

EFFECTS OF PROFESSIONAL DEVELOPMENT FOR INSTRUCTIONAL  
ASSISTANTS ON STUDENT INDEPENDENCE IN AN INCLUSIVE SETTING

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of  
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## **Abstract**

Instructional assistants need adequate training and supervision to support students with moderate to severe disabilities in adaptive tasks throughout the school day in a full inclusion setting. In this study, a professional development package comprised of empirical training and coaching strategies was designed and led by the special education teacher to teach four instructional assistants to follow a prompt delivery schedule. Instructional assistants were expected to implement the prompt delivery schedules with fidelity for the purpose of fading the amount of adult support required for students to complete adaptive tasks. Results showed the package was effective for teaching instructional assistants to follow a prompt delivery schedule and a relationship was established between implementation fidelity and student outcomes. In addition, generalization and retention measures of the targeted skill used by instructional assistants were positive. Teacher designed and led professional development can be an effective way for instructional assistants to receive the training in the skills required to serve students with moderate to severe disabilities in a full inclusion setting.

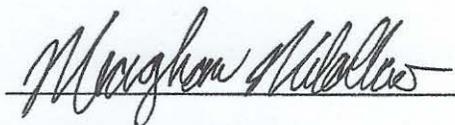
*Keywords:* coaching, inclusive education, instructional assistants, paraprofessionals, professional development, prompting

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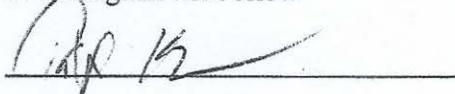
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*“None of us reaches any of our goals without the help of many other people along our journey.” -Leroy M. Morishita, President CSU Easy Bay, Commencement 2018*

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## Chapter 1

### INTRODUCTION

All means all. In regard to public education, it has taken the United States more than four decades to demonstrate understanding of the inclusivity implied by the word *all*. Prior to the enactment of the *Education for All Handicapped Children Act* in 1975, now known as *Individuals with Disabilities Education Act (IDEA)*, only 1 out of 5 children identified as having a disability in the U.S. were educated in a public school setting and many states had laws allowing for the exclusion of students with disabilities from public schools (U.S. Department of Education, 2010). IDEA (2004) protects the rights of children with disabilities and their families by mandating “that all children with disabilities have available to them a free appropriate public education...and prepare them for further education, employment, and independent living” (20 U.S.C. § 1400[d][1][a]).

By 1990, 95% of U.S. students with an identified disability were enrolled in a public school but only one-third of those students were actually included and received their education within a general education classroom (U.S Department of Education, 1995). The other two-thirds were educated within special-day or self-contained classrooms, a method of special education service delivery where students with disabilities are grouped together, often spanning multiple ages and grade levels, and educated separately from typically developing peers (U.S Department of Education, 1995). Research shows a smaller or segregated setting is not a requirement for students with disabilities to access education and progress in the acquisition of various skills and some studies have even evidenced increased performance in certain subject areas when

special education and related services were delivered in an inclusive setting (Alguraini & Gut, 2012; Dessemontet, Bless, & Morin, 2012; Ryndak, Jackson, & White, 2013; Ryndak, Ward, Alper, Montgomery, & Storch, 2010; Tremblay, 2013). TASH (2018b), an international leader in disability rights advocacy, defines inclusive education as a practice where all students are accepted and valued members of a general education classroom and school community, allowing them to fully participate and be educated alongside typically developing, same-aged peers for the majority of the school day. Continued contributions to the field of education research related to the critical components of successful inclusive educational practices and their positive impact on the academics, behavior, social-emotional and adaptive skills of students with moderate to severe disabilities presents cause for policy makers, administrators, parents, and educators to rethink public education and the delivery of special education and related services to meet the needs of all learners.

Today, approximately 63% of all students with disabilities in the U.S. are included in a regular classroom setting for the majority of the school day, defined as 80% or more of the daily instructional minutes (U.S. Department of Education, 2017). In an effort to meet the safety, instructional, behavioral, and/or medical needs of students with moderate to severe disabilities in the general education classroom, the utilization of an instructional assistant (IA) to support these students has increased (Blatchford et al., 2011; Breton, 2010; Cameron, 2014; Causton-Theoharis, 2009; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco, Suter, & Doyle, 2010; Russel, Allday, & Duhon, 2015; Ryndak et al., 2013; Sharma & Salend, 2016; Stockhall, 2014). For the purpose of

this study, the range of moderate to severe disabilities is defined as: students with significant cognitive impairments or global developmental delays, affecting participation in one or more areas of adaptive functioning; age-appropriate daily living skills people with and without disabilities need in order to live independently, and dependence on support from another individual to complete activities in that area (AAIDD, 2018b; TASH, 2018a). Within the field of education research, IAs may also be referred to interchangeably as *instructional aides*, *teacher aides*, and are referred to as *paraprofessionals* by the U.S. federal government (IDEA, 2004; No Child Left Behind, 2001) but will be referred to throughout this study as *instructional assistants* because it is the official district job title of the participants in this study.

While many teachers, administrators, and families perceive one-on-one IA support as necessary to meet the needs of a child with disabilities in a full inclusion setting, the effects it can have on student growth and development, specifically in the area of adaptive behavior, make it a resource to be used with caution (Cameron, 2014; Causton-Theoharis, 2009; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al., 2015; Sharma & Salend, 2016; Stockhall, 2014). Adaptive behavior is a term used to describe the skills used to function in daily life and includes conceptual, social, and practical skills (AAIDD, 2018a). When not structured and monitored, the intended supplemental support of an IA can quickly turn into a permanent crutch hindering students from developing independence, or resulting in a regression of previously performed routine activities (Blatchford et al., 2011; Cameron, 2014; Causton-Theoharis, 2009; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al., 2015;

Sharma & Salend, 2016, Stockhall, 2014). Martin Seligman's (1972) theory of *learned helplessness* describes the inability to learn or perform a skill due to the effects of internal or external factors unrelated to one's physical or mental capacity to actually learn or perform the skill (p. 408).

### **Statement of the Problem**

Despite a heavy reliance on the use of IAs to assist and support in the instruction of students with moderate to severe disabilities, there continue to be vast variations in the training, education, and experience of IA staff (Blatchford et al., 2011; Breton, 2010; Brock & Carter, 2013, 2015; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Sharma & Salend, 2016; Stockhall, 2014). The responsibilities of training and supervision are often absorbed by special education teachers, who have reported insufficient time to train and supervise IAs and may, or may not, have experience in coaching and ongoing professional development of staff (Breton, 2010; Giangreco, 2010, 2013; Giangreco et al., 2010; Sharma & Salend, 2016; Stockhall, 2014). What little training districts do offer for IAs is often held separately from teacher trainings, addresses different topics, and may not be applicable to the training needs specific to the school site or to the individual (Breton, 2010; Hunzicker, 2011). The most common manner of professional development delivery, also known as "one shot," or "sit and get," are one or two-day lecture style workshops which are not likely to be remembered and even less likely to be applied by IAs upon returning to their job sites (Aguilar, 2013c, p. 8; Hunzicker, 2011, p. 177).

The quality of training IAs receive and variation in expectations of job duties is alarming considering IAs spend more time with students with disabilities than any other professional, especially if support is being provided during unstructured times when classroom teachers and specialists are not typically present (e.g., recess, lunch, elective activities, etc.) (Breton, 2010; Brock & Carter, 2013, 2015; Cameron, 2014; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al., 2015; Sharma & Salend, 2016). Evidence suggesting that even highly qualified certificated teachers are in need of ongoing professional development to improve their skills and student learning outcomes, serves as a basis for the need for similar supports for IAs (Aguilar, 2013c; Breton, 2010; Hunzicker, 2011; Sharma & Salend, 2016). Lack of adequate training and supervision for IAs not only affects turnover rates, job satisfaction, and morale (Fisher & Pleasants, 2012), it also has a detrimental impact on the adaptive functioning of students with moderate to severe disabilities (Blatchford et al., 2011; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al., 2015; Sharma & Salend, 2016).

Students with disabilities continue to be among the lowest performing subgroup in California (California Department of Education, 2017) and students receiving one-on-one support from IAs without knowledge of basic foundational skills and evidence-based practices, are at the greatest risk of becoming less independent (Blatchford et al., 2011; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al., 2015; Sharma & Salend, 2016). Learned helplessness can affect any area of functioning, such as academic, behavioral or adaptive skills and often occurs when desired responses are not yet in a

student's behavioral repertoire but within their present ability level (Abramson, Seligman, & Teasdale, 1978). This presents a dilemma, as many students with moderate to severe disabilities may require some level of adult support throughout the school day but many of the adults providing this support are unaware of what the appropriate level of assistance looks like, how to provide it, and when or how to fade it (Breton, 2010; Causton-Theoharis, 2009; Giangreco, 2010, 2013; Giangreco et al., 2010, Russel et al., 2015; Sharma & Salend 2016).

### **Purpose of the Study**

The purpose of this study is to evaluate the efficacy of an instructional assistant professional development package comprised of empirical training and coaching strategies designed to teach the IAs how to implement an evidence-based practice, i.e., prompting. This study provides instructional assistants an opportunity to learn and, potentially, master an evidence-based practice. Instructional assistants will be held accountable for using this skill daily within the context of an inclusive public school setting to promote student independence in the area of adaptive skills for students with moderate to severe disabilities. Students will have the opportunity to develop, or recover, independence in adaptive tasks as the result of receiving support from an instructional assistant implementing the targeted practice, i.e., prompting. Generalization will be measured across all phases through weekly adjustments to the prompt delivery schedule, as IA support is gradually faded. Skill retention will be measured at weekly intervals for a period of three weeks post-intervention. All intervention components will be designed at little or no cost by the special education teacher and will be implemented within the

boundaries of a public school duty day to reflect the financial constraints and scheduling challenges a special education teacher experiences within a typical public school setting.

In the following chapter, a review of inclusive education literature is conducted. It will highlight gaps in the research surrounding this issue and discuss the rationale in support of the proposed research questions guiding this study.

## Chapter 2

### LITERATURE REVIEW

A review of current inclusive education literature has been organized into the following eight themes: (a) inclusion; (b) instructional assistant support; (c) potential harmful effects; (d) evidence-based practices; (e) professional development; (f) coaching; (g) prompting; and (h) research questions.

#### **Inclusion**

Inclusion is a way of thinking. Causton-Theoharis (2009) describes this mindset as “a deeply held belief that all children, regardless of ability or disability are valued members of the school and classroom community” (p. 37). Within the field of special education, it has taken decades for this mindset to manifest itself into practice. Through a review of existing inclusive education research dated from 1973 to 2013, in an attempt to summarize the educational evolution for students with moderate to severe disabilities, Ryndak and colleagues (2013) identified three cyclic waves of inquiry and practice related to the field of special education. The first wave of education research was stimulated by the enactment of the *Education for All Handicapped Children Act* in 1975 and provided indisputable evidence that all humans are capable of learning and emphasized the acquisition and use of adaptive behaviors for persons with moderate to severe disabilities (Ryndak et al., 2013). In response to the observed benefits from providing persons with disabilities educational services, a second wave emerged (Ryndak et al., 2013).

The second wave of inquiry and practice consisted of the evaluation of the effectiveness of instructional strategies, instructional content, and the educational setting (Ryndak et al., 2013). Ryndak et al. (2013) termed these categories *how to teach*, *what to teach*, and *where to teach* (p. 29). The primary focus of the majority of this research still centered on instructional strategies and content related to adaptive skills in a segregated setting but it was within this wave that students with moderate to severe disabilities were given access the general education curriculum and, in some cases, allowed to be in the general education setting (Ryndak et al., 2013).

The inclusive education literature in the third, and current wave, delves deeper into the inquiry and practice cycle continuing to evaluate evidence-based practices related to how to teach, what to teach, and where to teach students with moderate to severe disabilities (Ryndak et al., 2013, p. 29). The crest of the third wave was marked by the passage of the No Child Left Behind Act (NCLB) in 2001 and the reauthorization of the Individuals with Disabilities Education Act (IDEA) in 2004 (Ryndak et al., 2013). This wave reflected a shift in educational priorities from a primarily ecological approach towards a heavier emphasis on general education curriculum, affording students with disabilities access to a complete educational opportunity (Ryndak et al., 2013). The repetitious cycle of inquiry and practice has led to the discovery of strong evidence that students with disabilities can acquire both general education content (e.g., academics) and alternate-curricular content knowledge (e.g., adaptive skills) in either a general education or special education setting when the appropriate supports and instruction are provided; however, due to the limited number of studies evaluating the effectiveness of adaptive

behavior interventions within a general education setting, there is a need for replication of these interventions within general education settings to measure the extent to which these individualized strategies and supports can effectively be embedded within the context of inclusive settings and instructed parallel to the general education curriculum (Ryndak et al., 2013). In addition, an equally important implication that emerged from the third wave was a need for all professionals working with students with disabilities to have the necessary skills and training to support the implementation of evidence-based strategies in inclusive settings (Ryndak et al., 2013).

One study within the current wave of research, conducted by Dessementet and colleagues (2012), compared 34 students with intellectual disability (ID) who received special education services in a separate setting with 34 students with ID who received special education services within the context of a general education setting and tracked their growth in literacy, mathematic skills, and adaptive behavior over a two-year span. It was concluded that the students who were included in the general education setting made comparable growth in the areas of mathematics and adaptive behavior and more growth in literacy than the students educated in a separate setting (Dessementet et al., 2012). As educational research continues to contradict the belief that students with disabilities require a separate setting to progress in academic and adaptive skills, components of inclusive practices have emerged. One common strategy used to support students with moderate to severe disabilities mentioned throughout inclusive education literature is one-on-one adult support (Alguraini & Gut, 2012; Blatchford et al., 2011; Breton, 2010; Brock & Carter, 2013, 2015; Cameron, 2014; Causton-Theoharis, 2009; Fisher &

Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al., 2015; Ryndak et al., 2013; Sharma & Salend, 2016; Stockhall, 2014)

### **Instructional Assistant Support**

As the amount of time spent learning alongside typical-developing peers has increased for students with moderate to severe disabilities, so has the deployment of an instructional assistant (IA) to meet their needs (Blatchford et al., 2011; Breton, 2010; Brock & Carter, 2013, 2015; Cameron, 2014; Causton-Theoharis, 2009; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al., 2015; Sharma & Salend, 2016; Stockhall, 2014). A limited pool of current studies exists related to the effects of IA support on student outcomes and yields mixed results. The majority of the studies in this area suggest there are potential benefits, given quality training and supervision is provided, but few studies produce empirical evidence for effective use of IA support and or its effects on student behavioral outcomes (Blatchford et al., 2011; Cameron, 2014; Giangreco, 2013; Giangreco et al., 2010; Russel et al., 2015; Sharma & Salend, 2016; Stockhall, 2014). A shift in IA job duties and expectations from a primarily non-instructional role, comprised of administrative and clerical tasks, to an instructional role, often involving making important educational decisions about the instructional programs of students with disabilities, can be traced throughout the literature and has been repeatedly linked to role confusion as a result of lack of supervision and quality training. (Blatchford et al., 2011; Breton, 2010; Brock & Carter, 2013, 2015; Cameron, 2014; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Sharma & Salend, 2016; Stockhall, 2014). Appropriate roles and responsibilities are further

blurred by IDEA (2004) which fails to clarify these duties and provides an oversimplification stating, IAs “who are appropriately trained and supervised...be used to assist” in the delivery of special education services, leaving the terms “appropriately trained” and “supervised” open for interpretation (20 U.S.C. § 1412[a][14][B][iii]). NCLB (2001) expands slightly on the appropriate roles and responsibilities of IAs adding, IAs “who provide instructional support must work under the direct supervision of a highly qualified teacher” (20 U.S.C. § 1119[g][3][A]) and defines “direct supervision” as working within “close and frequent” (20 U.S.C. § 200.59[c][2]) proximity to the teacher who is responsible for lesson planning, coordinating the instructional support activities to be carried out by the IA, and the evaluation of student progress. In part due to the vague descriptions these federal laws provide, IAs are becoming an increasingly primary figure in the instruction and implementation of academic and behavioral programs often without “appropriate training” or “direct supervision” (Blatchford et al., 2011; Breton, 2010; Brock & Carter, 2013, 2015; Cameron, 2014; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Sharma & Salend, 2016; Stockhall, 2014).

A state-wide qualitative study was conducted by Breton (2010) to analyze the perceptions of more than 5,000 IAs related to training, feelings of preparedness, supervision, and their perceived training needs. His study found that IAs are not being provided the appropriate level of supervision that federal law mandates nor are they receiving an adequate amount of training and professional development (PD) to perform their work duties effectively (Breton, 2010). Forty-percent of IA participants reported

they had never received a performance evaluation and reported having direct interaction with the special education teacher on a less-than weekly basis (Breton, 2010). When asked to rate their perception of the adequacy of training they had received in instruction of students with disabilities, 46% of respondents rated the training received in the range of *fair* to *very poor* and when asked if they had received the necessary training to work with the students they currently support, 30% responded that they were *uncertain* or *strongly disagreed* (Breton, 2010).

Fisher and Pleasants (2012) highlight role confusion and unclear job delineations resulting from a lack of appropriate IA training and supervision in a study that consisted of a statewide survey of more than 1,800 IAs working in both regular and special day classroom settings. The purpose of this survey was to solicit the IA perspectives of roles, responsibilities, and concerns (Fisher & Pleasants, 2012). Overall, this study revealed IAs perceived their main purpose to be a direct support to the students, instead of as a primary support for teachers (Fisher & Pleasants, 2012). Further concerns surround data revealing that one-fourth of participants had identified lesson planning for the students they supported as a primary or secondary role while one-third perceived lesson planning to be an appropriate role to assume (Fisher & Pleasants, 2012). In addition, Fisher and Pleasants (2012) found more than half of the participants reported engaging in adapting lessons designed by the general education teacher and nearly three-fourths believed it was an appropriate responsibility.

