiating communication and labeling objects).

Jacob. The third child participant, Jacob, was described as a 3-year-old African American male, by his parents. It was his first school year in a school environment. Jacob lived with his mother and two younger siblings. He was diagnosed with cerebral palsy and experienced medical complications, including gross and fine motor delays, delayed communication skills, and frequent illnesses. Jacob had all of his nutrition provided via gastrostomy tube (G-tube). Jacob did not use a formal communication system when he began the study, but he did use some informal gestures in an attempt to communicate with others. He was ambulatory in the classroom, but he needed close supervision in case he lost his balance. Jacob’s communication goals included developing his use of American Sign Language (ASL) and picture exchange (via PECS).
All three dyads attended the same early childhood center (at risk/special needs) in a small urban community in the Midwest. Children were eligible to attend this program if they were 3 to 5 years old and identified as at-risk for academic struggles due to socio-economic, health, or other risk factors. Children also were eligible if they had a diagnosed disability. Each classroom was led by a classroom teacher and a paraprofessional, and typically included 15 children. In classrooms with a child who had more intensive support needs, a paraprofessional was assigned as a one-on-one assistant for the child. All participating paraprofessionals were one-on-one assistants for their target children.

During the intervention, each paraprofessional participated in three individual training sessions with the researcher. These sessions averaged 30 min in length, and while they were tailored to the specific characteristics and intervention plan for each paraprofessional-child dyad, each paraprofessional’s set of sessions addressed the same topics in the same order. Paraprofessional training sessions were conducted in quiet areas in the school hallway, providing sufficient privacy for all meetings. Meetings were conducted either before the morning classes began or during the break between the 2½-hour morning and afternoon classes.

**Independent Variables (IV)**

The purpose of this study was to teach paraprofessionals to use these strategies to facilitate requesting by preschoolers with disabilities. As a part of the IV, the paraprofessionals learned about each of these strategies during three trainings. The format and content of the trainings were consistent across the paraprofessionals, but the details of the content were individualized to reflect each child’s learning characteristics and each paraprofessional’s baseline skill level. The specific communication skills targeted for each child also influenced the content (e.g., prompting procedures and cueing strategies) of each training session.
The IV included three 30-minute training sessions and corrective performance feedback provided to each paraprofessional. The trainings presented the five components of instruction to be used with the participant children. In each training session, there was a review of the researcher’s observations of the child and paraprofessional (first session) or a review of the prior session’s content (second and third sessions). The paraprofessional then learned about one (session three) or two (sessions one and two) of the five instructional components. These components were identified in the empirical literature as strategies that encourage independent communication in children: (a) cueing the child’s request, (b) allowing sufficient wait time, (c) using a decreasing prompt hierarchy, (d) using error correction, and (e) honoring the children’s requests. Data were collected on all five components.

Corrective Performance Feedback (PFB) was provided to the paraprofessionals when their accuracy dropped below 80% for one snack session. During PFB, the positive aspects of the paraprofessional’s strategy use were first addressed, followed by suggestions to increase performance accuracy in the next snack session.

When instructing the child, the paraprofessional followed the specific procedures learned in the three training sessions. While individualized for each dyad, all paraprofessionals learned the components of the instructional strategies designed to encourage their target children to make requests with minimal adult intervention. The intervention for all dyads was conducted during snack time because it was a part of the classroom routine and afforded multiple opportunities to request. Also, snack time was a preferred activity for all three children.

**Dependent Variables (DV)s**

The paraprofessionals’ use of the five instructional components was the DV in this study. These include cueing, wait time, structured prompting, error correction, and honoring requests.
Sample data sheets used with each dyad are available in Appendix B. The five DVs are described below.

**Cueing.** Also known as Environmental Manipulation (EM), cueing refers to the arrangement of a situation that increases the likelihood of a communicative initiation from a child. Types of environmental manipulation in this study included: (a) sabotage (e.g., giving the child an unopened milk container and waiting for the child to request help or open it himself), (b) out of reach (i.e., placing desired items where they are visible but out of the child’s reach), (c) questioning (e.g., asking “what do you want?” if the child does not make any requests), and (d) recruit the child’s attention (e.g., hold up one or two food/drink options to him, which should refocus a child who is no longer attending or appears confused about what to say).

**Wait time.** The purpose of Wait Time (WT) is to allow sufficient opportunity for a child to respond to a naturally occurring or teacher-provided cue. The length of the wait time in this study was based on the amount of time the child was known to require when taking in information and making a verbal or nonverbal response (i.e., processing time). This was determined through (a) discussion with the classroom teacher and/or speech-language pathologist (SLP), and (b) observation of paraprofessional-child interactions. Correct paraprofessional use of this strategy involved withholding any prompts for a predetermined number of seconds to allow the child sufficient opportunity to initiate a response. Providing a prompt too quickly or waiting too long to prompt was considered an incorrect prompt.

**Structured prompting.** Structured Prompting refers to the use of different prompts in a systematic manner. A decreasing prompt hierarchy (also known as a “most-to-least” prompting hierarchy) was used with all dyads in this study. For each dyad, a series of prompts were identified, starting with the most controlling prompt (i.e., the prompt that ensured the child’s
correct response) and ending with the prompt that allowed the most independent performance by the child. However, each dyad’s prompts within the prompting strategy differed from the other dyads. Dyad 1 (Melissa) used physical prompts because Evan’s communication strategy was physical (using a picture) in nature. Melissa learned the following prompting strategy: (a) Hand-Over-Hand (HOH) prompting (e.g., Melissa put her hand on Evan’s hand to guide him through the picture exchange procedure), (b) Wrist (WR) support (e.g., Melissa held the sides of Evan’s wrist to guide him), (c) Elbow (ELB) support (e.g., Melissa put her palm over the back of Evan’s elbow), (d) Independent (IND) (e.g., Melissa waited 2 extra sec after the wait time had passed in order to provide extra opportunity for Evan’s independent response).