Cameron (2014) further investigated teacher-student dynamics using a mixed method study that consisted of classroom observations and teacher interviews. The

purpose of this study was to examine the interactions between students with disabilities, the general education teacher, special education teacher, and the IA in inclusive settings (Cameron, 2014). After observing 17 inclusive classrooms, spanning Kindergarten through 8th grade, he found IAs were engaging in the largest percentage (58%) of one-on-one interactions with students with disabilities and primarily supported the students with the most significant impairments. The majority (87%) of IA interactions occurred with students Cameron (2014) classified as “severe”. The high percentage of interactions between students and IAs echoes sentiment from interviews with general educators whose responses suggested they perceived students with severe disabilities to be the responsibility of the accompanying IA and admitted they could not speak to the specifics of what those students were learning or engaged in during their time in the general education setting (Cameron, 2014).

Unfortunately, IA role confusion resulting from a lack of training and supervision is not unique to the U.S. but reflects a larger global issue as evidenced by Sharma and Salend’s (2016) findings from an international literature review related to the use of IAs in inclusive classrooms worldwide. Consistent with US studies, Sharma and Salend (2016) found that IAs were engaging in a variety of pedagogical roles and making important decisions concerning the educational programs of students with disabilities. In addition, they pointed out many concerns and ill effects that had been documented throughout the literature such as students who received one-on-one IA support were less likely to be independent and were at risk to develop an insular relationship with the IA,

which resulted in fewer teacher and peer interactions and less exposure to high-quality instructional practices (Sharma & Salend, 2016).

IAs are responsible for an increasingly large portion of instruction and curricular decisions for students with moderate to severe disabilities in inclusive classrooms (Blatchford et al., 2011; Breton, 2010; Brock & Carter, 2013, 2015; Cameron, 2014; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Sharma & Salend, 2016). Whether these duties are self-assumed or imposed by teachers and administrators, lesson planning and making curricular modifications are tasks requiring teacher certification as mandated by federal law and direct instruction provided by IAs must be supervised by, and in close proximity to, a highly qualified teacher (IDEA, 2004; NCLB, 2004). Lack of ongoing and relevant PD, in combination with little supervision from teachers or administrators, has added to the confusion surrounding the duties and responsibilities of IAs as to what is, and is not, a part of their role and put students with moderate to severe disabilities at risk for a myriad of potential harmful effects (Blatchford et al., 2011; Breton, 2010; Brock & Carter, 2013, 2015; Cameron, 2014; Causton-Theoharis, 2009; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al., 2015; Ryndak et al., 2013; Sharma & Salend, 2016).

### **Potential Harmful Effects**

Michael Giangreco and many others in collaboration with him have extensively researched IA support making contributions to this area of educational research since 1997. In a 2010 article, Giangreco challenged the traditional conventions of IA support detailing the potential harmful effects of extensive and prolonged proximity of IA support

as one of the key reasons (2010). Among these effects is the risk of an unnecessary dependence on adult support contributing to the level of the student's disability by crippling the development of their independence (Giangreco, 2010). When provided unstructured and often unsupervised IA support, a student may become hesitant to participate in activities, adaptive or academic, without direction, prompting, or proximity from the IA (Giangreco, 2010). For example, after a general education teacher gives a whole class instruction to come to the rug, a student who has developed an overreliance on adult support may wait for the accompanying IA to repeat the instruction directly to the student or take their hand and guide them to the rug. In this instance, the student has stopped attending to and responding to natural cues within their environment (e.g., the teacher's whole class instruction, peers moving to the rug), and become dependent on additional prompting or cueing to initiate a response.

Martin Seligman's early studies in 1972 of what he defined as "learned helplessness" provide a deeper understanding of how overdependence manifests itself. Learned helplessness is the conditioned expectation that outcomes are uncontrollable through one's own responses and may be categorized as external attributions or universal helplessness and internal attributions or personal helplessness (Abramson et al., 1978). For the purposes of this study, personal helplessness will be further examined.

Personal helplessness manifests itself as the result of a constant perceived absence of control over the outcomes of situations, regardless of whether the required behavior is present in one's repertoire (Abramson et al., 1978). In a primary school setting, this may look like an adult getting a student's lunch, milk, and utensils from the food cart and

bringing it to them while they wait at the lunch table; taking off a student's backpack, hanging it up, and unpacking their materials while the student goes inside and sits down; or getting out a student's materials following a teacher's whole-class instruction for the student to do so. Whether these actions from supporting adults are based on an assumption that the student isn't physically or mentally capable, not wanting to see the student fail or experience failure, or not wanting to wait for the student to complete the task, by continuously eliminating the opportunity for the student to participate in a task by doing the task for the student, the student begins to develop an expectation that outcomes, positive or negative, are contingent on responses from those around them, instead of influenced by their own behaviors (Abramson et al., 1978).

Throughout this study, eliminated opportunities for students to participate in tasks within their natural environment will be referred to as "non-opportunities". As these non-opportunities compound, the risk of learned helplessness increases and presents an obstruction to the development of the skills needed to complete the task, or worse, a regression in previously mastered skills (Abramson et al., 1978). When this scenario is magnified on a day-to-day basis, taking into consideration the extent to which the student receives IA support during their school day, the level of risk quickly rises to hazardous levels.

Russel and colleagues (2015) acknowledged a dependence on IAs by school staff within inclusive school settings and the tendency for students to develop an overreliance on their support. The study utilized a withdrawal design to examine the effects of fading one-on-one IA support on student engagement and established a relationship between

student engagement and IA proximity (Russel et al., 2015). An immediate removal of IA proximity negatively impacted the student's level of engagement; however, when the proximity of the IA was systematically faded, the student was able to maintain levels of task engagement comparable to those of their typically developing peers (Russel et al., 2015). Other positive outcomes such as increased involvement and interactions with the general education teacher were observed (Russel et al., 2015). Despite the promising implications of Russel et al.'s (2015) study, several limitations were presented including a need to replicate the results across multiple students and application in a variety of environments.

The potential harmful effects caused by the use of extensive and prolonged proximity of IA support undermines the philosophy of inclusion and the purpose of special education services, which IDEA (2004) explicitly states should be to "prepare [students] for further education, employment, and independent living" (20 U.S.C. § 1400[d][1][a]). It is important to note that IAs are not the target for blame of these unintended effects but rather a systemic lack of provisional supervision and quality training (Blatchford et al., 2011; Breton, 2010; Brock & Carter, 2013, 2015; Causton-Theoharis, 2009; Fisher & Pleasants, 2012; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al., 2015; Sharma & Salend, 2016). Dependence on IAs by teachers, parents, and school systems in an effort to meet the needs of students with moderate to severe disabilities in inclusive classrooms continues to persist. In order to minimize the risk for potential harmful effects increasing the quality of IA supervision and training must become a priority. In order for IAs to implement strategies necessary to act as a

preventative agent of student dependence, they must receive continuous PD and supervision in relevant evidence-based practices of skills and strategies needed to effectively support students with disabilities (Brock & Carter, 2013, 2015; Giangreco, 2013).

### **Evidence-Based Practices**

Evidence-based Practices (EBPs) are strategies and programs evidenced through extensive research to have meaningful effects on student outcomes (Cook & Cook, 2011). Not to be confused with “best practices” or “research-based practices”, EBPs must meet rigorous design, quality, and quantity standards (Cook & Cook, 2011). While Cook and Odom (2013) warn EBPs are not the be-all and end-all guaranteed to work for every student and may be difficult to implement on a broader scale, EBPs have been found to consistently demonstrate meaningful effects for the majority of student outcomes and contribute to bridging the theory to practice gap. It is also important to note the importance of professional wisdom; one’s own knowledge about the learner, the teacher, and the learning environment, when selecting and implementing specific practices to increase efficacy of EBPs and the likelihood of being implemented with fidelity (Cook & Cook, 2011).

The responsibility of selecting and implementing EBPs in the instruction of students with moderate to severe disabilities falls on the special education teacher; however, when a student spends the majority of their time during the day receiving support from an IA, it becomes imperative that the IA be able to implement EBPs with fidelity to appropriately support the student and reduce the

risk of potential harmful effects. Shifting from choosing and implementing EBPs to training others to implement them with fidelity, is a task that can be intimidating for many special educators but, when done correctly, can yield positive student outcomes (Brock & Carter, 2013, 2015; Cook & Cook, 2011; Cook & Odom, 2013; Giangreco, 2013).

### **Professional Development**

Studies that solicited IA perspectives suggest IAs have a strong desire and interest in PD opportunities, time for collaboration with teachers, and express a high level of commitment and dedication to the students they serve (Breton, 2010; Brock & Carter 2013, 2015; Fisher & Pleasants, 2012; Giangreco et al., 2010; Sharma & Salend, 2016); however, traditional school district training methods of one or two-day didactic workshops are among the least effective ways to provide individuals PD (Aguilar, 2013c; Brock & Carter, 2015; Hunzicker, 2011). As district PDs are often conducted off-site, out of context of daily job duties and routines, and usually do not provide follow-up coaching or monitoring of implementation fidelity, they render themselves useless and have little empirical support (Aguilar, 2013c; Brock & Carter, 2013, 2015; DiGennaro Reed, Hirst, & Howard, 2013; Hunzicker, 2011).

Site-administrators are typically responsible for hiring, evaluating, and terminating IAs and are perceived by both IAs and teachers to be direct supervisors of IAs but when it comes to site-training and day-to-day supervision, it is often reported to be the responsibility of special education teachers (Breton, 2010; Giangreco, 2013; Giangreco et al., 2010; Sharma & Salend, 2016; Stockhall, 2014). Federal law also

requires IAs work under the direct supervision of, and in close proximity to, a highly qualified teacher, not an administrator (IDEA, 2004; NCLB, 2001). In spite of the expectation that they assume this role, many special education teachers have not been trained in how to design or lead PDs or do not feel comfortable delivering ongoing coaching resulting in most IAs not being provided training in how to implement EBPs (Brock & Carter, 2013, 2015; Giangreco, 2013; Giangreco et al., 2010; Ledford, Zimmerman, Harbin, & Ward, 2017; Stockhall, 2014). In turn, there is a desperate need for teachers as models of lifelong learners to establish themselves as leaders of daily and ongoing PD for IAs (Brock & Carter, 2015; Stockhall, 2014).

Brock and Carter (2013) conducted a literature review of 13 single-case or group experimental design studies to evaluate the effectiveness of IA PD packages for IAs who supported students with moderate to severe disabilities across primary and secondary school settings. Brock and Carter (2013) concluded that all IAs across diverse levels of experience and education are capable of implementing EBPs when adequately trained and suggested specific components to set the stage for evidence-based training practices. To contextualize the infancy of this area of research, the basis of Brock and Carter's (2013) concluding theory is not dissimilar to the first wave of inclusive education research where all humans were determined to be capable of learning (Ryndak et al., 2013). Basic common components of PD packages found across all 13 studies were: (a) modeling, (b) performance feedback, and (c) accountability and nearly all the studies involved some type of one-on-one coaching and individualized follow-up training for the IA (Brock & Carter, 2013).

While the results of this study appear promising, a theory-to-practice gap emerged: Special education teachers are often tasked with the responsibility of providing PD for IAs but none of the studies included in this review had evaluated the efficacy of a teacher-designed or delivered PD for IAs (Brock & Carter, 2013). Little research currently exists where school personnel, specifically special education teachers, lead PD for IAs instead of educational researchers or specialists of a specific field (Brock & Carter, 2013). More experimental studies are needed to determine if PDs designed and led by special educator teachers can be as effective as the ones implemented by experts. The gap continues to widen with the lack of experimental studies conducted within typical public school constraints, i.e., time and resources, and within the context of inclusive public school settings (Brock & Carter, 2013, 2015; Ledford et al., 2017).

Not only should EBPs be used to support students with unique learning needs, EBPs should also be utilized when training and coaching IAs. EBPs related to the instruction of IAs on the use of EBPs, also termed *implementation science* (Cook & Odom, 2013), is a relatively nascent and complex area of research. Several empirically supported training strategies exist which, with more evidence, may have the potential to become EBPs for designing and leading PD for IAs. Empirically supported training methods include: writing and/or didactic instruction, modeling, role-play/rehearsal, performance feedback, and performance criterion for mastery. When any of those methods are combined, they can be powerful in the instruction of the acquisition of a new skill (Artman-Meeker, Fetting, Barton, Penney, & Zeng, 2015; Brock & Carter, 2013, 2015; DiGennaro Reed et al., 2013; Ledford et al., 2017).

In 2015, Brock and Carter tested the efficacy of their own PD package to support IAs in implementing an EBP. They concluded the coaching component that followed a two-hour IA training was the most effective part of the package even when compared to coaching in combination with a video modeling component (Brock & Carter, 2015). Unfortunately, Brock and Carter (2015) did not measure student outcomes and could not draw any conclusion about how implementation fidelity is a crucial link between PD tools and student outcomes.

Ledford et al. (2017) conducted a similar study where they evaluated the effects of a coaching intervention following a three-hour IA training in EBPs for IAs working in special day classroom settings. Following the training, treatment integrity varied between 50-65%, despite an evidence-based training model being used (Ledford et al., 2017). This data suggests training alone is not effective for implementation fidelity and an effective PD package must include coaching (Ledford et al., 2017). After the coaching intervention, containing the three common coaching components found in successful PD packages from Brock and Carter's (2013) literature review, a significant immediacy of effect was observed across all three dyads and, in conclusion, all IA participants reached 80% or higher independent implementation fidelity by the completion of the study (Ledford et al., 2017). Neither generalization, maintenance, nor social validity was measured in this study and Ledford and colleagues (2017) also questioned the feasibility of their procedures within the contexts of a typical public school setting.

## Coaching

Performance feedback, one specific component of coaching where the coach provides feedback based on observation of implementation, is recognized as an essential method of staff training and management (Artman-Meeker et al., 2015) and according to DiGennaro Reed and colleagues (2013), is most effective when delivered within 2 to 7 days following an observation. Artman-Meeker et al. (2015) applied an evidence-based framework to existing education literature related to coaching in an analysis of specific training components and coaching strategies in an effort to advance the science of coaching. They determined performance feedback was the most frequently used strategy reported in 86% of all studies (Artman-Meeker et al., 2015). Performance feedback was also perceived to be the most likely coaching method to improve implementation fidelity following a PD session by participants in a study rating the social validity of several coaching methods (Strohmeier, Mulé, & Luiselli, 2014). Other frequently used coaching strategies appearing within the literature were: planned practice between coaching (55%), use of a manual (53%), and collaborative progress monitoring (39%) (Artman-Meeker et al., 2015).

As with the development of any new skill, a scaffold is needed to support one's initial success followed by a gradual release of responsibility until one can be independently successful (Aguilar, 2013b). In her book, *The Art of Coaching*, Aguilar (2013a, 2013b) suggests using a combination of facilitative and directive coaching activities to scaffold one's active engagement when learning a new skill. Facilitative activities are activities done with the learner to promote engagement and self-reflection in

the learning process and include activities like role-playing, video recordings, and surveys (Aguilar, 2013b, p. 177). Directive coaching activities are led by the coach and provide learners with more direct and concrete feedback, e.g., observations, feedback, modeling, etc., (Aguilar, 2013a, p. 211). The purpose of combining these two methods of coaching is to not only provide learners with information that can be used to increase their performance but to support those learners in becoming active participants with the hope that eventually, they will be able to direct their own learning (Aguilar, 2013a, 2013b).

A key component of coaching rarely discussed in the literature outside of limitations is a focus on the development of collaborative partnerships, which may be in part due to the fact that in the majority of studies the coaching dynamics do not reflect typical coaching partnerships present in public schools, e.g., a special education teacher and IA who have been working together for multiple school years (Artman-Meeker et al., 2015). A closer examination of the relationship between IAs and the individual providing the coaching and its effect on the efficacy of ongoing PD is a current area of need.

### **Prompting**

Prompting is an EBP commonly used to teach adaptive behaviors to children from birth to adulthood (Wong et al., 2015). Response prompts (e.g., IA prompting: physical, verbal, gestural, or a combination of) can be used to transfer stimulus control (i.e., an antecedent that elicits a response) to natural cues (e.g., naturally occurring events within the environment) to assist the student in acquiring or engaging in a targeted behavior or skill (Cengher et al., 2016; Cooper, Heron, & Heward, 2007b). Prompt dependency, also

previously discussed as overreliance and learned helplessness, occurs when the student stops responding to natural cues in the environment and relies on the response prompt as the stimulus control (Abramson et al., 1978; Cooper et al., 2007b; Giangreco, 2010, 2013; Giangreco et al., 2010). In an inclusive classroom, this may look like the IA repeating all whole class instructions given by the classroom teacher before the student follows the class directives or the school bell signaling a transition that is ignored by the student until the IA says, “It’s time to line up,” or gestures to the line.

To prevent prompt dependency, a system must be put into place for students who receive one-on-one IA support for response prompts to be faded in areas where the target behavior or skill already exists within the student’s behavior repertoire (Cooper et al., 2007a). The most common methods used to fade prompts are: most-to-least (MTL) prompting, least-to-most (LTM) prompting, graduated guidance, and time delay (Wolery & Gast, 1984). For the purpose of this study, the MTL prompting method will be examined further.

The MTL prompting method consists of a prompt hierarchy, a sequence of most restrictive prompts (e.g., full physical assistance) to least restrictive prompts (e.g., verbal), that is systematically faded as the student demonstrates mastery of the skill (Cooper et al., 2007b). MTL prompting promotes errorless learning and has been evidenced to be a quicker and more effective method for teaching a targeted response, when compared to LTM prompting (Cengher et al., 2016). Using the MTL prompting method as a strategy to reduce the reliance of students on adult support in adaptive behaviors has the potential to be a powerful tool; however, IAs must be able to

implement the appropriate level of support with fidelity to promote and maintain the students' level of independence in the targeted skill or behavior.

### **Research Questions**

Few studies have experimentally tested the training methods for designing and leading a PD for instructional assistants and the ones that did, did not have replicable procedures (Brock & Carter, 2013). Even less research exists in which the special education teacher is the trainer and coach in these procedures (Artman-Meeker et al., 2015; Brock & Carter, 2013, 2015; Cengher et al., 2016; Ledford et al., 2017). The purpose of this study is to expand on the emerging implementation science of IA PD packages, containing empirical training and coaching strategies, and deliver all components of the intervention within the time and resource constraints of an inclusive public school setting by a special education teacher. In addition, this study seeks to establish a connection between PD strategies and implementation fidelity with student outcomes in the area of adaptive skills for students with moderate to severe disabilities. Generalization and retention of target skill, i.e., prompting, will be included in this study and compared with social validity to determine the feasibility and the effectiveness of this intervention within the larger social structure of an inclusive education setting.