Because Kevin (Dyad 2) was likely to echo words said by Elena, and because he was able to persist with a task until successful, this dyad initially used hierarchy minimally intrusive nonverbal prompt, in which Elena used eye contact and expectant body language to prompt Kevin’s response. This allotted Kevin the most opportunity for spontaneous communication. However, in order to keep the intervention consistent across participants, and because Kevin was not responding to Elena’s nonverbal prompts (i.e., he was not looking at her face when she gave a nonverbal prompt), this dyad changed to a “most-to-least” strategy more closely aligned with the other dyads. Dyad 2’s most-to-least prompting strategy incorporated different prompts than those used by Dyad 1. Because Kevin’s communication was verbal, most of the prompt levels required verbal or nonverbal supports. These included: (a) Direct Model (DM) prompts (e.g., Elena said, “Tell me ‘more’” to Kevin), (b) Indirect Verbal (IDV) prompts (e.g., Elena asked Kevin, “What do you want?”), and (c) Nonverbal (NV2) prompts (e.g., Elena used eye contact and expectant body language). As Kevin progressed through the prompting hierarchy, Elena used less specific prompts, requiring Kevin to initiate more of the request on his own.
Dyad 3’s child participant was primarily learning to use single American Sign Language (ASL) signs. He also used a few word approximations and single-card picture exchange. His paraprofessional, Tonya, used a combination of verbal and nonverbal prompts to support his communication: (a) Direct Model (DM) prompts (e.g., Tonya said, “Tell me ‘more’” while simultaneously making the ASL symbol for ‘more.’), (b) Indirect Verbal (IDV) prompts (e.g., Tonya asked Jacob, “What do you want?”), and (c) Nonverbal (NV) prompts (e.g., Tonya used eye contact and expectant body language).

Only one prompt level was used at a time. When the paraprofessional provided a prompt, this was the only type of prompt used during that day’s snack session. Once the paraprofessional reached mastery (80% correct use across two consecutive data collection sessions), she moved to the next less-intrusive prompt. Prompting levels changed across snack sessions, but never during a snack session. So, on any given day a paraprofessional might use a DM prompt throughout snack while, on another day, she might ask IDV questions throughout snack.

**Error correction (ECR).** If, at any time during a requesting opportunity, a child responded incorrectly, the paraprofessional used ECR procedures to immediately correct the child’s performance. For example, if the child signed an unclear response, the paraprofessional stopped the response as quickly as possible, by modeling signs while giving the controlling prompt (e.g., “No, this is milk. Tell me milk.”)). This corrected the error and ensured the child performed the correct behavior, rather than an incorrect behavior. For Dyad 1, Evan was only communicating one message to Melissa: he wanted more food. Melissa used prompts that were all physical in nature (until the Independence level), so her ECR was the use of hand-over-hand assistance with a corrective statement (“You want more? Pick up the card…” while holding his hand in hers to complete each step of the picture exchange process). For Dyad 2, ECR was a
verbal directive, such as “No. Tell me ‘milk.’” For Dyad 3, ECR involved words and an ASL sign, such as “No. Tell me ‘milk’” while forming the ASL sign for milk.

**Honoring child requests (HCR).** The final instructional strategy was HCR, or following through with the child’s correct request. For example, if the child signed “more” for more cookies when having snack, a correct response was to give the child more cookies. Giving the child a cup of milk was an incorrect paraprofessional response. Because the children were still learning their new communication skills, the paraprofessionals were expected to honor all requests that were the correct mode and content for each child.

**Child Communication Targets**

For Evan (Dyad 1), the focus of intervention was independent use of a single-picture symbol to request additional food. Dyad 2’s child, Kevin, was taught to initiate requesting vocabulary (such as *open, more, help, all done, and juice*) during snack time. Dyad 3’s child (Jacob) focused on single American Sign Language (ASL) signs and PECS to make requests. Targeted expressive signs included *more, open, eat, all done, and help*. The PECS symbols included *juice, cereal, and more*. Jacob also initiated with consistent word approximations, including *yeah* and *done*.

If a target child did not initiate a response to a natural cue (e.g., empty bowl), the paraprofessional prompted the child. To continue with the scenario described above, if the child failed to respond within 5 sec of the cue (i.e., empty bowl), the paraprofessional performed the prompt. A correct response encompassed several content options (e.g., more, all done, eat, and cookie) and modalities (e.g., spoken word, sign language, and PECS), individualized to each child.

**Research Design**
In this study, a single subject, multiple-baseline design across participants was employed. Dyad 1 (Melissa and Evan) began intervention first, while Dyad 2 (Elena and Kevin) and Dyad 3 (Tonya and Jacob) entered intervention in a staggered fashion, until all participants were in the intervention phase. This staggered entry into intervention afforded the opportunity to demonstrate experimental control of the instructional package on the paraprofessionals’ implementation of the five components.

**Procedures**

During the baseline and intervention phases, all three dyads were videotaped during snack time approximately 3 days a week. The researcher operated the video camera. Videotaping enabled accurate recording of staff and child behavior in relation to the instructional components. The start of a videotaping session was signaled by the following conditions being met: each dyad member sitting in his or her chair, facing the other person, having all needed materials present on the table, and one dyad member initiating the first request or bite of food. The session ended when the child finished eating his snack or the child’s behavior prohibited continuation of the snack routine (e.g., the child was upset and refusing to request or eat).

**Baseline phase.** Prior to the first videotaping session, paraprofessionals were asked to assist the participating children with snack time as they usually did. Other than the videotaping, snack time operated in the typical way. No performance feedback was provided to paraprofessionals during this time.

**Intervention Phase.**

**Pilot phase.** This study’s pilot phase occurred during the school year prior to the start of this study. Four dyads from the school districts participated in the pilot phase. The participating students ranged in age from 5 to 15 years. The skills that were addressed included self-feeding,
completing a structured workbox routine, and playing with toys. The paraprofessionals were taught to use proximity, time delay, and prompting strategies through training sessions (similar to those in this study) and PFB. The results of the pilot study guided the development of the current study.

**Paraprofessional training.** Three training sessions were conducted individually with each paraprofessional by the researcher. The length of each session was approximately 30 min. Training topics included: (a) PFB from baseline observations; (b) introduction to the importance of independence for children with disabilities, including how increased child communicative independence could ease the paraprofessionals’ perceived responsibility for care; (c) discussion of the target skills for their target children (suggestions were given to the researcher during prior discussions with teachers and related-service providers); (d) discussion of target strategies for implementation by the paraprofessionals; (e) instructional component practice; and (f) a summative review. A data recording sheet was developed for each dyad (see Appendix B); paraprofessional and child performance data were recorded on the data recording sheets by the researcher and reliability coders as they watched the videotapes. Early in the intervention the researcher provided PFB shortly after snack was completed (as soon as possible), then provided it as a source of remediation if the paraprofessional’s performance dropped below 80% accuracy during two consecutive snack sessions. PFB included highlighting correct paraprofessional behaviors and making suggestions for increased success.

At this phase of the study, the researcher acted as an observer, videotaping all snack sessions without intervening. If a child did not appear to be responding to the paraprofessional’s use of the new instructional strategies, the paraprofessional, classroom teacher, and researcher communicated in person and/or via e-mail to share ideas for refinement of the procedures. If a
paraprofessional implemented the procedures with fidelity, and the child still did not make progress, the child’s behavior did not reflect negatively on the paraprofessional’s performance. Rather, this indicated a need to re-examine the best ways to provide instruction to the child.

*Corrective PFB as additional support.* Upon completion of training, the paraprofessionals were expected to implement the instructional procedures independently (using handouts for support, if needed). If a paraprofessional’s use of the strategies fell below 80% for one snack session (according to data collected by the researcher), PFB was incorporated back into the intervention in the same manner as in training. Corrective PFB procedures included the provision of immediate feedback and guidance before and/or after a snack session. Strengths in the paraprofessional’s performance, as well as the child’s behavior, were identified and encouraged. Errors were addressed in a constructive manner, so as to guide paraprofessionals to use more effective instruction. PFB continued until the paraprofessional implemented the instructional procedures at a minimum 80% accuracy for one snack session.

*Criterion for mastery.* Ultimate mastery occurred when the paraprofessional correctly implemented the procedures at the least intrusive prompt level, in 80% of opportunities (requests) across a minimum of two snack sessions. Mastery was not contingent on increases in targeted communication behavior by the children.

*Maintenance phase.* Once intervention ended, maintenance data were collected on the paraprofessional’s ongoing use of the instructional skills. During weekly maintenance checks, the dyad was videotaped as in the baseline phase. The videos were coded to determine the paraprofessional’s continued use of the strategies during snack time. The child’s continued use of the learned skill also was measured. During maintenance checks, the paraprofessional was
offered a brief refresher session if performance fell below the mastery criterion (80%) for one
snack session. Otherwise, no PFB was provided during the maintenance phase.

**Data Collection.** Data recording sheets were developed based on details provided by the
teacher and paraprofessional, as well as the researcher’s pre-baseline observations. During the
baseline phase, the data-recording sheet was individualized for each dyad, based on IV and DVs.
The researcher used each dyad’s data recording sheet to collect data during each snack session.
The researcher collected these data by coding videos of all snack observations.

**Reliability Data.** Two graduate students from the special education department of the
local university acted as reliability recorders for this study. The reliability recorders coded the
videos using a data recording sheet that contained a chart for paraprofessional behavior and a
chart for child behavior (this data was not analyzed for this study). See Appendix B for sample
data sheets for each dyad. These charts contained the same content as the data recording sheets
used by the researcher. The reliability recorder received training on the coding procedures.
Training continued until the researchers and reliability rater reached 90% or higher agreement
for two consecutive practice videos. Reliability data were collected across phases for each dyad,
on a minimum of 30% of randomly selected videos in each phase of the study. Inter-observer
agreement was assessed column by column, with a total score for each communication
opportunity.
Chapter 4: Results

Performance data are presented in this chapter. Visual analysis of the multiple-baseline results (see Figure 1) reveals the extent to which experimental control was demonstrated. This is the key outcome for any single-case research study. The dyads entered the baseline phase at approximately the same time, then entered the intervention phase in staggered fashion, one dyad at a time. Dyad 1 (Melissa and Evan) entered the intervention phase first, followed by Dyad 2 (Elena and Kevin), and finally Dyad 3 (Tonya and Jacob). The following sections include these data with details about the DV (the paraprofessionals’ application of the five instructional strategies) and the possible implications for this research study.

Analysis of Figure 1: Multiple-Baseline across Dyads

To review the variables in the study, the IV or intervention included each paraprofessional’s three individualized training sessions that encompassed the instructional skills taught by the researcher (i.e., creating requesting opportunities, allowing sufficient wait time, prompting responses systematically, providing error correction when needed, and honoring all correct requests). These were introduced to each paraprofessional during the first three sessions of intervention (indicated on the graph by a Δ).

Performance Feedback (PFB), provided by the researcher and indicated by a □, was also a part of the intervention. Whenever a paraprofessional dropped below 80% correct strategy use, PFB was introduced immediately before the beginning of the next session. PFB was not initially a part of the intervention; however, after Melissa’s first three sessions following the three training sessions, it was decided that she needed additional support. Therefore, PFB was introduced for the first time immediately prior to the seventh intervention session and was applied from that point on for all three paraprofessionals. Once a paraprofessional’s
Figure 1. Multiple Baseline Graph across Three Dyads. Paraprofessionals’ accurate application of the five instructional strategies (combined in each data point) across the phases of the study. Triangles represent the three training sessions for each paraprofessional. Squares indicate sessions when Performance Feedback (PFB) was provided because accuracy fell below 80% in the prior session.

Performance dropped below 80% for one snack session, PFB was provided as soon as possible after the session, and immediately prior to the next session. The content of the feedback varied, but generally included suggestions for changes to strategy use with the child and possibly a brief demonstration of how the strategy should be implemented. It is noteworthy that with one exception (i.e., sessions 30 and 31 for Elena in Dyad 2 remained below 80%), every instance of PFB produced performances above 80% in the next session.

The paraprofessionals’ application of the five instructional skills during snack time with their partner children was the DV in this study. Global visual inspection of Figure 1 reveals changes in level (phase averages) between baseline and intervention phases. Melissa’s average
correct strategy use during the baseline phase was 46% and increased to 83% during intervention, before dropping slightly to 74% during the maintenance phase. Elena’s implementation during the baseline phase averaged 44%, rose to 83% during intervention, and averaged 88% during the maintenance phase. Finally, Tonya applied the strategies accurately in 70% of baseline opportunities and 86% during the intervention phase. Her performance rose slightly to 89% in the maintenance phase. In sum, all three paraprofessionals increased their accurate implementation of the five strategies from baseline to intervention phases when condition means were compared and then remained above baseline levels during the maintenance phase.