The primary research question guiding this study is: What is the efficacy of a teacher-designed and led instructional assistant professional development package on the implementation fidelity of prompting?

Additional questions to be addressed in this study are: (a) What impact does implementation fidelity have on student outcomes?; (b) To what degree is the target skill

retained post intervention?; (c) How does the this intervention fit into the context of an inclusive public school?

## **Chapter 3**

### **METHODS**

The purpose of this chapter is to describe the methods used to answer the proposed research questions and has been organized into the following ten subsections: (a) participants; (b) setting; (c) experimental design; (d) materials; (e) procedures; (f) data collection; (g) interobserver agreement; (h) procedural reliability; (i) social validity; and (j) data analysis.

#### **Participants**

Two types of participants were included in this study: instructional assistants and students. Study participants comprised four IA/student dyads. Demographic information for each dyad is presented in Table 1.

**IA participants.** Table 2 presents information related to the education and experience of instructional assistant (IA) participants. All IAs reported no formal or informal training provided by the current district of employment prior to hire. IAs in this district receive two release days per school year to attend a six hour professional development day on a topic chosen by the district. Weekly staff meetings, led by the special education teacher, were used to check in about student progress (e.g., academic, behavioral, adaptive, etc.) general housekeeping (e.g., schedule changes, upcoming field trips, changes to IEP goals/services, etc.) and to discuss strategies to support all students. IAs met the inclusion criteria of:

1. Employment in this district as an IA who supported students with severe disabilities in a full-inclusion setting;

2. A minimum of one year of experience as an IA;
3. Below criterion performance (40%) in baseline sessions, prior to intervention.

**Student Participants.** Additional information about each of the student participants' disabilities (see Table 3) and present levels of adaptive functioning is provided to give context to the issues that interfered with adaptive skill performance.

Student participants met the following inclusion criteria:

1. Enrolled as a student in the full inclusion program at this elementary school;
2. Determined eligible for special education services and received one-on-one instructional assistant support;
3. Demonstrated the opportunity for greater independence in one or more adaptive activities.

**Dyad I: Michelle & Kai.** Prior to employment in this district, Michelle worked as a substitute paraprofessional and substitute teacher for a few months at a school for students with moderate to severe disabilities before becoming a full-time paraprofessional for the school. Michelle reported the only training she received in the prior district was during weekly staff meetings, led by the special education teacher although, sometimes, the meeting time was used to prepare materials for the classroom.

Kai's area of need focused on arrival to school and unpacking his backpack. The expected morning routine was for students to enter the classroom, hang up their backpack on designated hooks, put their lunch boxes/bags on the shelf above the backpack racks, and then take a seat at their desk for breakfast and silent reading time. Prior to intervention, Kai would not walk directly to the classroom. When entering the main

building, he would often turn quickly and run in the direction of a staircase toward the main office. Once Kai entered the classroom, he would drop his backpack on the floor by the door and go to the rug, located in the center of the classroom, where he ran repetitively from one end to the other. The supporting IA would typically run after Kai upon entering the school building and would be attempting to corral him to his seat from the rug until after the bell.

**Dyad II: Joan & Joey.** In the 5 years before working in this district, Joan had worked as an IA in a special day class for students with moderate to severe disabilities at both the elementary and middle school levels. She worked primarily with students who met eligibility criteria under autism and reported the special education teacher provided the majority of her training. During this time, she pursued her own professional development and took two classes at the community college level related to child development and working with students with difficult behaviors.

Joey's targeted area of need was arrival to school and unpack. The expected morning routine for Joey was, upon arrival to his classroom, that he hang his backpack on the hooks outside of the classroom, unpack his materials and enter the classroom. Prior to the intervention, Joey verbally requested help on a daily basis to complete this task and had been observed on several occasions, in the absence of IA support, with his backpack still on, waiting in the hallway for help 5-10 minutes after the morning bell. He routinely received IA assistance to complete this task to the extent of regularly not participating in several steps of the morning routine.

**Dyad III: Bobbi & Alex.** Prior to employment with this district, Bobbi worked as a behavioral assistant (BA) for 9 years at a non-public agency (NPA). For the first two years, she worked at a non-public school for students with moderate to severe disabilities. In the following years, before becoming employed in this district, she was contracted to work as a BA at regular public schools by her NPA within this district. Throughout this time, she reported attending monthly trainings provided by the NPA led by specialists in the field and supervision from the NPA in addition to collaboration with the special education teacher. Bobbi also pursued her own professional development courses and took several master's level courses in the area of special education at a private college.

During lunchtime, Alex appeared to require extensive support to get lunch from the cafeteria. His plate of food was given to the IA by the cafeteria staff and brought to the lunch table for him. Napkins and utensils were also retrieved and provided to him at the lunch table. Alex was not expected to stand in line and would often wait at the lunch table for the IA to bring him his lunch. On most days, he also brought a lunch bag with snacks. The IA also carried this for him from the classroom to the lunchroom.

**Dyad IV: Helen & Keith.** In her first year of employment as an IA, Helen reported working in a special day class with students with moderate to severe disabilities and in a full inclusion setting with students with mild to moderate disabilities. No formal training was provided but she reported the special education teacher worked with her to teach her useful strategies every day. For the next 7 years, Helen worked as a BA for an NPA in a full inclusion setting at a public day school supporting a student with moderate to severe disabilities, who also engaged in self-injurious and physically aggressive

behaviors; and with clients in a home setting, outside school hours. She received formal training provided by a Board Certified Behavior Analyst (BCBA) on a recurring monthly basis, supervision by a BCBA in both settings, supervision from the special education teacher at the regular public school, and annual summer training which typically lasted two to three days.

Keith had difficulty transitioning at the end of lunch recess to the cafeteria to eat lunch. When the bell rang on the playground, students were expected to kneel down and freeze until the yard duty supervisor blew the whistle to line up. When Keith heard the bell ring, he would run away from the supporting IA staff and climb on top of the play structure, refusing to come down. Occasionally, he would strike the IA with his hands or feet. When walking to the cafeteria from the black top, Keith would run to the cafeteria sometimes bumping into other students and disappearing from the IA's sight. Instead of entering the cafeteria, he would linger outside the doors and required several prompts to go inside. After he entered the cafeteria, he would run to the table where he usually sat, often bumping into peers along his way. Keith was dependent on being cued from the IA to eat. If left unprompted, he would sit at the lunch table without eating for the duration of the lunch period.

*Table 1. Demographic Information*

<b>Dyad</b>	<b>Name</b>	<b>Gender</b>	<b>Age</b>	<b>Ethnicity</b>	<b>Role</b>
<b>I</b>	Michelle	Female	33 years	Caucasian	IA
	Kai	Male	6 years	Asian	Student
<b>II</b>	Joan	Female	68 years	Caucasian	IA
	Joey	Male	10 years	Asian	Student
<b>III</b>	Bobbi	Female	61 years	Asian	IA
	Alex	Male	6 years	Hispanic	Student
<b>IV</b>	Helen	Female	36 years	Asian	IA
	Keith	Male	9 years	African-American	Student

*Table 2. Instructional Assistant Participant Information*

<b>Name</b>	<b>Highest Level of Education</b>	<b>Time in District</b>	<b>IA Experience</b>	<b>Familiarity with Student</b>
<b>Michelle</b>	Bachelor of Arts	2 years	3 years	1 year
<b>Joan</b>	Bachelor of Arts	11 years	16 years	3 years
<b>Bobbi</b>	Bachelor of Arts	3 years	12 years	2 years
<b>Helen</b>	Master's Degree	2 years	10 years	5 years

*Table 3. Student Participant Information*

<b>Name</b>	<b>Primary Category of Eligibility</b>	<b>Medical Diagnosis</b>	<b>Grade</b>	<b>Time Spent in General Education</b>
<b>Kai</b>	Autism	Autism	2 <sup>nd</sup>	93%
<b>Joey</b>	Intellectual Disability	Down Syndrome	3 <sup>rd</sup>	87%
<b>Alex</b>	Intellectual Disability	Down Syndrome	1 <sup>st</sup>	85%
<b>Keith</b>	Autism	Autism	4 <sup>th</sup>	88%

**Special Education Teacher.** The special education teacher in this study was the primary researcher, a master's candidate in the field of special education and the special education teacher of record who worked with both student and adult participants. The teacher had worked for 3 years at the school in which this study was conducted. Prior to teaching, she had worked with students with moderate to severe disabilities for 2 years as an IA in other districts and as a substitute teacher for both regular and special education. The teacher conducted both training sessions, delivered coaching and feedback, and collected and analyzed all data reported in this study.

## Setting

This study took place in a public elementary school in a small urban school district located in the northern Bay Area of California in the United States. The participating district contained 11 elementary schools with an average enrollment of 350 students per school and employed approximately 180 IAs during the 2017 to 2018 school year. These IAs worked primarily with students who received special education services. This district was selected because of its inclusive practices of special education service delivery. Special education and related services for students with IEPs were served within a regular classroom from elementary through high school, following a full-inclusion model. The elementary school in which this study took place was chosen based on the primary researcher's access to adult and student participants as the special education teacher of record. Class sizes at this school ranged from 18 to 29 students. The IA staff at this school was comprised of 5 permanent IA staff, 2 limited term/extra support vacancies (who required district reauthorization at the start of each trimester), and 3 NPA IAs.

Natural environments within the public school setting were used for the instructional locations of this study and were determined based on each student's unique need for additional support within the context of their routine. Four natural environments were selected for the locations where the IAs was asked to implement the skill targeted in this study: (a) hallway outside of a 3rd grade general education classroom; (b) 2nd grade general education classroom; (c) school cafeteria; and (d) playground.

**Hallway outside of a 3rd grade classroom.** The hallway was a narrow hall, approximately 15 meters long and 2 meters wide, consisting of 4 doors to classrooms on

one side, and one large floor-ceiling window on the other, located on the second floor of the school. Two rows of approximately 30 knobs for hanging backpacks were located to the right of each classroom door. Student work samples and artwork covered all spaces not occupied by the backpack knobs or the window.

**2nd grade classroom.** The 2nd grade general education classroom was located on the first floor of the school. The interior of the classroom was approximately 6 meters by 6 meters in size. On the interior of the classroom, approximately 26 backpack hooks were located on the wall to the right of the door with one shelf running across the top. Classroom furniture consisted of 7 student tables with 4 chairs at each table (i.e., sized for children 6-8 years old), a teacher desk and chair, a rolling projector cart, and a large carpet centered in front of a whiteboard spanning about 1 meter in length.

**School cafeteria.** The school cafeteria had four doors that pulled outward upon entry. The interior of the cafeteria was approximately 20 meters by 20 meters. To the right of the doors there was a lunch booth where the lunch staff served school lunches. Next to the lunch booth was a salad bar and to the right of the salad bar was a table holding a utensil tray filled with forks, spoons, and napkins with the table top reaching no more than 1 meter in height and spanning 2 meters in length. In the center of the cafeteria were 3 trashcans. During grades K-2 lunch, four folding lunch tables were positioned to the left of the entrance. For grades 3-5 lunches, an additional 2 rows of lunch tables were added to the far side, placed on the other side of the trashcans. Each lunch table spanned about 5 meters in length, and 1 meter in width, with table tops no more than 1 meter in height.

**Playground.** The school playground consisted of 3-tiers. The first level was the field (50m by 50m). Stairs leading up from the field led to a blacktop. On half of the blacktop was a play structure and on the other half, 2 grids for foursquare (30m by 30m, combined). Three basketball courts were located on the third tier (25m by 25m). Following lunch recess, students were expected to freeze in place until the yard duty supervisor blew a whistle to line up on the blacktop, the second tier, and then follow a line to walk from the blacktop to the cafeteria.

### **Experimental Design**

A single-case research study with an ABC design was used to evaluate the efficacy of an IA professional development package targeting evidence-based practices, i.e., prompting, and replicated across four IA/student dyads. Each dyad served as its own control. This study was implemented over the course of 7 weeks and was comprised of 5 phases: 1. Baseline, 2. Training, 3. Coaching 1 (session 1), 4. Coaching 2 (session 2), and 5. Maintenance. The intervention, phases 2-4, was initiated simultaneously for all IA participants in the form of small group training and continued with two one-on-one coaching sessions. Phases 1-4 lasted one week each and the fifth phase lasted a total of three weeks. Generalization of the skill was measured across each subsequent phase change following the training phase. The prompt-delivery schedule (PDS) was monitored and adjusted by the researcher each week to fade prompts for each step within the task where the student had met criterion for movement. In order to meet criterion for movement and fade prompting for any step, two behaviors must have occurred: the IA must have implemented the correct prompt, or combination of prompts, specified for the

step and the student must have been able to successfully complete the step after the indicated level of support was provided in three consecutive opportunities. For Dyad IV, initially, a 20-second latency was allotted for student response after prompt was delivered. Prompting for each step was faded independently.

During the coaching sessions, the researcher met with each IA one-on-one and viewed one video recording from the previous week. After viewing the video, the researcher solicited IA responses regarding their performance, delivered specific positive praise, and performance feedback. Next, the researcher pointed out adjustments to the PDS and reviewed the new PDS by live modeling and role-playing with the IA and finally, an opportunity was given to the IA for input regarding PDS changes and questions. Following the second coaching session, the researcher continued to adjust the PDS each week for each student and IAs were expected to independently identify and implement the changes while maintaining implementation fidelity. Retention of the targeted skill was measured for three weeks post-feedback and coaching.

### **Materials**

Two types of instructional materials were used during for the training. A PowerPoint was projected during each of the two training sessions, adapted by the researcher from a generic district training designed for teachers by district employed BCBA's titled *Prompting Strategies to Promote Independence* (Appendix A). IAs were given a handout of the slides during the presentation and encouraged, but not required, to take notes. During the second training session, the researcher redistributed the same task analyses used during the baseline phase and IAs practiced implementing their own and

each other's PDS (see Figure 1). IAs engaged in role-play of PDSs with each other, modeled for one another, and received feedback on their in-session performance of prompting from the researcher.

<b>Arrival &amp; Unpack</b>	
<b>Task Analysis</b>	<b>Prompt Level</b>
1. Take off backpack	PP-Tap backpack strap
2. Hang backpack on knob	G-Point to empty knob
3. Unzip backpack	PP-Bring students hand to zipper
4. Take out lunch	G-Point inside backpack
5. Put lunch on floor	FP-H/H guide students hands to floor
6. Zip up backpack	G-Point to backpack
7. Pick up materials	G- Point to materials
8. Walk into classroom	G-Open hand to classroom
9. Put lunch in lunch bin	G-Point to lunch bin
10. Walk to desk	G-Point to desk

<b>Prompt Level Hierarchy</b>
Full Physical (FP)
Partial Physical (PP)
Gesture (G)
Independence (I)

*Figure 1.* Example of Prompt Delivery Schedule

## **Procedures**

**Baseline.** Prior to collecting baseline data, IAs were given an online pre-intervention survey (Appendix B), administered during the duty day, to obtain information related to demographics and education and vocational background. During the baseline phase, each IA was given a task analysis (TA) with a corresponding PDS and prompt hierarchy (see Figure 1) designed by the researcher, which emphasized one task within each student participant's day where an opportunity for increased independence in the area of adaptive functioning was present, identified by the researcher and based on each student participant's present level of performance in the task. IAs were instructed to support student participants using the TA and PDS to the best of their ability. IAs were not given any prior instruction related to the implementation of the PDS or prompting hierarchy and the researcher declined to answer any questions the IAs had about the TA or PDS during this phase. To be considered for continued participation in the study, IAs were required to meet a baseline performance criterion of 40% or lower during this phase. All IA participants met the performance criterion for continued participation and ranged in accuracy from 0-38% (see Table 6).

**Intervention.** The intervention consisted of a small-group training and two one-on-one coaching sessions. The intervention was designed and delivered by the special education teacher and the primary researcher in this study.

**Training.** The training was delivered by the teacher and divided into two 50-minute sessions. Training sessions occurred over two consecutive weeks during routine weekly IA staff meetings. During the first training session, all terms were defined by the

teacher and IAs were given the opportunity to build connections between the terms and their daily duties and interactions with students by being asked to think-pair-share with each other. Next, prompt types were defined, IAs participated in another think-pair-share, and prompting was live-modeled by the teacher. IAs were then paired up and practiced prompt types with each other while the teacher observed pairs and provided in-session performance feedback. At the end of the session, IAs were given an opportunity to ask questions.

During the second training session, all terms and prompt types were briefly reviewed; IAs took turns modeling each prompt for the group under the supervision of the teacher and baseline PDS were redistributed. IAs were given time to practice PDS with one another while the teacher supervised and provided performance feedback on their in-training performance.

***Coaching.*** The special education teacher conducted coaching sessions one-on-one with each IA at one-week intervals beginning at one-week post-training. Each session lasted approximately 30 minutes and included at least one of each of the following 5 empirical components of coaching: Partnership, Action Plan, Action in the Work Setting, Observation, and Reflection and Feedback (Artman-Meeker et al., 2015). During each coaching session, the special education teacher and IA watched one video recorded session collected from the previous week. The teacher had incorporated strategies from “Partnership”, “Observation”, “Reflection and Feedback”, by asking the IA their opinion of their performance, and delivered specific positive praise and performance feedback (Artman-Meeker et al., 2015, p.185). Next, the teacher introduced the new PDS for the

coming week, addressing “Action Plan” and “Action in the Work Setting”, and reviewed each step of the PDS via live modeling and/or role-play, a specific strategy listed under “Action in the Work Setting” (Artman-Meeker et al., 2015, p.185). Activities to promote “Partnership” and “Reflection and Feedback” consisted of solicitation of IA input related to the feasibility of the new changes and suggestions regarding implementation were solicited (Artman-Meeker et al., 2015, p.185). Finally, IAs were given the opportunity to ask questions, a strategy that may be used to further reflection and present an opportunity for additional feedback (Artman-Meeker et al., 2015).

**Maintenance.** Data collection continued for three weeks post-intervention, phases 5-7, which measured retention of the targeted skill and continued generalization. The PDS continued to be adjusted weekly by the teacher as the IA/student dyads met the criterion to fade prompts. IAs were given general praise (e.g., Great job, Keep up the good work, Nice job, etc.,) but no specific praise or performance feedback was delivered during these phases. At the conclusion of the study, an online-post survey was administered during the duty day to the IAs to solicit opinions related to the intervention as a means to measure social validity.