Visual inspection of trends reveals an ambiguous pattern at the time the intervention was introduced for all three paraprofessionals. In the three panels, baseline data are relatively stable; when intervention begins, a gradually increasing trend is observed throughout the phase for Melissa and Elena; Tonya’s intervention data are stable. Yet, for all three panels, particular characteristics of the data confound the clarity of the trend evaluation. Melissa’s (Dyad 1) sixth and final baseline data point rose to 65%, representing the beginning of a confounding therapeutic trend in the direction of the intervention goal. In a similar fashion, the last two baseline data points for Elena (Dyad 2) began a confounding trend that predicted the trajectory observed during the intervention. Finally, Tonya’s (Dyad 3) last three baseline data points introduced a confounding trend that make it difficult to conclude that the change in the data path was due to the intervention.

Evidence for an intervention effect, however, is bolstered by other characteristics of the data. When the training component of the intervention was introduced, the rate of correct strategy use increased for all three paraprofessionals. Not surprisingly, this increase was most
noticeable by the third training session, as only a subset of the five strategies was introduced in each session. In other words, it was not until the third session that the paraprofessionals were exposed to all five strategies.

The purpose of this study was to examine the effect of a training package on the instructional performance of three paraprofessionals who each worked with a young child with special needs. Each paraprofessional individually participated in three 30-min training sessions with the researcher. The training focused on five specific strategies that the paraprofessionals could employ to teach communication skills to the target children: (a) arranging requesting opportunities, (b) allowing sufficient response time, (c) using a specific prompting strategy, (d) providing error correction, and (e) honoring children’s requests. These five skills were introduced and discussed in the context of each paraprofessional’s particular child’s communicative behaviors. PBF was provided when the paraprofessionals’ fidelity of implementation dropped below 80% during a snack session. The results revealed that all three paraprofessionals used the newly trained skills with increasing fidelity across the study.
Chapter 5: Discussion

In this chapter, the results of the study are placed in context. First, a brief summary of the study is provided in which the primary findings are highlighted. Second, these findings are discussed in terms of their relationship to prior research with a similar focus. The limitations of the study are presented next, followed by a discussion of the implications for practice. Finally, recommendations for future research are addressed.

Discussion of Results

Paraprofessionals learned the instructional strategies. In general, all three paraprofessionals progressed to mastery relatively quickly with cueing, wait time, prompting, error correction, and request honoring. For Dyads 1 and 2, accurate strategy use occurred in approximately 50% of baseline opportunities. Dyad 3’s accurate use was closer to 70% in the baseline phase. As the intervention progressed, the fidelity with which all three paraprofessionals implemented the strategies increased. The first three intervention data points represent the three training sessions. Two instructional strategies were taught during each of the first two training sessions, and prompting was described and discussed during the third session. A delay in accurate strategy use was expected because the five-component instructional package was not completely addressed until the final day of training. Once the five strategies were taught, all three paraprofessionals demonstrated consistently higher percentages of correct strategy use. These behavior shifts suggest successful acquisition and implementation of the five strategies.

Individualizing to meet participant needs. Prior to the intervention, the three paraprofessionals reported that they had received little instruction on teaching communicative requesting. However, three brief training sessions were sufficient to provide them with a basic
understanding of how to implement the five strategies with their target children. Additionally, although the paraprofessionals received nearly identical training, the support they provided to their target child (i.e., cueing, wait time, prompting, error correction, and honoring requests) looked different for each dyad and was uniquely relevant to each child. For example, Melissa’s training focused on providing decreasing levels of physical prompts to teach Evan to exchange a PECS symbol. Elena and Tonya, on the other hand, learned how to use verbal and nonverbal prompting strategies because their child partners possessed more advanced communication skills. These differences did not significantly alter the impact of the IV. This suggests that as long as the training procedures conform to the same guidelines, it is possible to individualize interventions and still achieve positive results. Other researchers who individualized the intervention component of their studies provided the same initial training sessions for participating staff, then individualized in the form of PFB when the intervention moved into the classroom (Brown et al., 2014; Horrocks & Morgan, 2011; van Vonderen, de Swart, & Didden, 2010). For example, at the start of the intervention in Witt et al.’s (1997) study, the researchers provided an initial training session on the targeted behavior program. A researcher then observed each participant to assist them in the use the program. This type of individualization likely contributed to the high rates of fidelity reported by the authors.

**Performance feedback impacted fidelity.** PFB appeared to be an important component of the IV in this study. Timely PFB coincided with higher rates of accurate implementation on the next session. This finding is consistent with other research demonstrating the effectiveness of PFB in improving professional instructional performance (c.f., Burns et al., 2008; Jones et al., 1997; Mortenson & Witt, 1998; Noell et al., 2002). For example, in the Witt et al. (1997) study, the authors examined the impact of PFB on general educators’ implementation of a behavior
program. PFB was provided daily throughout the intervention phase. Teachers achieved 100% treatment integrity following the PFB and training, but integrity decreased during the maintenance phase. PFB was then reintroduced, resulting in a dramatic increase in integrity. Thus, individualization of training to the teachers’ own classrooms was insufficient to maintain high rates of fidelity; PFB was a critical component to the success of the study.

**Relationship to the Existing Literature**

The adult participants in this study accurately reflected French’s (2003) assertion that paraprofessionals are frequently employed to facilitate the inclusion of students with more severe disabilities. The three children in this study had extensive assistance needs to support their success in inclusive settings. This study was built around a supports-oriented approach to learning. Rather than focusing on ameliorating skill deficits, the environment was changed to provide appropriate supports: the paraprofessionals received training in how to better support the children. Each target child was the only student in his class with a personal assistant, and the participating paraprofessionals served as these personal assistants. All three paraprofessionals reported previously receiving training as a part of their positions, but it was not necessarily specific to their children. Thus, while it was beneficial for their role as school employees, the training provided limited information about working with their target children. Ghere (2003) shared this concern about inadequate or at times nonexistent training opportunities and recommended that schools offer more relevant and individualized training opportunities for paraprofessionals in relation to their specific responsibilities with students.

All three of these preschoolers required near-constant assistance while in their school setting because they were still learning basic independence skills. This may be the reason why the three paraprofessionals initially provided frequent intrusive supports. Dependence on adult
support is a significant concern for individuals with severe disabilities (Hume et al., 2009). Overreliance on adult support may be due to a knowledge deficit, or an unawareness of how to perform skills, but difficulties with initiation and task completion are also likely contributors (Hume et al.). If an individual with a severe disability has not learned how to independently perform a task, the help of another person will be required to complete the task. If the individual with a severe disability understands the task but does not initiate or perform it to completion, adults are likely to provide assistance for the entire task, thus providing more support than is actually necessary. Pelios et al. (2003) suggested that information-processing deficits (e.g., slow receptive or expressive processing), may enhance the need for specific and consistent environmental cues to perform familiar tasks. Shabani et al. (2002) recommended that children with severe disabilities receive systematic instruction to reduce this reliance. Systematic instruction has been shown to be an effective way to provide highly structured support that ensures student learning and enables fading of supports over time. Fading supports increases the likelihood that a skill will be learned to the level of independence. The risk of overreliance on adult support has been addressed in the literature by researchers such as Giangreco and Broer (2007). They identified overreliance on paraprofessional support as a real risk to the independence of the student. They also questioned the appropriateness of the “least qualified” (p. 150) school staff providing the bulk of the education to this particularly vulnerable student population. The importance of understanding how, when, and why to refrain from providing support (and to do so in a systematic manner) in order to empower the children to control their own lives cannot be overstated.

The training procedures employed in this study included PFB. The application of this method was modeled by Johnson and McDonnell (2004) who used Direct Instruction (DI) and
PFB to successfully support teachers to embed instruction with students who were included in general education settings. Although these authors worked with teachers and the current study involved paraprofessionals, the training procedures were similar. In a study by Yoon, Duncan, Lee, Scarloss, and Shapley (2007), PFB was reported to be highly effective in helping paraprofessionals transfer information learned outside the classroom to their daily routines with students. A considerable body of research supports the use of PFB for a variety of interventions (c.f., Burns et al., 2008; Noell et al., 2002; Witt et al., 1997). PFB has been used effectively to teach educators and paraprofessionals to implement a variety of instructional skills with students (c.f., DiGennaro, Martens, & Kleinmann, 2007; Mortenson & Witt, 1998; Noell et al., 2002; Witt et al., 1997; Yoon et al., 2007) and is worthy of continued investigation.

Limitations

_Procedural errors._ There were several procedural errors that need to be noted. One procedural limitation was introducing the intervention to Melissa (Dyad 1) following a baseline data point that was an outlier in the direction of improvement, thereby complicating visual analysis. The prior baseline data points never exceeded 52%, but the last one (data point 6) was 65%. Rather than starting intervention at that point, several more baseline sessions should have been conducted to determine whether Melissa’s accuracy of implementation was more similar to prior data points, or if this was the beginning of an increasing trend in her performance. Also, Elena’s (Dyad 2) data at the end of the baseline phase were trending slightly upward, projecting a potentially higher data level before intervention. Additional baseline sessions would have been helpful in establishing either a baseline trend or stability.

Finally, the early stages of PECS require the participation of two staff members (Frost & Bondy, 2002), yet Melissa (Dyad 1) often was Evan’s sole PECS facilitator. During intervention
Melissa assumed either: (a) one of the roles of communication partner or physical support person, or (b) both of these roles during snack. Because of this, her data were analyzed differently than the other dyads. The data related to Melissa as communicative partner were eliminated so that her data focused only on opportunities when she provided physical support. These multiple roles applied only to Melissa. Elena and Tonya did not physically support or prompt their partner children. Eliminating some of Melissa’s data may have influenced her results by providing only a partial picture of her participation.

**Participant generality.** As with most single-case studies, generality is limited because only three paraprofessionals participated. That all three paraprofessionals reflected similar acquisition patterns bodes well for the potential generality of the intervention. However, an additional confounding factor is that all three were volunteer study participants; a factor that may further limit the generality of the outcomes to voluntary participants.

**Differing prompts.** Several limitations are associated with the prompting feature of the intervention. First, given their unique strengths (i.e., baseline performance), the three dyads did not receive the same training on prompting levels. For example, Evan (Dyad 1) needed physical prompts, while Kevin (Dyad 2) and Jacob (Dyad 3) were supported with visual and verbal prompts. These prompting levels varied because of individualized strengths and the communication targets for each child. While this is appropriate in terms of individualizing for each dyad, it may raise concerns about the consistency of the intervention and the impact (positive or negative) on the outcomes (i.e., implementation fidelity).

**Social validity.** No social validity data was collected during this study. Social validity data would have provided information about the participants’ views of the Independent Variable and the study as a whole. Insight into the acceptability of the procedures and the feasibility of the
procedures could have been ascertained through interviews, questionnaires, or other queries. Without this information, the paraprofessionals’ perceptions of the study procedures and outcomes are unknown. Without an understanding of the participants’ perceptions, it is also challenging to predict whether post-intervention use of the IV strategies is likely or unlikely to occur.

**Implications for Practice**

Professionals in schools of education should consider the type of preparation they provide preservice teachers on the topic of adult learning and supervision. Teachers’ lack of preparation to supervise other adults is a concern within many special education programs (Morgan, Forbush, Nelson, & Christensen, 2003). Teachers need to know how to support and guide paraprofessionals to ensure the best possible education for their students. These skills are especially critical for teachers preparing to educate students with severe disabilities because paraprofessionals are ubiquitous members of classrooms that serve this group. Preservice teacher education programs need to rise to the challenge to prepare future teachers for their roles as supervisors and mentors. At the very least, future teachers should take a course on managing and supporting classroom staff.

The three training sessions were individualized for each dyad in the current study. While the format and order of topics were the same, the trainings were adapted to meet the unique needs of each child. The success of an intervention is often reliant on a trainer’s capacity to individualize instruction for both students and paraprofessionals. There is evidence in the teacher preparation literature that many educators feel unprepared to train and supervise other adults (Yoon et al., 2007). This study demonstrates that it is possible to provide introductory training and ongoing feedback to untrained staff. An intervention such as this provides tentative
evidence that supervising paraprofessionals with a very specific focus may not require extensive training for educators.

Considerable literature exists on the topic of paraprofessional training and job satisfaction (French, 2001, 2003; Suter & Giangreco, 2009). Paraprofessionals are generally not well paid, not highly valued by their superiors, nor are they likely to remain at their jobs for an extended length of time. Over the years, the responsibilities of paraprofessionals have shifted from clerical to instructional, adding new expectations to their interactions with students. Often assigned to children who are the most behaviorally challenging or have the most intensive support needs, paraprofessionals may, in fact, have some of the most demanding responsibilities of all school staff. They are expected to educate, support, and care for children who benefit from highly skilled and structured interactions (Brown et al., 1999; Giangreco et al., 2001; Suter & Giangreco). This study demonstrated that, with relatively little training and ongoing support, three paraprofessionals successfully implemented five instructional strategies with young children with significant disabilities. This type of training and support may also be effective in other situations.