### **Data Collection**

Data collection began after written consent and video consent was obtained from all IA participants and the parents of student participants. Verbal assent was given by student participants to record them in various locations on the school site. A Flip MinoHD™ video camera was used to record each dyad as the IA prompted the student participant through the task. The video camera was held by the researcher, who

maintained a distance of approximately 2 meters from the location of the performance of the task. Dyads were recorded during the same task each day (e.g., Dyad I: arrival and unpack of materials; Dyad II: arrival and unpack of materials; Dyad III: getting lunch and utensils; Dyad IV: transition to cafeteria and eating lunch). Each recording varied based on the time it took the student to complete the specified task but no task took longer than 10 minutes to complete. Data was coded from the video recordings using a teacher-made data sheet, which tracked the number and type of prompting delivered during each step, the percent of steps where the correct prompting was delivered, whether or not the step was successfully completed by the student, and the number and percent of steps the student completed independently.

### **Interobserver Agreement**

Interobserver agreement (IOA) was calculated for the following components of this study: (a) fidelity of implementation; (b) types of prompts delivered; and (c) steps completed at independence (see Tables 4 & 5). An interobserver viewed an average of 34% of the total video recorded sessions and viewed at least one video from each phase for all four dyads. The interobserver, a special education teacher and certified assistive technology specialist, was trained to code the video recordings and was unaware of all study procedures. Video recordings of IA-student interactions, coding manual (see Appendix C) and data sheet were used for the calibration of agreements between the researcher and the interobserver. Following the training session, the interobserver was sent videos via a secure link and completed the data analysis independently from the

researcher. When scoring was completed, the data sheet was returned to the researcher and access to the completed video recordings was removed.

An occurrence/nonoccurrence agreement formula (i.e.,  $A/(A+D)100$ ) was used to calculate the occurrence of the target behavior (i.e., the scheduled prompt) and non-occurrences of the behavior, including an absence of the scheduled prompt and the delivery of incorrect prompts, specific to prompt type. Additional dependent variables also measured with this formula were percentage of IA implementation fidelity and which specific task steps and the percentage of task steps that were completed independently by the student (Kennedy, 2005b).

**Fidelity of implementation.** Fidelity of implementation measured the percentage of steps in the TA where the IA implemented the prompts as indicated on the PS (see Table 4). Dyad I: 94% (range, 82-100%); Dyad II: 100% (range, 100-100%); Dyad 3: 95% (range 80-100%); Dyad IV: 95% (range, 89-100%).

**Types of prompts delivered.** The number of prompts delivered per step, both correct and incorrect, and specific type of prompt (i.e., full-physical, partial-physical, verbal, gesture, proximity, no prompt), and instances of non-opportunities (N/O) were recorded (see Table 4). Dyad I: 88% (range, 82-100%); Dyad II: 95% (range, 83-100%); Dyad III: 88% (range 82-100%); Dyad IV: 89% (range, 83-100%).

**Steps completed independently.** Student performance was calculated as percentage of steps completed at independence (see Table 5). Dyad I: 97% (range, 82-100%); Dyad II: 100%, (range 100-100%); Dyad III: 96% (range 80-100); Dyad IV: 97% (range 89-100%).

*Table 4. Mean Percentage of Interobserver Agreement for Instructional Assistants*

<b>Dyad</b>	<b>Percentage of Observations with IOA</b>	<b>Fidelity of Implementation IOA</b>	<b>Range</b>	<b>Types of Prompts Delivered IOA</b>	<b>Range</b>
<b>I</b>	33%	94%	82-100%	88%	82-100%
<b>II</b>	33%	100%	100-100%	95%	83-100%
<b>III</b>	36%	95%	80-100%	88%	82-100%
<b>IV</b>	32%	95%	89-100%	89%	83-100%

*Table 5. Mean Percentage of Interobserver Agreement for Students*

<b>Dyad</b>	<b>Steps Completed Independently</b>	<b>Range</b>
<b>I</b>	97%	82-100%
<b>II</b>	100%	100-100%
<b>III</b>	96%	80-100%
<b>IV</b>	97%	89-100%

### **Procedural Integrity**

In this study, both training sessions were video recorded and each coaching session was audio recorded. The video and audio recordings were rated to determine fidelity of treatment implementation by both the interobserver and the researcher. Figure 2 shows the checklist used to monitor the implementation of all empirical training and coaching strategies planned for each of the training and coaching sessions. Review of the procedural integrity data showed 100% agreement that 100% of the planned treatment components were implemented during the each of the training and coaching sessions.

Training Sessions		Coaching Sessions	
<b>Session 1</b>		<b>Session 1</b>	
	Define terms		Watch Video
	Think-Pair-Share		IA Reflection
	Define Prompts		Performance Feedback
	Think-Pair Share		Introduce PDS
	Live-Model (Teacher)		Live-Modeling and/or Role Play
	Role-Play (Prompts)		IA Input
	In-session Performance Feedback		Questions
	Questions	<b>Session 2</b>	
<b>Session 2</b>			Watch Video
	Review Terms		IA Reflection
	Review Types of Prompts		Performance Feedback
	Live-Model (IAs)		Introduce PDS
	Role-Play (PDS)		Live-Modeling and/or Role Play
	In-Session Performance Feedback		IA Input
	Questions		Questions

Figure 2. Procedural Integrity Checklists

### Social Validity

Social validity, a measurement of social relativity and perceived importance of the intervention within its field of implementation (Kazdin, 1977), was assessed through subjective evaluation using online surveys in combination with a direct measurement of the extent to which participants maintained the intervention. Combining subjective evaluations and the maintenance of IA performance outcomes revealed how this intervention was integrated into the larger social structure of an inclusive educational setting (Kennedy, 2002). A summative online survey was administered following the conclusion of the study and was intended to obtain information regarding each IAs experience related to the intervention of the study and perceived outcomes (i.e., knowledge and skill acquisition, impact on others, ease of implementation, value, and relevance for peers) (Appendix D). Retention of the targeted skill, i.e., prompting, was measured for 3-weeks following the final coaching and feedback session.

## **Data Analysis**

Due to variations in the number of steps in each TA across dyads, raw data for the number of TA steps implemented correctly was converted into a percentage for each IA participant. Similarly, the number of steps completed independently by each student participant was also converted to a percentage. In addition, specific steps the student completed independently and instances of non-opportunities were indicated for each student participant. The total number of prompts scheduled per session was compared to the total number of prompts delivered by each IA per session for each dyad. A separate comparison was also made between the specific types of prompts delivered by each IA per session.

Data was analyzed through visual inspection. Level, trend, variability, and immediacy of effect were assessed and used to determine efficacy of the intervention (Kennedy, 2005a). The following chapter presents graphed data analysis for individual participants within each dyad.

## Chapter 4

### RESULTS

The results of the effects of the professional development package on IA implementation fidelity and student outcomes are presented in this chapter. This chapter is comprised of 3 sections. The first section reports the implementation fidelity for the instructional assistant (IA) participants and student outcomes. The second section specifies the types of prompts used during each session for each dyad and the final section describes social validity findings.

#### **Intervention Results for Each Dyad**

Results will be presented for each IA and student by dyad. Implementation fidelity and the number of prompts scheduled compared to the number of prompts delivered will be presented for the IA. The percentage of task analysis (TA) steps completed at independence and the level of support received for each step will be presented for the student.

**Dyad I: Michelle (IA).** Figure 3 presents the fidelity of implementation measured as a percentage of the steps implemented correctly per session by the IA in Dyad I. During initial baseline, there was a low degree of variability, with a mean (M) of 21% (range, 18 to 27%). The intervention consisted of training on prompts and prompt delivery followed by two follow-up sessions of coaching. Following the training, there was an immediate increase in the level of the dependent variable (M=58%; range, 36 to 64%) with moderate variability and an upward trend. After the first coaching session, no immediacy of effect was observed between phases; however, there was an increase in

level to 67% (range, 64 to 73%) with a slight upward trend. The second coaching session yielded an immediate increase in the level of the dependent variable (M=91%; range, 91 to 91%) and stable data. During the maintenance phase, there was a slight upward trend and the data was stable with no variability during the last six sessions.

In Figure 4, the number of prompts scheduled is compared to the actual number of prompts delivered by Michelle per session. In Baseline, Training, and Coaching 1 phases, there was high variability between the scheduled prompts and the number of prompts implemented by the IA. Overall, there is a downward trend across all phases. Within the maintenance phase, the variability appeared to stabilize and in the final six sessions the data was stable at 100% fidelity.

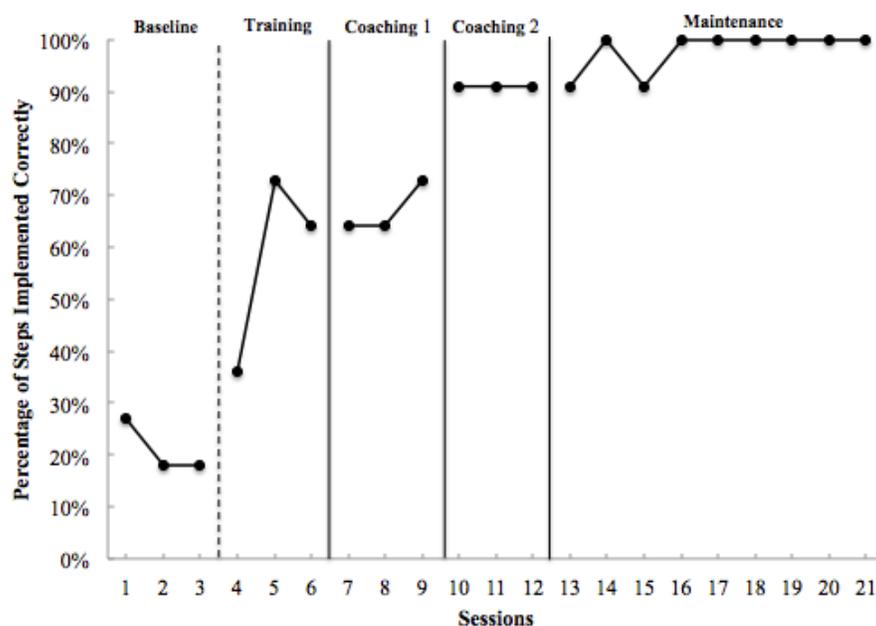


Figure 3. Michelle's Fidelity of Implementation

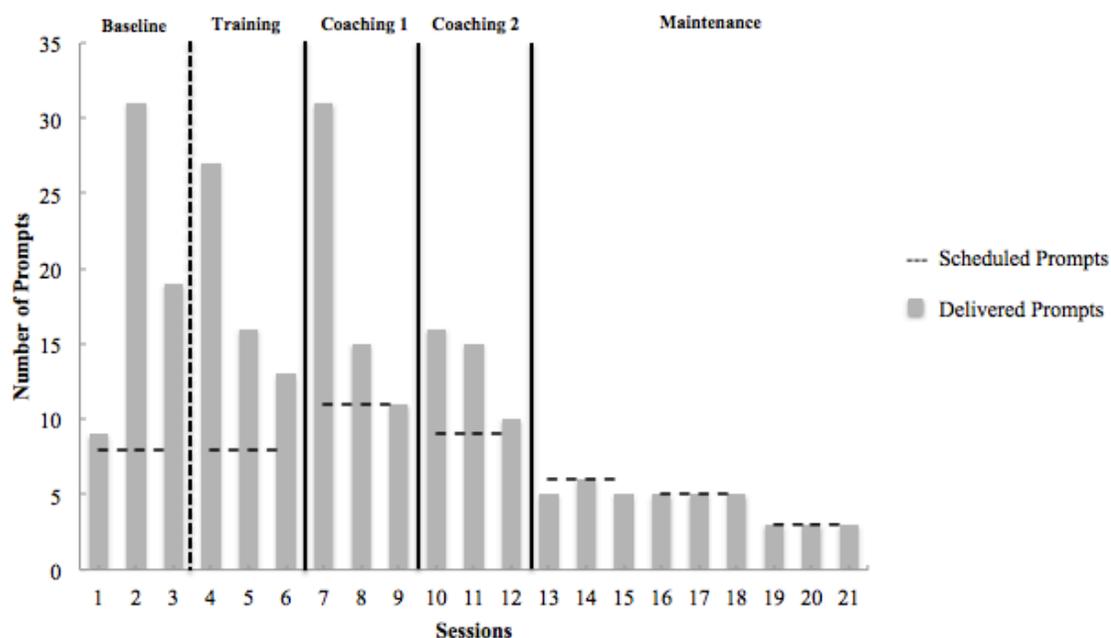


Figure 4. Scheduled Prompts Compared to Actual Prompts Delivered by Michelle

**Kai (student).** Figure 5 presents the percentage of steps completed independently by the Kai. During the initial baseline there was a low variability (M=30%; range, 27-36%) with a slight downward trend. Following the training, although there was an immediate increase in level to 39% (range, 36-45%) and a low amount of variability, a slight downward trend was also present. There was an absence of an immediate effect between the training phase and phases Coaching 1 and 2. Across these phases, steps completed at independence held stable at 36% with no variability. During the maintenance phase, there was low variability with an upward trend and no overlap with previous phases. The average number of steps completed was 61% (range, 55-73%).

Figure 6 presents the steps of the task analysis the student completed at independence. In the initial baseline, Kai completed between 3 and 4 steps at independence (average 3.3 steps). In the training phase, Kai completed between 4 and 5

steps at independence (average 4.3 steps). Throughout the next two phases, Feedback 1 and Feedback 2, 4 steps were completed at independence. During the maintenance phase, 6 steps at independence were recorded and in the final 3 sessions, a total of 8 steps at independence were achieved.

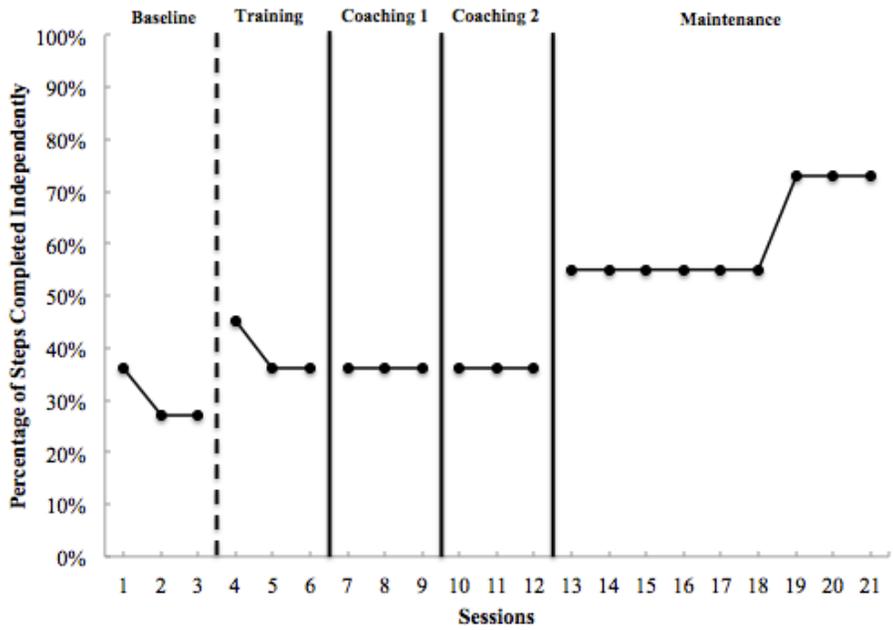


Figure 5. Percentage of Steps Kai Completed Independently

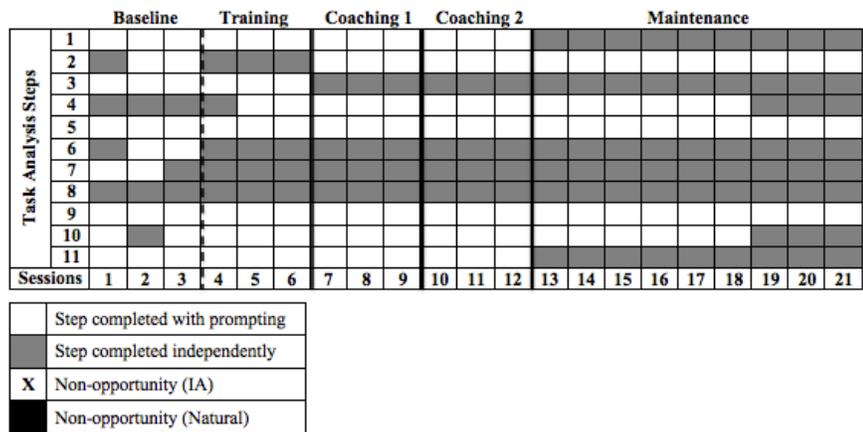


Figure 6. Kai's Level of Support for Each Step

**Dyad II: Joan (IA).** Joan's fidelity of implementation is presented in Figure 7 as a percentage of the steps prompted correctly per session. There was a low degree of variability during baseline and data was stable at  $M=3\%$  (range, 10-0%). Following the first half of the intervention, the training sessions, although there was a high immediacy of effect, there was a low level and high degree of variability with an overall downward trend,  $M=23\%$  (range 10-40%). In addition to a slight upward trend with low variability and no observed overlap,  $M=77\%$  (range, 70-80%), the greatest immediacy of effect occurred during the second half of the intervention, following the first coaching phase. In the second coaching phase there was also low variability,  $M=93\%$  (range, 90-100%), and an upward trend with no overlap of data with any previous phases. During the Maintenance phase, data was stable with low variability,  $M=98\%$  (range, 90-100%).

In Figure 8, the number of scheduled prompts in comparison to the number of prompts Joan delivered per session is presented. The highest degree of variability occurred during the first two phases, Baseline and Training. In the third phase, there was a low degree of variability and data appeared to stabilize. In the final six sessions within the maintenance phase the data was stable at 100% variability.

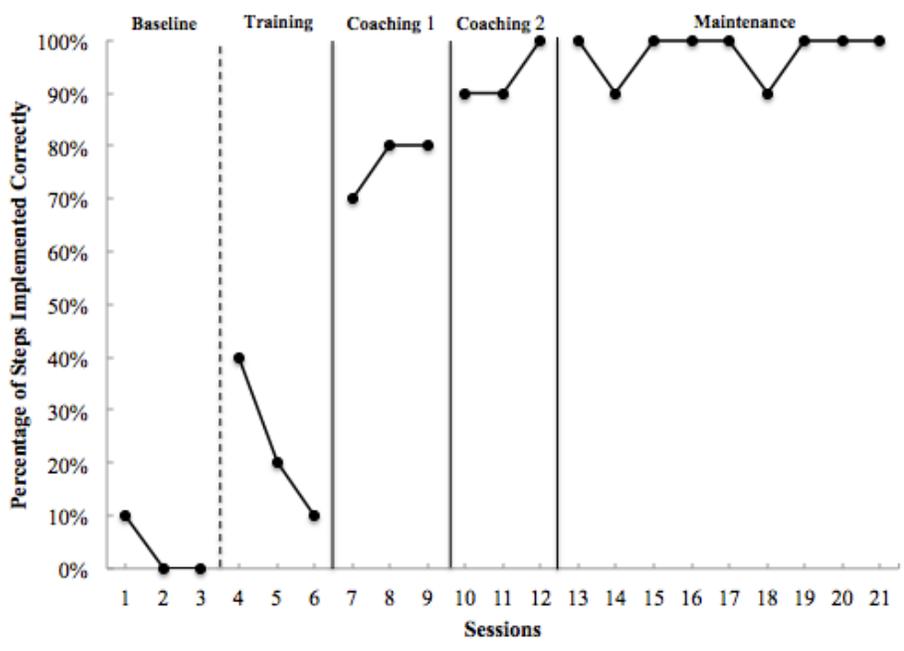


Figure 7. Joan's Fidelity of Implementation

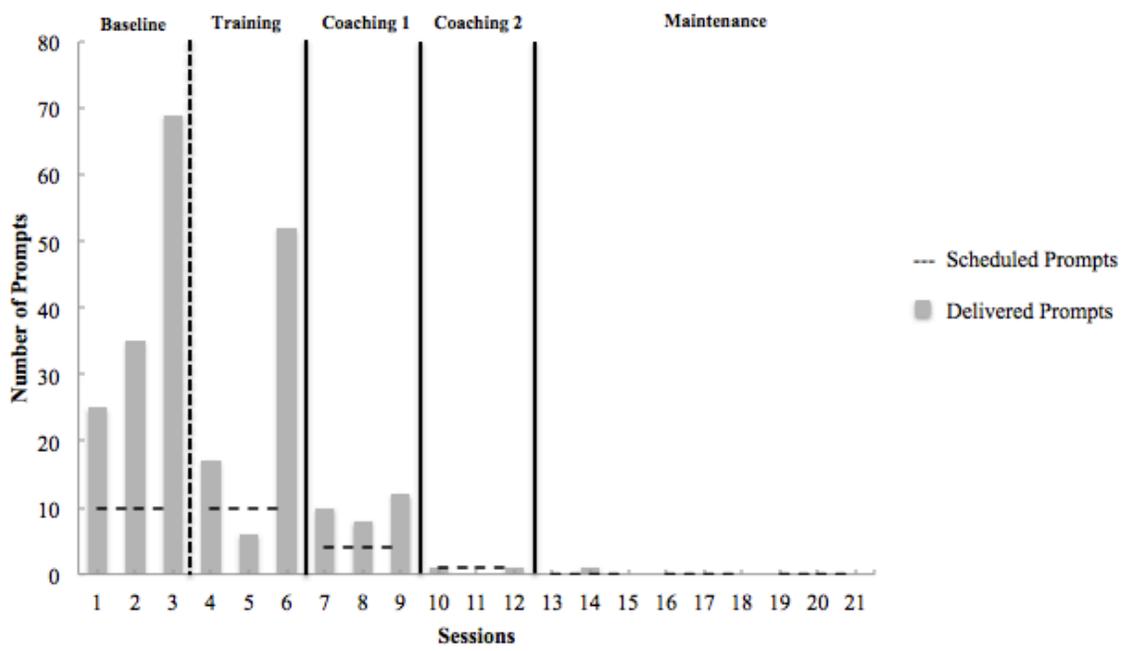


Figure 8. Scheduled Prompts Compared to Actual Prompts Delivered by Joan

**Joey (student).** Figure 8 presents the percentage of steps completed independently per session by Joey. During both the baseline and training phases, there

was a high degree of variability, baseline  $M=27\%$  (range, 0-50%), training  $M=30\%$  (range, 0-60%), and data significantly overlapped between these phases. Although there was a high immediacy of effect between the first three phase changes, the first two phases had a moderate downward trend while the third phase, Coaching 1, had a slight upward trend and low variability  $M=43\%$  (range, 40-50%). In the second coaching phase, the data was stable,  $M=93\%$  (range, 90-100%). During the maintenance phase, data continued to be stable with low variability,  $M=98\%$  (range, 90-100%).

The level of support Joey received for each step is presented in Figure 10. He completed between 0 and 5 steps independently (average 2.6 steps) during the baseline phase. In the training phase, he completed between 0 and 6 steps at independence (average 3 steps). During the first coaching phase, Joey independently performed between 4 and 5 steps, averaging 4.3 steps per session. In the Coaching 2 phase, Joey completed between 9 and 10 steps at independence (average 9.3 steps). In the maintenance phase, Joey independently completed between 4 and 10 steps independently with an average of 9.1 steps per session; however, it must be noted that during session 17, changes to his morning routine, i.e., attending a field trip, presented non-opportunities in which he could not engage in 7 of the 10 steps. During this session, Joey independently completed 3 out of 3 of the steps he had the opportunity to complete.

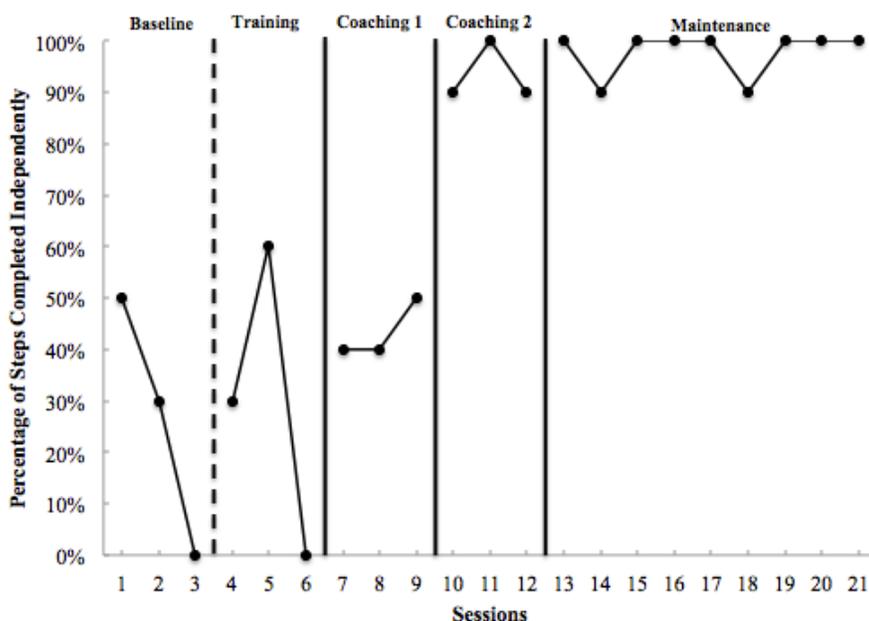


Figure 9. Percentage of Steps Joey Completed Independently

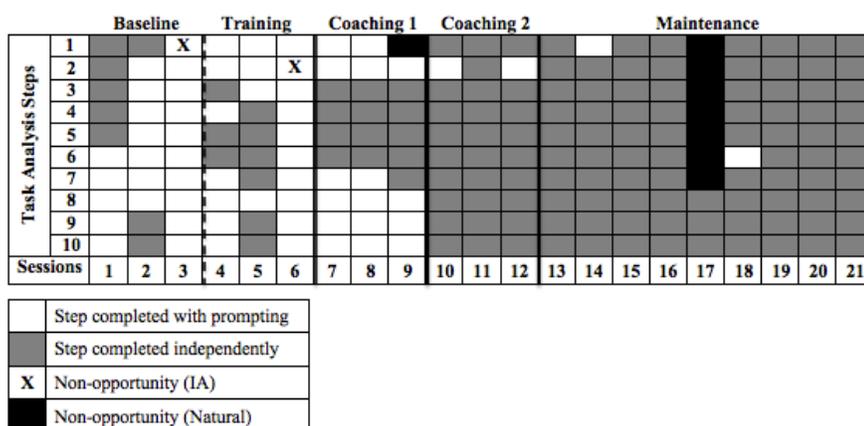


Figure 10. Joey's Level of Support for Each Step

**Dyad III: Bobbi (IA).** Bobbi's fidelity of implementation is shown in Figure 11. Baseline was stable with low variability,  $M=36\%$  (range, 33-38%). In the training phase, there was high variability,  $M=38\%$ , (range, 14-50%), and a significant upward trend. A high immediacy of effect occurred between the training phase and the first coaching phase. There was low variability in the Coaching 1 phase,  $M=80\%$  (range, 83-75%), with a moderate downward trend and in the second coaching phase, significant overlap in data

with low variability,  $M=83\%$ , (range, 80-86%) and a slight upward trend. During the maintenance phase, there was moderate variability,  $M=90\%$ , (range, 83-100%) a moderate upward trend and significant overlap with phases Coaching 1 and Coaching 2.

The number of scheduled prompts compared to the number of prompts delivered by Bobbi is shown in Figure 12. In both the baseline and training phases, there was high variability when compared to scheduled prompts. During the coaching phases, variability was moderate. The maintenance phase had the lowest variability and across all phases there was observed to be a parallel slight downward trend between the scheduled prompts and the prompts delivered by Bobbi.

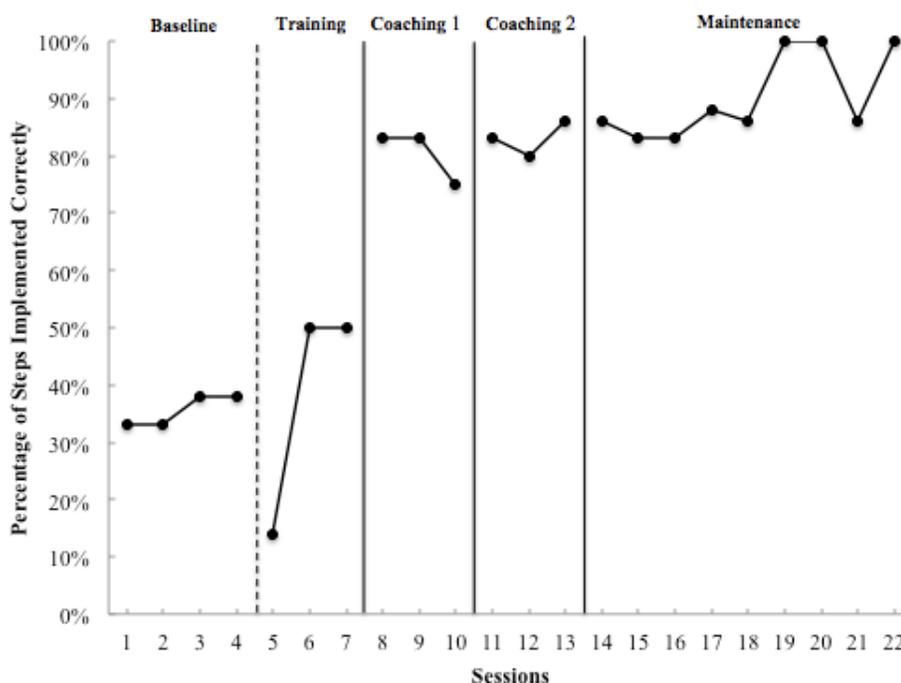


Figure 11. Bobbi's Fidelity of Implementation

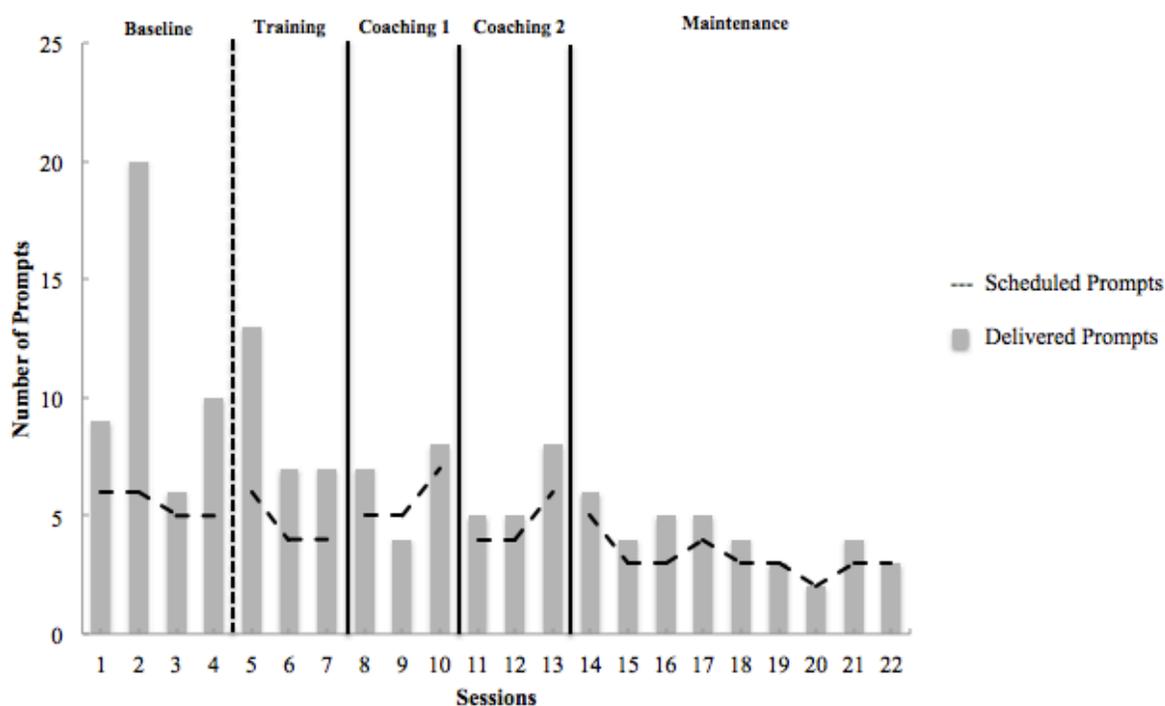


Figure 12. Scheduled Prompts Compared to Actual Prompts Delivered by Bobbi

**Alex (student).** Figure 13 shows the percentage of steps completed independently by Alex. Baseline data shows a high degree of variability, with a mean of 24% (range, 11-38%) and a moderate upward trend. Following the training sessions, there was a high degree of variability  $M=23\%$ , (range, 0-40%) with a slight upward trend and significant overlap with baseline data. In the Coaching 1 phase, there was a moderate degree of variability  $M=40\%$ , (range, 33-50%) and a slight upward trend. In the second coaching phase there was a decrease in level  $M=22\%$  (range, 17-29%) with moderate variability and a slight upward trend. A significant upward trend was observed in the maintenance phase with a high degree of variability  $M=44\%$  (range, 29-67%). Stabilization did not occur across any of the phases.

The level of support Alex required for each step is shown in Figure 14. Alex completed between 1 and 2 steps (average, 1.6 steps) independently during each session in the baseline phase and two opportunities to participate in this phase were eliminated by Bobbi completing the task for him. In the training phase, Alex averaged 1.3 steps per session (range, 0-2 steps) with one opportunity within this phase completed by Bobbi. During the Coaching 1 phase, Alex completed between 2-3 steps independently, averaging 2.7 steps per session and in the Coaching 2 phase he completed between 1-2 steps independently (average, 1.3 steps). No non-opportunities occurred during either of the coaching phases.

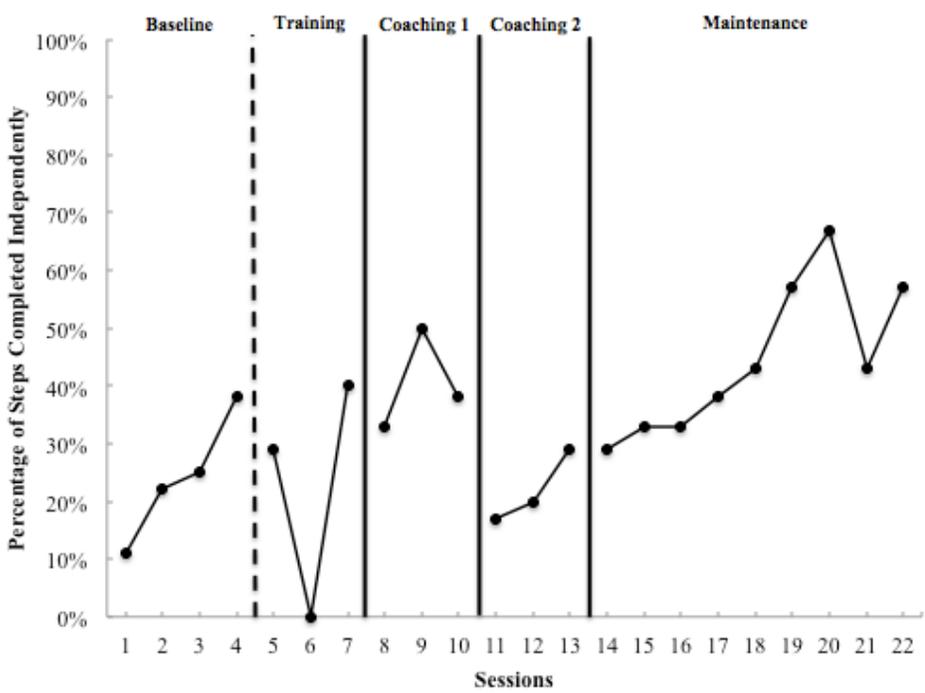


Figure 13. Percentage of Steps Alex Completed Independently

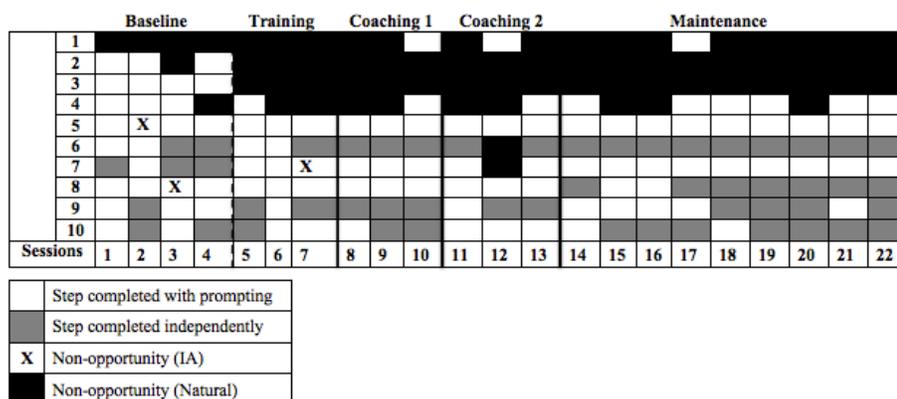


Figure 14. Alex's Level of Support for Each Step

**Dyad IV: Helen (IA).** Fidelity of implementation for Helen is shown in Figure 15. Baseline data was highly variable,  $M=22\%$  (range, 11-22%), with no slope. In the training phase, there was 100% overlap in data with the previous phase and a moderate degree of variability,  $M=20\%$  (range, 11-29%), with a slight upward trend. A significant immediacy of effect occurred between the training and first coaching phase. Within the first coaching phase, there was a moderate degree of variability and an upward trend with a mean of 74% and a range of 57-86%. Data from the Coaching 2 phase shows an upward trend with little variability,  $M=84\%$  (range, 78-89%). During the maintenance phase, there was a slight upward trend and with a mean of 94% with a range of 88-100%. Baseline was stable with 100% fidelity in the final three sessions of the maintenance phase.