The topic of ongoing staff training is an issue in schools across the country. Administrators tend to employ traditional professional development strategies, such as scheduling one-session trainings, yet researchers have shown that this format is insufficient for teaching new skills (Yoon et al., 2007). These trainings typically are not individualized and leave participants struggling when attempting to apply new material to their unique students or classroom settings. To implement an intervention program similar to the one conducted in the current study, administrators would need to provide teachers and paraprofessionals with the time to meet during or outside the school day (French, 2001). They also would need access to
relevant materials such as readings and instructional aids. Administrators would have to place high value on this type of training program if it were to be provided over an extended period of time that is often required for success (Giangreco, Edelman, & Broer, 2003).

**Implications for Research**

This study raises several important implications for researchers. Many use generic multi-component intervention packages with paraprofessionals (i.e., one size fits all). While these may be effective for teaching basic information on instructional strategies (e.g., names for strategies and lists of steps that comprise strategies), they do not typically help adult learners apply this knowledge in practice. In-vivo instruction can be an effective way to teach classroom application; however, continued research is warranted on this topic. The current study’s focus on paraprofessional training could be modified to examine different training formats, such as conducting the individual training in the classroom with the target child. This would create an entirely individualized training format. The trainings could also be done in pairs or small groups, with the individualization occurring with PFB in the classroom. The PFB could be modified to include daily conferences between the researcher and paraprofessional or self-monitoring of the paraprofessional’s behavior. Future research may also incorporate the classroom teacher as a participant, either by joining the paraprofessional in training and feedback sessions or by having the classroom teacher give the training and feedback to the paraprofessional. By addressing these possibilities, future research would add to the body of literature surrounding paraprofessional training and supervision.

The purpose of this study was to prepare paraprofessionals to better support the children they serve. The children in this study had severe disabilities, and, therefore, it appeared that they would benefit from systematic instruction implemented by educators who understood evidence-
based methods of providing this instruction. Practitioners who work with young children with special needs can look at the design and outcomes of this study and consider how to best support their paraprofessionals. With the completion of this study, some questions were answered, yet many more remain. As noted above, this study included many instructional variables that should be manipulated to assess their generality and limitations. It is only through replication and expansion that the knowledge base will increase and students with severe disabilities will have more opportunities to be educated using the most effective practices. Over the years many concerns have been expressed regarding the role of paraprofessionals as facilitators of inclusive experiences for students with severe disabilities. Educational researchers share the responsibility with school staff to determine how to best prepare paraprofessionals for their educational roles with these children. It is through research in the schools with the paraprofessionals themselves that some of these questions will be answered. The responsibility falls on educators and researchers to continue to investigate new strategies for professional development and supervision, for it is through continued investigation that optimal means to provide meaningful, ongoing training and support may be identified to enable paraprofessionals to provide quality instruction to children with the most significant disabilities.
References


doi: 10.1177/0888406410397556


doi: 10.1177/001440290106700406


doi: 10.1080/01619569609538866


Appendix A
Protocol

Dyad 1

Ultimate Outcomes for Melissa:
Melissa will implement predetermined instructional procedures, and reinforce Evan’s communication efforts by responding in a consistent and timely manner to his requests, and by giving him more food when he requests more food during snack time.

Evan will request more food using picture exchange (with photo card 3”x4”). Targeted steps of the communication process are as follows:
   (1) Grasp/pick up picture card off the table
   (2) Reach the card toward Melissa
   (3) Place the card in Melissa’s palm
   (4) Release the card in her palm

Intervention Procedures:

Baseline: Melissa’s use of strategies to encourage E’s use of picture exchange to request more food will be recorded, without input or changes recommended.

Melissa will:
   (1) assume two roles in E’s communication routine, that of the Communication Partner and that of the Exchange Facilitator.
      a. Communication Partner—recipient of the PECS symbol from E. She will not prompt or otherwise correct him (that is the responsibility of the Exchange Facilitator).
      b. Exchange Facilitator—NOT the recipient of the PECS symbol, but rather assists E with the actual steps of picture exchange. Her steps for correct support include providing the physical assistance as outlined in the intervention plan.

Responsibilities of two roles:

<table>
<thead>
<tr>
<th>Communication Partner (receive the symbol from E)</th>
<th>Exchange Facilitator (assist E to complete the picture exchange)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place the card on the table so that it is accessible to him</td>
<td>Provide correct level of physical assistance to do the following steps:</td>
</tr>
<tr>
<td>Accept the card from E (into her palm)</td>
<td>Reaching for the picture</td>
</tr>
<tr>
<td>Respond to his communication by stating the meaning (“E wants to eat.”)</td>
<td>Grasp the picture off of the table</td>
</tr>
<tr>
<td>Respond to his communication by providing the requested food so that he can scoop it</td>
<td>Reach the card toward the communication partner</td>
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<tr>
<td></td>
<td>Put the card in the communication partner’s hand</td>
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</table>
(In this role, M does not correct or assist him) Release the card in her hand

(M provides physical assistance for each step in accordance with the researcher’s instructions)

**Data will also be collected on Evan’s ability to self-feed with his built-up handle adapted spoon. This process also used decreasing prompts (all physical). These data will not be used for this study. However, they will be collected as a favor to Melissa and the SLP, to track whether or not Evan is able to progress with self-feeding during intervention.

Melissa will take on one role during each snack session early in the intervention. I will assume the other role. This will familiarize her with both roles, and prepare her to take over dual roles later in the study. This is important because she will not have a second adult helping her when the study has ended. She will be expected to perform the entire instructional role by herself.