Figure 16 shows the number of scheduled prompts compared to the number of actual prompts delivered by Helen. There was high variability across initial baseline and training phases between prompts scheduled and prompts delivered. Coaching phases 1 and 2 show a moderate degree of variability between the two data sets. The maintenance

phase displays an initial low variability but reaches stabilization with 0% variability across the last four sessions.

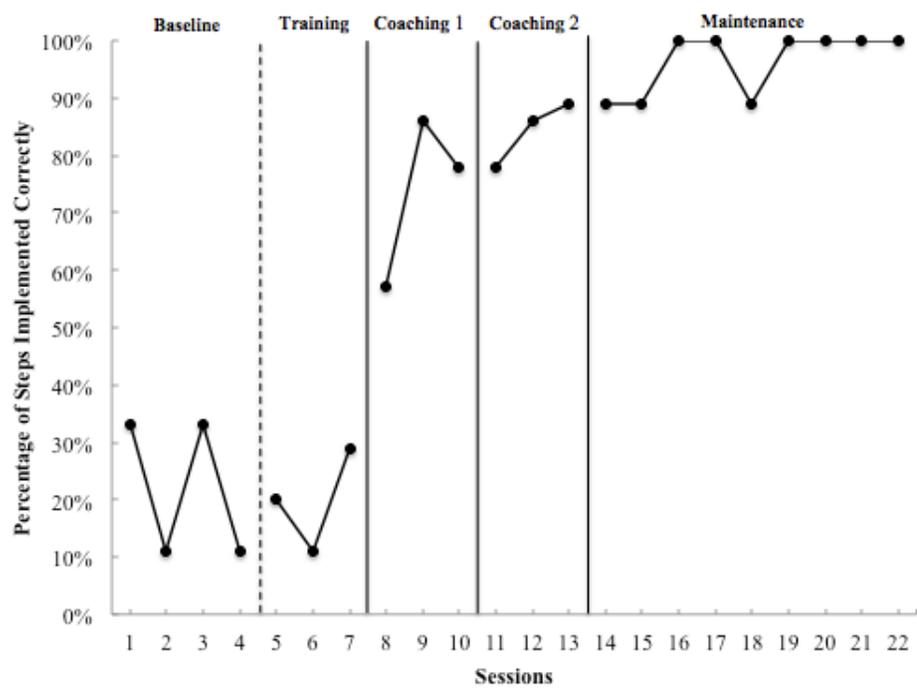


Figure 15. Helen's Fidelity Of Implementation

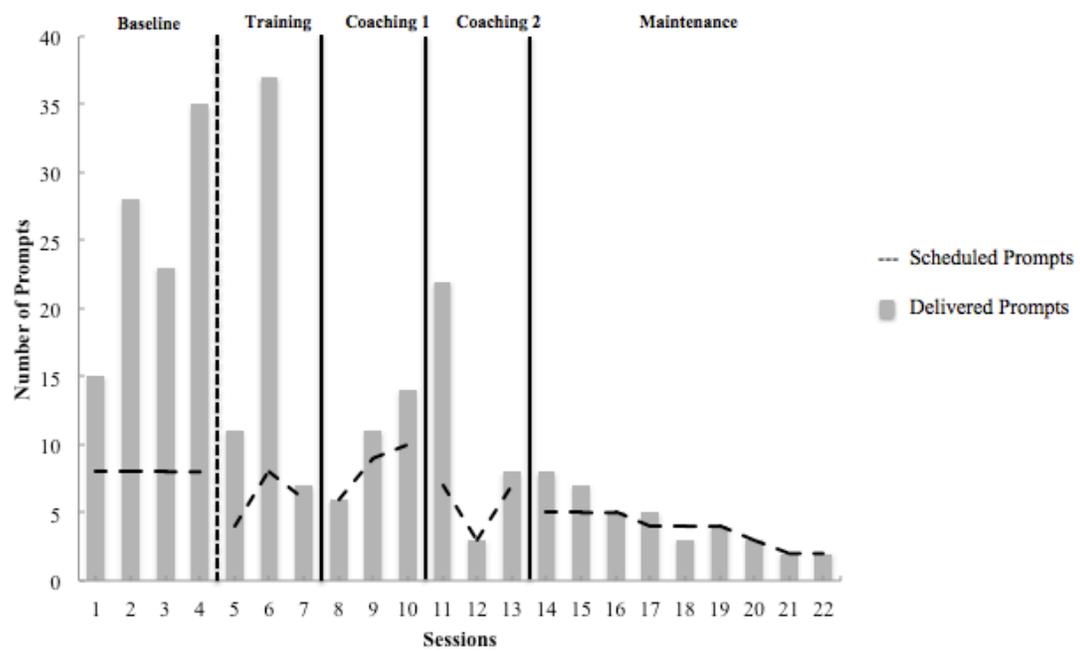


Figure 16. Scheduled Prompts Compared to Actual Prompts Delivered by Helen

**Keith (student).** Initial baseline of the percent of steps completed independently by Keith, as shown in Figure 17, shows low variability,  $M=19\%$  (range of 11-22%) with a slight upward trend. In the training session, there was a high degree of variability with a mean of 17%, (range, 0-29%), and an upward trend. Data from the first coaching phase was consistent with the training phase with a high level of variability,  $M=18\%$  (range, 11-29%) but had a downward slope. The Coaching 2 phase also had a downward slope with a moderate degree of variability  $M=28\%$  (range, 22-33%) and overlapped with the previous three phases. In the maintenance phase, there was a moderate upward trend, with data stabilizing at 56% of steps completed at independence across the final five sessions.

The level of support Keith received for each step is shown in Figure 18. Keith completed an average of 2 steps per session at independence (range, 2-2). In the training phase, Keith completed between 0-4 steps per session with an average of two steps. Keith completed an average of 1.3 steps (range, 1-2) in the first coaching phase and 2.3 steps (range, 2-3) in the second coaching phase. In the maintenance phase, Keith completed an average of 4.6 steps independently (range, 3-5).

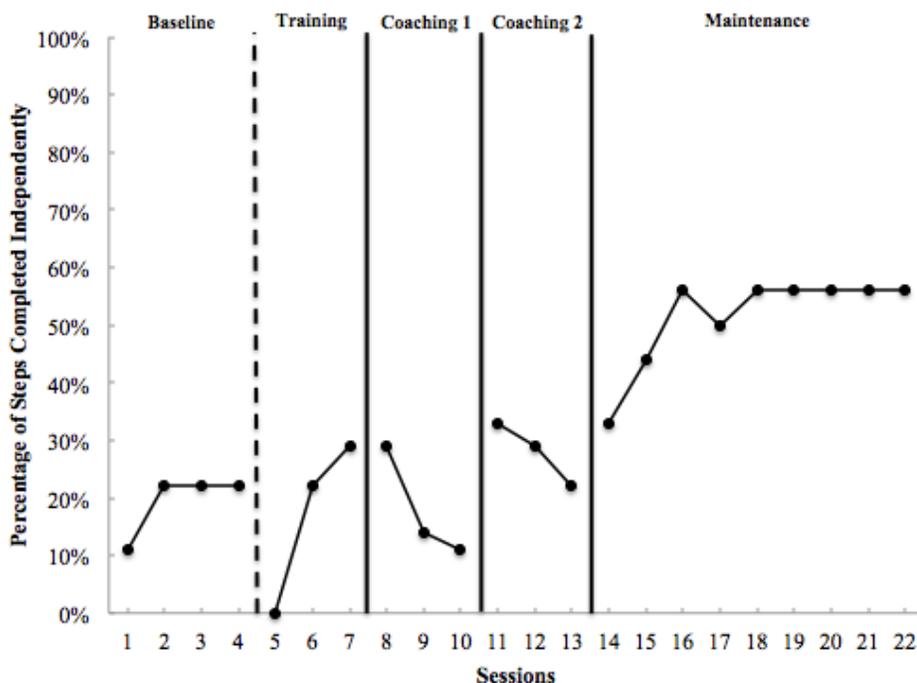


Figure 17. Percentage of Steps Keith Completed Independently

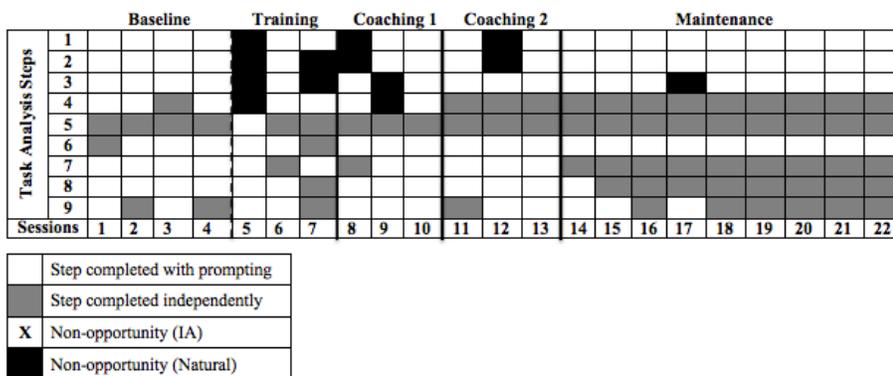


Figure 18. Keith’s Level of Support for Each Step

### Types of Prompts Delivered

Although the monitoring or manipulation of a specific prompt type was not the purpose of this study, the primary researcher was curious about the frequency of the use of the different types of prompts and how the number and types of prompts used would be affected by implementation fidelity. Figures 19 and 20 show the number of prompts

and prompt types utilized by IAs in Dyads I-IV per session. The initial baseline for each dyad showed a high degree of variability and the use of prompt types that were not indicated on the prompt delivery schedule. Across phases for all dyads, a pattern emerged. The degree of variability declined and a downward trend can be seen. The types of prompts for Dyad I and II (see Figure 19) stabilized during the maintenance phase. Dyad I and II also achieved the highest percentage of implementation fidelity (see Table 6). During the maintenance phase for Dyad III (see Figure 20), a low variability and a slight downward trend was observed and Dyad IV (see Figure 20) showed moderate levels of variability for one of the prompts, i.e., gestural, but had a reduction in other prompt types that were not on the prompt delivery schedule. Due to the prompt of proximity only being utilized in one dyad, it was not included in graphing of this data.

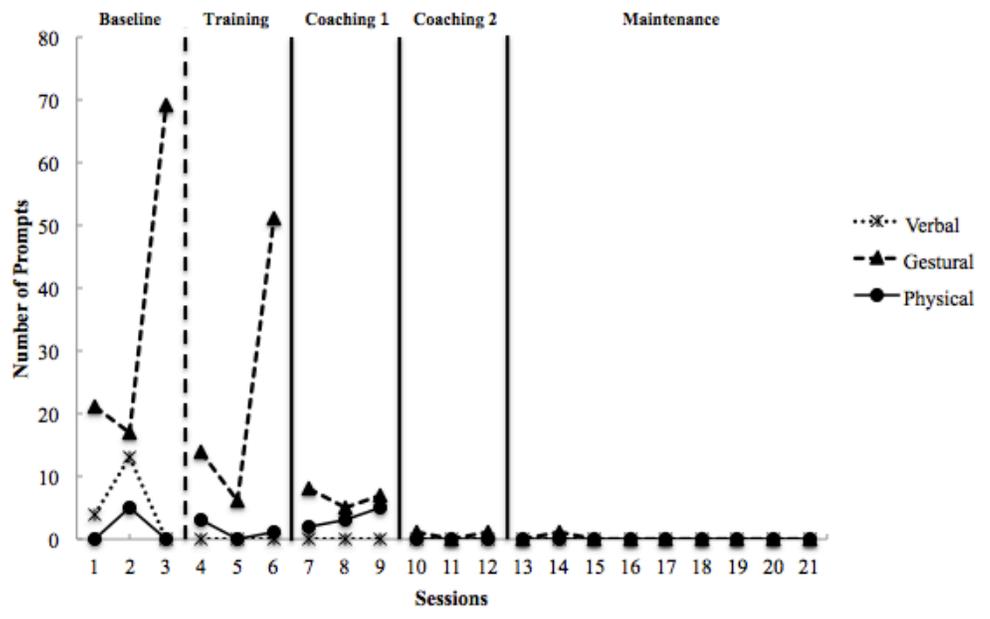
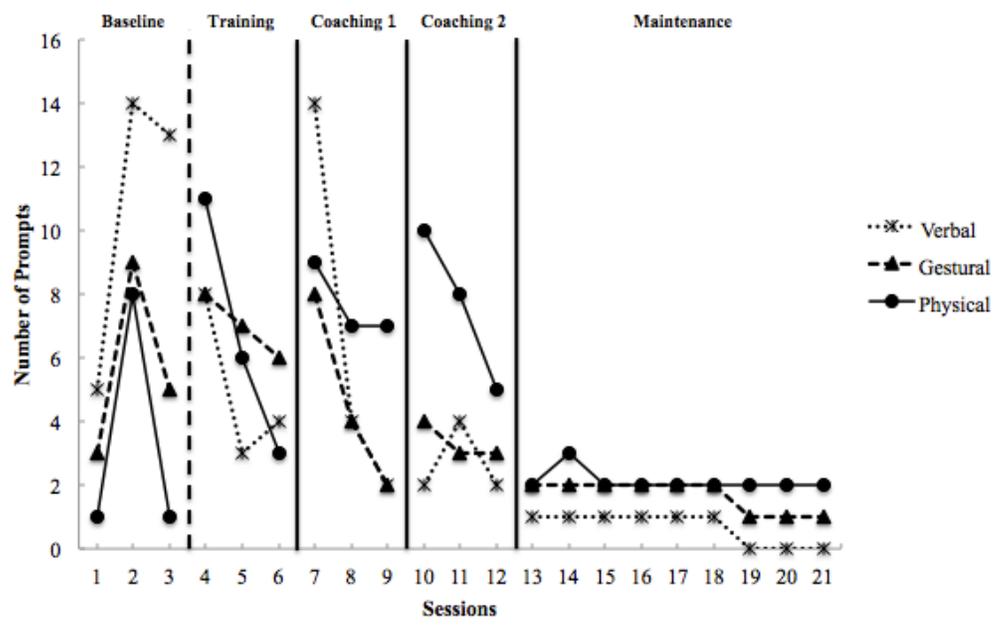


Figure 19. Specific Types of Prompts Delivered per Session Dyad I (top) & Dyad II (bottom)

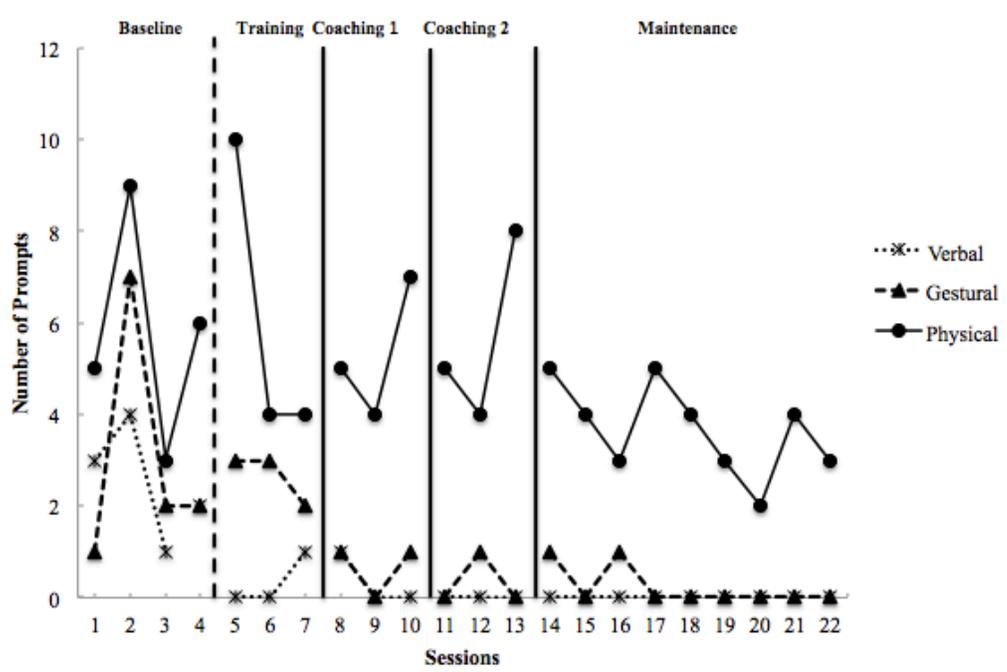
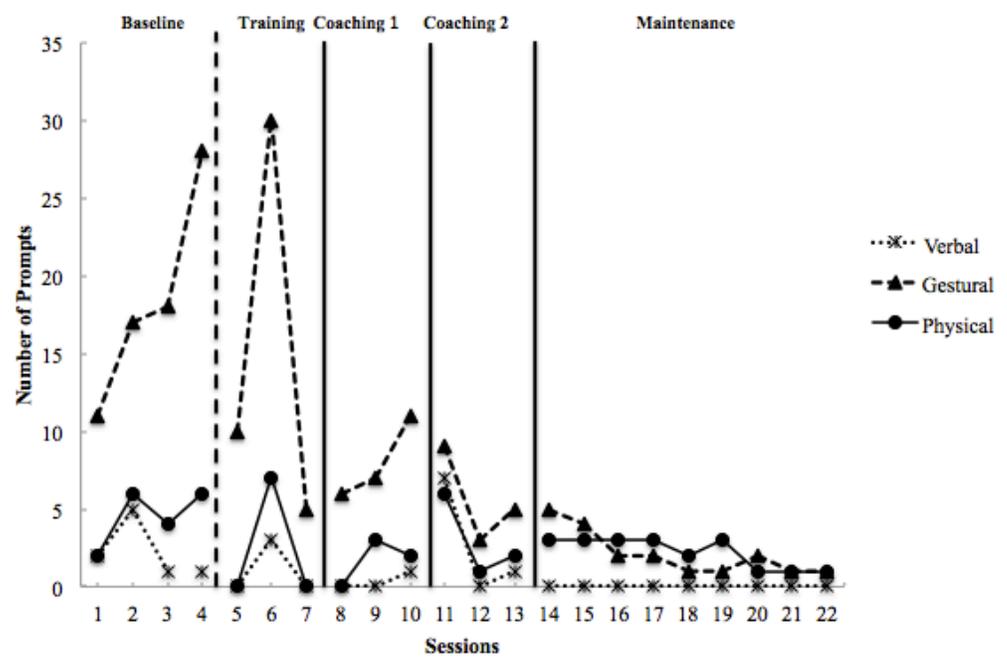


Figure 20. Specific Types of Prompts Delivered per Session Dyad I (top) & Dyad II (bottom)

### **Social Validity**

All IA participants reported to have perceived their knowledge and skills from the intervention to increase and as a result felt more skilled in their position and observed positive changes in the students they worked with. Joan expanded on this by describing, “I feel like it made it easier to work with him at other times of the day and now [he] listens to me more.” Michelle responded, “I was surprised it actually worked and proud of Kai for becoming more independent.” All IA participants reported they thought prompting was worth the time and effort involved, plan to continue to use the skill and knowledge acquired, and would recommend this intervention to other IAs. The positive perception of this intervention combined with the durability of the observed behavior change, marked by an average implementation fidelity of no less than 90% for all dyads at the conclusion of this study (see Table 6) contributes to the social stability and efficacy of this intervention within the context of an inclusive public education setting (Kennedy, 2002).

## **Chapter 5**

### **DISCUSSION**

The purpose of this study was to evaluate the efficacy of a professional development (PD) package for instructional assistants and establish a link between professional development strategies, implementation fidelity of the targeted skill (i.e., prompting) and student outcomes. The teacher-designed and led intervention and the inclusive setting in which this study was conducted contributed to the uniqueness of this study. The intervention was a PD package comprised of empirical training and coaching strategies. Implications of this study contribute to the emerging literature of potential evidence-based professional development practices for the instruction of evidence-based special education practices, also known as implementation science, and extend the current literature on the use of evidence-based practices within an inclusive school setting. In the following sections, the results of the study and how they fit into the larger construct of inclusive special education, limitations, and implications for practice will be discussed.

#### **Professional Development**

The PD package was comprised of research-based training and coaching strategies that have the potential to become evidence-based practices for the professional development of instructional assistants with the continuation of research in this area.

**Training.** Prompting was a new skill for all IA participants and initial baseline data showed fidelity of implementation to be less than 40% for all IA participants (see Table 6). Immediately following the training sessions, no IA was able to demonstrate the

ability to accurately implement the targeted skill even though the training sessions utilized several empirical strategies (e.g., live-modeling, role-play, performance feedback, etc.). Although Michelle and Joan demonstrated significant growth in the targeted skill compared to baseline performance, neither performance was accurate enough for them to be considered adept in prompt delivery. Bobbi and Helen demonstrated very little improvement in prompt delivery immediately following the training and did not reach a level of fidelity within the training phase for prompting to be considered mastered. This supports the claim that training as a stand-alone PD component is not enough to fully teach or learn a new skill even if the PD is comprised of empirical training strategies (Aguilar, 2013c; Artman-Meeker et al., 2015; Brock & Carter, 2015; DiGennaro Reed et al., 2013; Hunzicker, 2011; Ledford et al., 2017).

**Coaching.** Fidelity of implementation increased for all IAs following the first coaching session (see Table 6). Joan, Bobbi, and Helen showed significant growth in implementation fidelity following the first coaching session, while Michelle demonstrated the most improvement following the second session, suggesting a need for coaching to consist of multiple components and be ongoing to accommodate the needs of all learners (Aguilar, 2013c; Artman-Meeker et al., 2015; Brock & Carter, 2015; DiGennaro Reed et al., 2013; Hunzicker, 2011; Ledford et al., 2017). Coaching was instrumental for all IAs in improving implementation fidelity and supporting the generalization of the targeted skill, i.e., prompting, across weekly adjustments made to the prompt delivery schedule. No stagnation or regression in the average percentage of implementation fidelity was observed following the coaching phases suggesting that IAs

were able to generalize prompt delivery through each phase subsequent to the training phase despite these changes. These findings contribute to current research emphasizing the importance of ongoing coaching following a didactic training (Aguilar, 2013c; Artman-Meeker et al., 2015; DiGennaro Reed et al., 2013; Brock & Carter, 2013, 2015; Hunzicker, 2011; Ledford et al., 2017).

**Maintenance.** Measurement of the retention of the acquired skill is often lacking in studies of this nature. While the IAs demonstrated no less than 83% implementation fidelity following the second coaching session (see Table 6), they maintained or increased implementation fidelity for up to three weeks following the final coaching session and continued to generalize the skill across three more prompt delivery schedule adjustments. All IAs performed between 90-98% implementation fidelity at the completion of this study (see Table 6).

*Table 6.* Summary of Percentage of Implementation Fidelity by Phase

Dyad	Baseline	INTERVENTION			Maintenance
		Training	Coaching 1	Coaching 2	
I: Michelle	21%	58%	67%	91%	98%
II: Joan	3%	23%	77%	93%	98%
III: Bobbi	36%	38%	80%	83%	90%
IV: Helen	22%	20%	74%	84%	94%

### Student Outcomes

A case can be made for a correlation between IA fidelity of implementation and student outcomes. IAs with a high percentage of implementation fidelity corresponded with stability in the student's percentage of steps completed independently. A clear example of this is evidenced by Kai (see Figure 5). Kai's percentage of steps completed

at independence stabilized three times and remained stable until prompts were faded for a new step. During the first coaching phase, Kai maintained progress gained and no regression of steps completed independently was observed. Joey's data set also reflected this relationship. Within baseline and training phases, where Joan's implementation fidelity was low, there was a high degree of variability in Joey's performance (see Figure 10). Following a significant increase in Joan's accuracy, Joey's performance also stabilized. Helen's percentage of implementation fidelity and the percentage of steps Keith completed independently both showed high degrees of variability throughout all phases until the 16<sup>th</sup> session, when both data sets appeared to stabilize and maintain stability until the conclusion of this study.

Similarly, Bobbi's data set showed a high degree of variability in accuracy of implementation throughout all phases (see Figure 11) and she had the lowest percentage of implementation fidelity at the conclusion of this study, 90% (see Table 6). A closer look at the performance of Bobbi and Alex between the baseline and training phases shows little improvement in the average implementation fidelity of Bobbi, 2% (see Table 6), corresponding with a 1% increase of the average steps completed independently for Alex (see Table 7). It can be concluded that her performance affected the percentage of steps Alex was able to complete independently which did not stabilize across any phase and remained highly variable throughout the duration of this study.

Overall, baseline levels of independence for each student were consistent with the potential harmful effects commonly associated with IA support (Blatchford et al., 2011; Causton-Theoharis, 2009; Giangreco, 2010, 2013; Giangreco et al., 2010; Russel et al.,

2015; Sharma & Salend, 2016). Skills present within each student's behavior repertoire were quickly recovered and skills requiring direct instruction were highlighted. Evidence of learned helplessness was observed in several cases. In initial baseline sessions, Joey required a significant amount of prompting and support for each task of his morning routine and Joan was delivering an average of 43 prompts per session (see Figure 19). In Joan's absence, Joey was unable to complete the task independently. As Joan mastered prompt delivery, achieving an average of 98% implementation fidelity during the maintenance phase (see Table 6), Joey was able to complete an average of 93% of the steps of his task independently by the end of this study (see Table 7). This relationship suggests that all of the skills necessary to complete the task were already in Joey's behavior repertoire but were inaccessible due to an overreliance on prompting.

Alex, on the other hand, showed learned helplessness in some steps of the task as evidenced by his initial lack of performance and participation within the whole task and relatively quick acquisition of some steps as Bobbi implemented the prompt delivery schedule with increasing fidelity. Alex's performance indicated a need for direct instruction and ongoing support for three steps within the task requiring an awareness of personal space and further motor skill development that was highlighted by an increase in performance and participation in all other steps (see Figure 14). This contributed to a lower average of the percentage of steps Alex was able to complete independently at the conclusion of this study but was not impacted by Bobbi's implementation fidelity.

Although learned helplessness was not overtly observed in the data analysis of Dyad I and IV, performance and participation from both students, Kai and Keith, was

low, less than 25% (see Table 7) and highly variable from session to session. As Michelle and Helen improved on their ability to follow a prompt delivery schedule with fidelity, Kai and Keith showed stability in the percentage of steps completed independently resulting in consistent performance and participation session after session. At the conclusion of this study, Kai was able to perform 61% percent of task steps independently (see Figure 5), and Keith was able to perform 51% of task steps independently (see Figure 17). It should be mentioned that the purpose of this study was not to compare which students were quicker to reach independence within their task but to establish an expectation of consistency in individual student performance and participation in the targeted adaptive tasks. This was achieved by initially providing the appropriate amount of support (i.e., via IA prompting) each student required to complete the task and then gradually fading the prompts until the students were able to complete the tasks independently. This evidence supports the claim that student outcomes are directly affected by the ability of IAs to implement an evidence-based practice with fidelity.

*Table 7. Summary of Percentage of Steps Completed Independently by Phase*

Dyad	Baseline	INTERVENTION			Maintenance
		Training	Coaching Session 1	Coaching Session 2	
I: Kai	30%	39%	36%	36%	61%
II: Joey	27%	30%	43%	93%	98%
III: Alex	24%	23%	40%	22%	44%
IV: Keith	19%	17%	18%	28%	51%

## **Limitations**

Despite the promising results of this study, several limitations must be addressed. First, the intervention was implemented on a small scale and had a relatively small effect size. Further research would be needed to determine if the same training and coaching components used in this study could be replicated on a larger scale without compromising implementation fidelity or diminishing student outcomes.

Second, the components of the intervention, specific training and coaching strategies, were not measured to determine which individual strategies were the most effective or which one had the largest impact on implementation fidelity or generalization and retention. Furthermore, although generalization was measured, it was limited to the use of the targeted skill in one area (i.e., adaptive behavior) for one specific task. An extension of this study would be required to determine if the skill was generalized to others times of the day within the same area or other areas (e.g., academics, social skills, etc.).

Third, the intervention targeted the instruction of only one skill (i.e., prompting) and is not a realistic way to provide IAs with the extensive and ongoing training they need given the expansive breadth of skills required (Brock & Carter, 2015; Ledford et al., 2017, Russel et al., 2015). Whether or not this same professional development package would yield comparable results for the instruction of another evidence-based practice, or multiple evidence based practices, is beyond the scope of this study. Fourth, data collected during each session was video recorded by the researcher and IAs were aware of the researcher's presence. This allowed for the possibility of the Hawthorne effect, a

theory that the presence of the researcher may have prompted the participants to engage in desired behaviors, resulting in inflated data (McCambridge, Witton, & Elbourne, 2014); however, this is unlikely due to the nature of prompt fading. Most-to-Least prompting is an evidence-based practice proven repeatedly to be effective in fading prompts, however, in order for it to work it has to be implemented with consistency and fidelity (Cengher et al., 2016; Russel et al., 2015). If IAs chose not to adhere to the prompt delivery schedule during the sessions that were not being observed by the researcher, approximately 40% per week, it would have been unlikely for the IAs to have demonstrated increasing improvement in implementation fidelity across phases and for a correlation between implementation fidelity and student outcomes to have been established.

Finally, IA participants in this study did not reflect the diverse levels of IA experience and education typically reported in education literature (Breton, 2010; Brock & Carter, 2013, 2015; Fisher & Pleasants; Ledford et al., 2017). In this study, 100% of IA participants had a bachelor's degree or higher and three-fourths of the participants had 10 years or more experience working as an IA (see Table 2). Furthermore, because two of the IA participants worked for non-public agencies prior to this school district, they had received a level of training and supervision in basic instructional strategies not common for school district employed IAs (Breton, 2010; Fisher & Pleasants; Giangreco, 2010, 2013; Giangreco et al., 2010; Sharma & Salend, 2016).

## **Implications for Practice**

This professional development package was designed at no cost to the researcher and implemented within the boundaries of a typical duty day proving that a PD for IAs provided at the school site by the special education teacher has the potential to be more beneficial than district run PDs and have a positive impact on student outcomes. Not only was coaching found to be instrumental in the acquisition and implementation fidelity of a new skill, it was also shown to have a positive impact on the generalization and retention of the skill. To expand on this research, how this PD design can be used to teach multiple EBPs and how many skills IAs can be expected to learn over the course of one school year should be considered. Generalization of EBPs across other areas is also important in contributing to the versatility and retention of the skills taught. In order to maximize student outcomes, future research must also continue to identify efficient and effective components of coaching for supporting teachers in teaching IAs how to implement EBPs. Without appropriate training and supervision, IAs may be providing help in ways that unintentionally foster a dependence on their support.

Districts should consider a redistribution of funding from less-effective IA PDs to PDs that train special education teachers to use research-based training and coaching strategies that can be used to design and implement site-based IA PDs and provide ongoing supervision and coaching. To support special educators in developing these trainings, districts could organize release time for teachers or make provisions for an IA coaching position, filled by a special educator, who conducts site-specific trainings, ongoing monitoring of fidelity, and coaching for IAs throughout the school district. The

importance of pre-training for IAs prior to hire should not be overlooked and would allow teachers to build on and develop a foundation of skills instead of a series of novel skills and may be more realistic for districts to expect of teachers.

### **Conclusion**

In conclusion, this study demonstrated that a relatively short and no-cost IA professional development, designed and led by a special education teacher in an inclusive setting, has the potential to provide an immediate and long lasting positive impact on both the implementation fidelity of IAs and the adaptive behaviors of students with moderate to severe disabilities. The correlation between the professional development for instructional assistants, their ability to accurately implement evidence-based practices, and student outcomes are crucial in order to ensure that the support being provided for these students is fostering greater independence in all aspects of life.

## References

- Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49-74.  
doi:10.1037/0021-843X.87.1.49
- Aguilar, E. (2013a). Directive Coaching Activities. In A. Aguilar (Ed.), *The Art of Coaching* (pp. 211-230). San Francisco, California: Jossey-Bass.
- Aguilar, E. (2013b). Facilitative Coaching Activities. In A. Aguilar (Ed.), *The Art of Coaching* (pp. 175-193). San Francisco, California: Jossey-Bass.
- Aguilar, E. (2013c). How can coaching transform schools? In A. Aguilar (Ed.), *The Art of Coaching* (pp. 3-16). San Francisco, California: Jossey-Bass.
- Alguraini, T., & Gut, D. (2012). Critical components of successful inclusion of students with severe disabilities: Literature review. *International Journal of Special Education, 27*, 42-59. Retrieved from:  
<https://files.eric.ed.gov/fulltext/EJ979712.pdf>
- Artman-Meeker, K., Fettig, A., Barton, E. E., Penny, A., & Zeng, S. (2015). Applying an evidence-based framework to the early childhood coaching literature. *Topics in Early Childhood Special Education, 35*, 183-196.  
doi:10.1177/0271121415595550
- American Association on Intellectual and Developmental Disabilities (AAID). (2018a). *Definition of Adaptive Behavior*. Retrieved from: <http://aaidd.org/intellectual-disability/definition#.WybkRy01QWo>

- American Association on Intellectual and Developmental Disabilities (AAID). (2018b). *Definition of Intellectual Disability*. Retrieved from: <https://aaid.org/intellectual-disability/definition#.WsgfrWYIQWo>
- Blatchford, P., Bassett, P., Brown, P., Martin, C., Russell, A., & Webster, R. (2011). The impact of support staff on pupils' 'positive approaches to learning' and their academic progress. *British Educational Journal*, 37, 443-464.  
doi:10.1080/01411921003734645
- Breton, W. (2010). Special education paraprofessionals: Perceptions of preservice preparation, supervision, and ongoing developmental training. *International Journal of Special Education*, 25(1), 34-45.
- Brock, M. E., & Carter, E. W. (2013). A systematic review of paraprofessional-delivered educational practices to improve outcomes for students with intellectual and developmental disabilities. *Research & Practice for Persons with Severe Disabilities*, 38, 211-221. doi:10.1177/154079691303800401
- Brock, M. E., & Carter, E. W. (2015). Effects of a professional development package to prepare special education paraprofessionals to implement evidence based practice. *The Journal of Special Education*, 49, 39-51. doi:10.1177/0022466913501882
- California Department of Education. (2017). California Assessment of Student Performance and Progress. Retrieved from:  
<https://www.cde.ca.gov/nr/ne/yr17/yr17rel67a.asp>

- Cameron, D. L. (2014). An examination of teacher-student interactions in inclusive classrooms: Teacher interviews and classroom observations. *Journal of Research in Special Education Needs, 14*, 264-273. doi:10.1111/1471-3802.1202
- Causton-Theoharis, J. N. (2009). The golden rule of providing support in inclusive classrooms: Support others as you would wish to be supported. *Teaching Exceptional Children, 42*, 36-43. doi:10.1177/004005990904200204
- Cengher, M., Shamoun, K., Moss, P., Roll, D., Feliciano, G., & Fienup, D. (2016). A comparison of the effects of two prompt-fading strategies on skill acquisition in children with autism spectrum disorders. *Behavior Analysis Practice, 9*, (115-125). doi:10.1007/s40617-015-0096-6
- Cook, B. G., & Cook, S. C. (2011). Unraveling evidence-based practices in special education. *The Journal of Special Education, 42*, 71-82.  
doi:10.1177/0022466911420877
- Cook, B. G., & Odom, S. L. (2013). Evidence-based practices and implementation science in special education. *Exceptional Children, 79*, 135-144. Retrieved from: <https://doi.org/10.1177/001440291307900201>
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007a). Chaining. In J. Cooper, T. Heron, & W. Heward (Eds.), *Applied Behavior Analysis* (434-453). Upper Saddle River, New Jersey: Pearson.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007b). Stimulus Control. In J. Cooper, T. Heron, & W. Heward (Eds.), *Applied Behavior Analysis* (392-409). Upper Saddle River, New Jersey: Pearson.