(2) facilitate Evan’s requests by following the systematic instructional procedures.

  a. **Cue:** Natural cues—generally provided by exchange partner OR a natural event that is not adult prompted, such as Evan realizing no food remains on his spoon.

  b. **Prompts:** use Most-to-Least prompting system (for each of the four steps in his picture exchange process)

     1. **Full Physical** (at hand or wrist)—physically take his hand/wrist and lead him through the step
     2. **Assistance at Forearm**
     3. **Assistance at elbow/upper arm**
     4. **Independence**—no prompts at all, the cue is sufficient to elicit the desired response from E (see “2a” above)

  c. **Wait Time:**

     1. Melissa will wait until E shows interest in more food, by reaching his hand or spoon toward her, looking around table (possibly looking for card), or looking into his bowl.
     2. Once he does one or more of these (or similar) behavioral indicators, Melissa will wait 1-2 seconds. If he does initiate the step within that time, he will be allowed to initiate the next step(s) until he is no longer initiating and requires a prompt.
     3. Once a prompt has been given for one step of the communication process (and has been performed correctly with that prompt), Melissa will wait up to 2 sec before prompting the next step in the four-step process.

  d. **Reinforcement**—When Evan has correctly performed each step of the picture request with Melissa’s cues/prompts, he will be naturally reinforced by being able to have more food.

  e. **Error Correction**—if Evan makes an incorrect response to a prompt, Melissa will immediately give the controlling prompt (full physical assistance) for that step.
**Maintenance**: Melissa’s continued use of her learned skills will be evaluated. No input will be given during maintenance sessions. These videotaped sessions will be conducted once per week for 4 weeks.
Protocol

Dyad 2

Ultimate Outcomes for Elena:
Elena will implement predetermined instructional procedures, and reinforce Kevin’s communication by honoring his verbal requests.

Kevin’s targeted initiated spoken words include:
   (1) More, or “more *juice, etc.*”
   (2) Open, or “open *juice, etc.*”
   (3) Done, all done, or “all done/done *juice.*”
   (4) Snack, food, eat (these may be interchangeable)
   (5) Milk, juice, drink (these may be interchangeable)

Single words may expand to the two-word phrases and other two-word combinations as he progresses in his initiation of correct use of targeted single words.

Intervention Procedures:

Baseline: Elena’s use of strategies to encourage K’s verbal requests/comments will be recorded, without input or changes recommended.

Elena will:
(1) create/set-up communication opportunities at snack time that are reflective of information presented in training. These may include (but are not limited to):
   a. snack materials visible but out of reach
   b. sealed drink or snack baggie
   c. empty juice cup or bowl
   d. end of snack time or he refuses remaining food/drink
(2) facilitate Kevin’s verbal requests with systematic instructional procedures
   a. Cue: Natural cues (events that occur in the classroom without Elena’s specific interaction), Sabotage (changing availability or usability of materials)
   b. Prompts: use Most-to-Least prompting system
      1. Direct Verbal Model—“Tell me ‘more’ juice.”
      2. Indirect Verbal Prompt—“The juice is closed. What do you need?”
      3. Nonverbal Prompt—Use body language only (raised eyebrows, arms bent at elbows with hands held up, leaning in to show expectancy)
      4. Independence—no prompts at all, the cue is sufficient to elicit a desired response from Kevin
   c. Wait Time:
      1. At start of opportunity, she will allow Kevin as much time as he wants, to try to figure out a solution on his own.
      2. Once he makes eye contact with her, appears frustrated, or stops attempting to solve the problem, Elena will wait 5 sec.
      3. Once a prompt has been given, Elena will wait 4-5 sec
      4. If he doesn’t make a correct verbal response, she will give the correct prompt.
d. Reinforcement—When Kevin has responded correctly to Elena’s cue or prompt, Elena will then provide reinforcement to Kevin for his successful effort. Because snack time is naturally reinforcing for Kevin, nearly all of the targeted words are reinforced by providing the food, drink, or assistance he requested. “All done,” would be reinforced by the cessation of an undesired activity. For example, if Kevin does not like milk, he may say “all done” or “all done milk” after tasting it. It is the removal of the milk (and possibly an introduction of a more desirable food or drink) that is reinforcing to him.

e. Error Correction—if Kevin makes an incorrect response to a prompt, she will immediately give a Direct Verbal Prompt (the most intrusive prompt she can give him). If he does not state his request, even with Error Correction, she will acknowledge his nonresponse with a brief comment, such as, “Oh, Kevin doesn’t want his milk opened. Maybe later.” She will repeat the steps when his interest seems increased (reaching for the milk container, or saying “milk,” “open” or “drink”).

Maintenance: Elena’s continued use of her learned skills will be evaluated. No input will be given during maintenance sessions. These videotaped sessions will be conducted once per week for 3 weeks.
Protocol

Dyad 3

Ultimate Outcomes for Tonya:
Tonya will implement predetermined instructional procedures, and reinforce Jacob’s communication by honoring his requests through multiple communication methods.

Jacob’s targeted words include:
- (1) More (sign is primary form, spoken is an add on)
- (2) Open (sign is primary, spoken is an add on)
- (3) Done, all done (sign primary, spoken is an add on)
- (4) Eat (sign primary, spoken is an add on)
- (5) Juice, drink (sign primary, spoken is an add on)
- (6) Help (spoken is emerging as primary, sign is also considered primary)
- (7) Puffs (toddler food)—he uses a PECS symbol per SLP but spoken can be an add-on

Single words may expand to the two-word phrases and other two-word combinations as he progresses in his initiation of correct use of targeted single word signs.

Intervention Procedures:

Baseline: Tonya’s use of strategies to encourage Jacob’s verbal requests/comments will be recorded, without input or changes recommended.

Tonya will:
- (1) create/set-up communication opportunities at snack time that are reflective of information presented in training. These may include (but are not limited to):
  a. snack materials visible but out of reach
  b. sealed drink container
  c. empty juice cup or bowl
  d. end of snack time or he refuses remaining food/drink
- (2) facilitate Jacob’s signed/verbal requests with systematic instructional procedures
  a. Cue: Natural cues (events that occur in the classroom without Tonya’s specific interaction), Sabotage (changing availability or usability of materials)
  b. Prompts: use Most-to-Least prompting system
    1. Direct Verbal Model—“Tell me ‘more.’” (with sign)
    2. Indirect Verbal Prompt—“The juice is closed. What do you need?” (with sign for “juice” modeled)
    3. Nonverbal Prompt—Use body language only (raised eyebrows, arms bent at elbows with hands held up, leaning in to show expectancy)
    4. Independence—no prompts at all, the cue is sufficient to elicit a desired response from Jacob (see “2a” above)
  c. Wait Time:
    1. At start of opportunity, she will allow Jacob as much time as he needs in order to try to figure out a solution on his own.
    2. Once he makes eye contact with her, appears frustrated, or stops attempting to solve the problem, Tonya will wait 5 sec.
3. Once a prompt has been given, Tonya will wait 4-5 sec
4. If he doesn’t make a correct verbal response, she will give the correct prompt (see 2b 1-3).

d. Reinforcement—When Jacob has responded correctly to Tonya’s cue or prompt, Tonya will then provide reinforcement to Jacob for his successful effort. Because snack time is naturally reinforcing for Jacob, nearly all of the targeted words are reinforced by providing the food, drink, or assistance he requests. “All done,” would be reinforced by the cessation of an undesired activity. For example, if Jacob does not like puffs, he may say/sign “all done” after tasting it. It is the removal of the milk (and possibly introduction of a more desirable food or drink) that is reinforcing to him.

e. Error Correction—if Jacob makes an incorrect response to a prompt or cue, Tonya will immediately give a Direct Verbal Prompt with a Model. If he does not state his request, even with Error Correction, she will acknowledge his nonresponse with a brief comment, such as, “Oh, Jacob doesn’t want his milk opened. Maybe later.” She will repeat the steps when his interest seems increased (reaching for the milk container, or signing/saying “milk” or “drink”).

Maintenance: Tonya’s continued use of her learned skills will be evaluated. No input will be given during maintenance sessions. These videotaped sessions will be conducted once per week for 3 weeks.
## Appendix B
Data Recording Sheets

Dyad 1 with sample coded trial
Melissa’s Coding

### Communication Facilitator

<table>
<thead>
<tr>
<th>Trial #, Time</th>
<th>E initiate correct?</th>
<th>Grasp picture</th>
<th>Reach &amp; pic to hand</th>
<th>Put in hand</th>
<th>Release Picture</th>
<th>Put out card</th>
<th>Accept card</th>
<th>Repeat message</th>
<th>Provide help</th>
<th>EC: # +/-</th>
<th>Honor request?</th>
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</thead>
<tbody>
<tr>
<td>#1, 1:07</td>
<td>Y N n/a</td>
<td>FP W FA E V I</td>
<td>FP W FA E V I</td>
<td>FP W FA E V I</td>
<td>FP W FA E V I</td>
<td># - NA</td>
<td># - NR</td>
<td>+ - NR</td>
<td>+ - NR</td>
<td># - NR</td>
<td>n/a Y</td>
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#### How? R V P

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### Communication Partner

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<th>Trial #, Time</th>
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<th>Grasp picture</th>
<th>Reach &amp; pic to hand</th>
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<th>Put out card</th>
<th>Accept card</th>
<th>Repeat message</th>
<th>Provide help</th>
<th>EC: # +/-</th>
<th>Honor request?</th>
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<tr>
<td>#1, 1:07</td>
<td>Y N n/a</td>
<td>FP W FA E V I</td>
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### Further Details

- **Communication Facilitator**
  - FP: Fist Punch
  - W: Wave
  - FA: Face
  - E: Eyes
  - V: Voice

- **Communication Partner**
  - FP: Fist Punch
  - W: Wave
  - FA: Face
  - E: Eyes
  - V: Voice

- **EC**: # +/- indicates error count.
- **Honor request?**: Y indicates request for honor.

- **Melissa’s Coding**
  - FP: Fist Punch
  - W: Wave
  - FA: Face
  - E: Eyes
  - V: Voice

- **Wait times**: 0-2, 3-5, 6-9, 10+ indicate wait times in seconds.
## Dyad 2 with sample coded trial
### Elena’s Coding

<table>
<thead>
<tr>
<th>Opport #, Time on Video</th>
<th>Who Initiated (Circle)</th>
<th>How E initiated (Circle 1)</th>
<th>Wait Time (circle # seconds)</th>
<th>Prompts Used</th>
<th>Error Corrected Properly</th>
<th>Honor K’s request? (do what he asked?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(example) #</td>
<td>Para Student</td>
<td>Ques OOR K init ShowSabotage</td>
<td>0-2 3-5, 6-9 10+</td>
<td>DM IV NV IND N/A</td>
<td>Y</td>
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### Dyad 3 with sample coded trial

**Tonya’s Coding**

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<th>Wait Time (circle # seconds)</th>
<th>Prompts Used</th>
<th>Error Corrected Properly</th>
<th>Honor T’s request? (do what he asked?)</th>
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<td>DM IV NV IND N/A</td>
<td>Y N</td>
<td>Y N</td>
</tr>
<tr>
<td></td>
<td>Para Student</td>
<td>Ques OOR J init Show Sabotage</td>
<td>0-2 6-9 3-5 10+</td>
<td>DM IV NV IND N/A</td>
<td>Y N</td>
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Appendix C
IRB Approval

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Bureau of Educational Research
College of Education
A2 Education Building
1310 South Sixth St.
Champaign, IL 61820

October 4, 2010

Jessica Zanton
Special Education Department
288 Education Building
MC-708

Dear Jessica,

On behalf of the College of Education Human Subjects Committee, I have reviewed and approved your research project entitled “Using a staff training package to enable paraprofessionals to teach independent behavior to students with special needs”. This project meets the exemption criteria for federal regulation 46.101(b)1 for research involving the use of normal special education topics in an educational setting where the identity of the participant is protected.

No changes may be made to your procedures without prior Committee review and approval. You are also required to promptly notify the Committee of any problems that arise during the course of the research. Please don’t hesitate to contact me with any questions.

Best regards,

Anne S. Robertson
Coordinator, College of Education Human Subjects Review Committee

Cc: Dr. James Halle; Dr. Micki Ostrosky
March 18, 2011

Jessica Zanton
Special Education Department
238 Education Building
MC-708

Dear Jessica,

On behalf of the College of Education Human Subjects Committee, I have reviewed and approved the modifications to your research project entitled “Using a staff training package to enable paraprofessionals to teach independent behavior to students with special needs”. This project continues to meet the exemption criteria for federal regulation 46.101(b)1 for research involving the use of normal special education topics in an educational setting where the identity of the participant is protected.

No changes may be made to your procedures without prior Committee review and approval. You are also required to promptly notify the Committee of any problems that arise during the course of the research. Your approved project number is 4615 and exempt projects are typically approved for three years. Please don’t hesitate to contact me with any questions.

Best regards,

Anne S. Robertson
Coordinator, College of Education Human Subjects Review Committee

Cc: Dr. James Hall; Dr. Micki Ostrowsky