- Dessementet, R. S., Bless, G., & Morin, D. (2012). Effects of inclusion on the academic achievement and adaptive behavior of children with intellectual disabilities. *Journal of Intellectual Disability Research, 56*, 579-587. doi:10.1111/j.1365-2788.2011.01497.x
- DiGennaro Reed, F. D., Hirst, J. M., & Howard, V. J. (2013). Empirically supported staff selection, training, and management strategies. In D. Reed, F. DiGennaro Reed, & J. Luiselli (Eds.), *Handbook of Crisis Intervention and Developmental Disabilities*, (pp. 71-85). doi:10.1007/978-1-4614-6531-7
- Fisher, M., & Pleasants, S. L. (2012). Roles, responsibilities, and concerns of paraeducators: Findings from a statewide survey. *Remedial and Special Education, 33*, 287-298. doi:10.1177/0741932510397762
- Giangreco, M. F. (2010). One-to-one paraprofessionals for students with disabilities in inclusive classrooms: Is conventional wisdom wrong? *Intellectual and Developmental Disabilities, 48*, 1-13. doi:10.1352/193409556-48.1.1
- Giangreco, M. F. (2013). Teacher assistant supports in inclusive schools: Research, practices and alternatives. *Australasian Journal of Special Education, 37*, 93-106. doi:10.1017/jse.2013.1
- Giangreco, M. F., Suter, J. C., & Doyle, M. B. (2010). Paraprofessionals in inclusive schools: A review of recent research. *Journal of Educational and Psychological Consultation, 20*, 41-57. doi: 10.1080/10474410903535356

Hunzicker, J. (2011). Effective professional development for teachers: A checklist.

*Professional Development in Education, 37*, 177-179.

doi:10.1080/19415257.2010.523955

Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004).

Kazdin, A. E. (1977). Assessing the clinical or applied importance of behavior change

through social validation. *Behavior Modification, 1*, 427-452. Retrieved from:

<https://doi.org/10.1177/014544557714001>

Kennedy, C. H. (2002). The maintenance of behavior change as an indicator of social

validity. *Behavior Modification, 26*, 594-604. doi:10.1177/014544502236652

Kennedy, C. H. (2005a). Data Analysis. In C. Kennedy (Ed.), *Single-Case Designs for*

*Educational Research*. (pp. 112-121). Location: Pearson.

Kennedy, C. H. (2005b). Interobserver Agreement. In C. Kennedy (Ed.), *Single-Case*

*Designs for Educational Research*. (pp. 112-121). Location: Pearson.

Ledford, J. R., Zimmerman, K. N., Harbin, E. R., & Ward, S. E. (2017). Improving Use

of Evidence-Based Instructional Practices for Paraprofessionals. *Focus on Autism*

*and Other Developmental Disabilities*. Advance online publication. Retrieved

from: <https://doi.org/10.1177/1088357617699178>

McCambridge, J., Witton, J., & Elbourne, D. R. (2014). Systematic review of the

Hawthorne effect: New concepts are needed to study research participation

effects. *J Clin Epidemiol, 67*, 267-277. doi:10.1016/j.clinepi.2013.08.015

No Child Left Behind (NCLB) Act of 2001, P.L. 107-110, 20 U.S.C. § 6319 (2002).

- Russel, C. S., Allday, R. A., & Duhon, G. J. (2015). Effects of increasing distance of one-on-one paraprofessional on student engagement. *Education and Treatment of Children, 38*, 193-210. doi:10.1353/etc.2015.0008
- Ryndak, D., Jackson, L. B., & White, J. M. (2013). Involvement and progress in the general curriculum for students with extensive support needs: K-12 inclusive education research and implications for the future. *Inclusion, 1*, 28-49. doi:10.1352/2326-6988-1.1.028
- Ryndak, D. L., Ward, T., Alper, S., Montgomery, J. W., & Storch, J. F. (2010). Long-term outcomes of services for two persons with significant disabilities with differing educational experiences: A qualitative consideration of the impact of educational experiences. *Education and Training in Autism and Developmental Disabilities, 45*, 323-338. Retrieved from: <http://www.jstor.org/stable/23880107>
- Seligman, M. E. P. (1972). Learned helplessness. *Annual Review of Medicine, 23*, 407-412. Retrieved from: <https://doi.org/10.1146/annurev.me.23.020172.002203>
- Sharma, U., & Salend, S. J. (2016). Teaching assistants in inclusive classrooms: A systematic analysis of the international research. *Australian Journal of Teacher Education, 41*, 118-134. Retrieved from: <http://ro.ecu.edu.au/ajte/vol41/iss8/7>
- Stockhall, N. S. (2014). When an aide really becomes an aid. *Teaching Exceptional Children, 46*, 197-205. doi:10.1177/0040059914537202
- Strohmeier, C., Mulé, C., & Luiselli, J. K. (2014). Social validity assessment of training methods to improve treatment integrity of special education service providers.

*Behavior Analysis in Practice*, 7, 15–20. Retrieved from:

<http://doi.org/10.1007/s40617-014-0004-5>

TASH. (2018a). *About TASH*. Retrieved from: <https://tash.org/about/>

TASH. (2018b). *National Agenda Items*. Retrieved from: <https://tash.org/about/national-agenda/>

Tremblay, P. (2013). Comparative outcomes of two instructional models for students with learning disabilities: Inclusion with co-teaching and solo-taught special education. *Journal of Research in Special Educational Needs*, 13, 251-258.  
doi:10.1111/j.1471-3802.2012.01270.x

U.S. Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs. (1995). *17th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, 1995*. Retrieved from: <https://www2.ed.gov/pubs/OSEP95AnlRpt/index.html>

U.S. Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs. (2017). *39th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, 2017*. Retrieved from: <http://www.ed.gov/about/reports/annual/osep>

U.S. Department of Education, Office of Special Education and Rehabilitation Services. (2010). *Thirty-five Years of Progress in Educating Children with Disabilities Through IDEA*. Retrieved from: <http://www.ed.gov/about/reports/annual/osep>

- Wolery, M., & Gast, D. L. (1984). Effective and efficient procedures for the transfer of stimulus control. *Topics in Early Childhood Education, 4*, 52-77. Retrieved from: <https://doi.org/10.1177/027112148400400305>
- Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., ...Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *J Autism Dev Disord, 45*, (1951-1966). doi:10.1007/s10803-014-2351-z

## Appendix A: Training Slides

### Prompting Strategies to Promote Independence

**Prompting Strategies  
to Promote Independence**



Presented by: Kristie Kropp  
Adapted from: BUSD Behavior Specialists

**Objectives:**

- Discuss **what** student independence is, **why** it is important, and **how** we can promote it
- Define **purpose of prompting** and support
- Understand different **types of prompts**
- Define **prompt hierarchy** and discuss importance
- **Implement specified prompts** as outlined in a task analysis

**Think, Pair, Share: Student Independence**

- What is it?
- What does it look like?
- Why is it important?
- How can I support it?



**Student Independence**  
What is it?

- Freedom from the influence or control by others
- Completing a task without undo assistance
- Using resources to meet one's personal needs
- Ability to practice & develop self-help skills
- Making appropriate choices and decisions
- Allows students to **capitalize on their strengths and minimize or cope effectively with their weaknesses**

**Student Independence**  
What does it look like?

- Responding to a general education teacher's directions
- Use of pictures or a visual schedule to guide task completion
- Student-initiated breaks to promote sensory regulation
- Use of an orthopedic device for walking
- Access to working in small groups with peers
- Responding to natural cues in the environment (e.g., the bell)

**Student Independence**  
Why is it important?

- Builds self-esteem
- Motivates a student to achieve
- Gives student a sense of purpose
- Promotes social acceptance
- Reduces stereotypic labels
- **Prepares student for independent living**

**Student Independence**  
 How can I support it?

- **High Expectations**, similar to or the same as that of typically-developing peers
- **Building knowledge** about strategies
- **Finding opportunities for independence** through the day
- **Providing support only** when students can't do it themselves
- **Fade support** when students are able to complete tasks independently

**What is a prompt?**

Prompts are defined as: any instructions, gestures, actions, etc. that increases the likelihood that a student will engage in the correct/desired behavior.

Prompts should serve as a temporary crutch that is systematically withdrawn as soon as the student begins to perform the skill independently.



**What is a prompt?**

- **Natural Prompts/ Cues**
  - Sounds, smells, objects, visuals, etc that are consistently or predictably present in the environment.
- **Stimulus Prompts**
  - Focus on the stimulus (embedded in the material)
  - May or may not include staff behavior
- **Response Prompts**
  - Focus on the performance of the behavior
  - Staff's behavior is typically the prompt

**Natural Prompts/Cues**

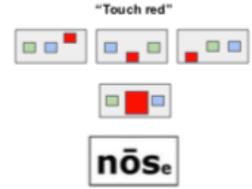
- Can be sounds, smells, objects, visual or tactile representations, that are predictably present in the environment
- **THEY ARE EVERYWHERE!**
- Provide the foundation for prompt choice
- Natural cues may need to be explicitly identified for students
- Least level of adult support needed
- Highest level of active student engagement

**Think-Pair-Share: Natural Prompts/Cues**

Identify some naturally occurring prompts/cues in the school environment.

**Stimulus Prompts**

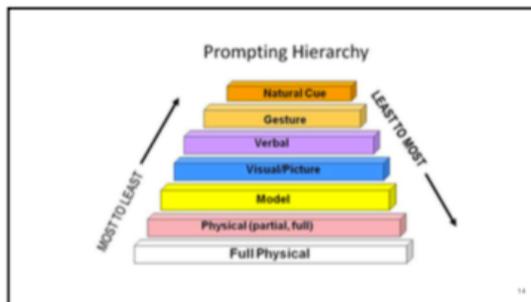
- Position
- Exaggeration
- Within stimulus



### More Stimulus Prompts Examples

fine	pane
mane	hide
note	robe
side	wine
mete	rpe

Student Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Handwriting Practice for Jack  
*Jack*



### Physical Prompts

A **physical prompt** includes physical contact to help the student achieve the target behavior or skill and is useful when teaching motor behaviors (e.g. washing hands, writing, using eating utensils).

Physical prompts are used when the students does not respond to less restrictive prompts (e.g., modeling, verbal, visual) and only with students who will accept physical prompts.

### Full-Physical (FP) vs. Partial-Physical (PP)

**Full-Physical Prompting:** physical guidance through the entire activity.

**Partial physical prompts:** some physical assistance through part of the activity.

*For example:* teacher says, "Clap your hands." Teacher then prompts the student by holding his/her hands and completing the clapping motion

*For example:* teacher says, "Clap your hands." Teacher then prompts the student by gently nudging the student's hands together and let him/her complete the rest

### Modeling (M)

A **model prompt** can be used to teach many skills (e.g., academic, behavior, social, and functional skills, etc.). Modeling can be done by a teacher, a peer, or using a video clip.

### Visual Prompts

Mason's Problem Solving Sheet

When someone teases me or bothers me, I can:

- Walk away
- Ask to problem solve
- Ignore
- Take a cool down
- Ask to take a cool down in another area
- Ask to move to another area

### Visual Prompts

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### Direct Verbal Prompt vs. Indirect Verbal Prompt

**Direct Verbal Prompts:**

- It's time for Math.
- Take out your reading book.
- Get a pencil

**Indirect Verbal Prompts:**

- What's next?
- What time is it?
- What materials do you need?

20

### Gestural Prompts

- Pointing or touching an object to draw students attention
- Can be facial expression or "eye-ing"

21

### Proximity

- Physical distance from student

HELPING OR HOVERING?

22

### Think, Pair, Share: Prompting

- What types of prompts do you most often use while working with students?
- How do students usually respond to the prompts you use?

23

### THE BIG IDEA

Be aware of:

- What TYPE of prompts you're giving...
- WHEN & WHERE you're giving those prompts...
- HOW often you prompt and...
- If providing a prompt IS NEEDED

24

**What do I do if the student does not complete the step with the prompt I gave?**

- Give the student the next prompt in the prompt hierarchy

25

**Task Analysis**

- A task broken down into the least amount of steps needed
- Indicates how much support a student needs to complete each step of the task

26

**Role Play!**  
**Task Analysis w/Prompting**



27

**Resources**

Slides/ Materials adapted from:

San Mateo County SELPA Special Circumstance Instructional Assistance (SCIA) Guidelines, 2010

Levels of Support/Levels of Prompting, Paraeducator Training Series A1J3 (Adapted from Utelinas, LRConsulting, Katy, TX)

Effective Support Strategies for Support Staff and Teachers, Santa Barbara County SELPA, Weiner, K & Peter, J.

Edelman, S., Lubeck, T., & McFarland, S. Helping or Hovering? Effects of Instructional Assistant Proximity on Students with Disabilities. *Exceptional Children*, Vol. 64, No. 1, pp 7-18, 1997.

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## **Appendix B: Pre-Intervention Survey Questions**

### **Questions:**

1. Which gender do you identify with?
2. What is your age?
3. What race/ethnicity best describes you?
4. What is your highest completed level of education?
5. How many years experience do you have working with students with disabilities?
6. How many years experience do you have working as an IA?
7. How many years have you been in this school district?
8. How many years have you been at this school site?
9. What kind of training (if any) did you receive before being hired in this district?
10. What kind of training (if any) did you receive after being hired in this district?
11. Where did you work prior to this school? Please describe the setting and students you worked with.
12. What kind of training (if any) did you receive as an instructional assistant from prior employers?

## Appendix C: Coding Manual

### CODING MANUAL

#### IA Prompting

- **Correct**
  - IA delivered prompt specified on step, specify prompt(s) for all steps:
    - *Full-Physical (FP)*
      - Physical contact made with student for the duration of the step
      - A block of student's movement or direction, may look like: moving one's body in front of a student to prevent them from continuing forward, causing them to turn or move in another direction
    - *Partial-Physical (PP)*
      - Physical contact made with student for a part of the step
      - After contact is removed, new contact is counted as a new prompt
    - *Verbal (V)*
      - Stating the desired behavioral outcome, directly (e.g., "Hang up your back pack" or indirectly (e.g., "What's next?" "Keep going!")
      - Calling student's name or other verbal attempt to obtain attention
      - Commenting on student behavioral outcomes negatively (e.g., "Oops!", "Uh-oh!")
      - Do not count praise as prompt (e.g., "Great job!")
    - *Gesture (G)*
      - Any movement used to direct student's attention to an item/object or in a specific direction
      - Count as one prompt even if student did not see prompt delivered
      - If IA changes hand shape or type of movement, count as new prompt
      - If IA holds gesture until student responds, or until next prompt in prompt hierarchy is delivered, count as one prompt
    - *Proximity (P)*
      - IA increased proximity to student
      - Only applies to Dyad IV
    - *No Prompt + (NP+)*
      - IA did not deliver any prompt when students level of support is indicated as independent for that step

- IA delivers second prompt, specified in prompt hierarchy, in response to incorrect student response or student meeting allotted latency for response, may be repeated as needed.
- **Incorrect**
  - IA delivered a different prompt from the prompt specified for the step
  - IA delivered additional prompt(s) with prompt specified for the step
  - IA failed to delivered any prompt on a step with a specified prompt, record NP-

### Student Response

- **Correct**
  - Student completes step following IA prompt(s), correct or incorrect
    - *Dyad I, II, III: No latency*
    - *Dyad IV: 20 second latency*
- **Incorrect**
  - Student does not complete step following IA prompt
  - Student meets the latency allotted for response
    - *Dyad I, II, III: No latency*
    - *Dyad IV: 20 second latency*
- **No Response**
  - Student does not respond following IA prompt
  - Student engages in another behavior, (e.g., walks away, disengages in task)

### Environmental Factors

- **Non-Opportunity (NO)**
  - Changes in the natural environment preventing the student from engaging in the task, record NO for IA and student (i.e., other adult held door open for student, presenting a non-opportunity for the student to do it themselves, student was unable to perform 3-point touch because end of recess transitioned happened from inside the classroom).
    - *Omit these steps when calculating percent of fidelity of implementation (IA) and percent of steps at independence (student)*
  - IA completes task for student
    - *Record NO for both IA and student and all prompts given prior to this action*
      - If no prompts are present prior to a non-opportunity caused by the IA performing the task for the student, record NP/NO for IA performance and NO for student performance

- Include these steps and prompts when calculating percent of fidelity of implementation (IA)
- Omit these steps when calculating percent of steps at independence (student)

**Other Prompts**

- Do not record prompts given by non-participating adults or peers, these prompts are a part of the natural environment

## Appendix D: Post-Intervention Survey Questions

### Questions:

1. Please rate the following (on a 5-point scale of *Strongly Agree* to *Strongly Disagree*):
  - a. My knowledge (i.e., information learned from the training) in delivering prompts has increased.
  - b. My skills (i.e., personal tool/abilities gathered from the training in delivering prompts) have increased.
  - c. Training on prompting made me feel more skilled as an instructional assistant.
  - d. Training in prompting made a positive impact on the student I work with.
  - e. Learning the target skill (i.e., prompting) was worth the time and effort involved.
  - f. I would recommend this training to other instructional assistants.
2. Describe any changes you observed in student performance.
3. Describe any changes you perceived in your own performance.
4. On a scale of *Definitely Yes* to *Definitely No*, will you continue to use this skill?
  - a. If you responded *Definitely Yes*, please explain how you will continue to use this skill?
  - b. If you responded *Definitely No*, please explain why you will not continue to use this skill?
5. Additional Comments: