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VIDEO MODELING AND PRINTED VISUAL SUPPORT: WHICH INTERVENTION WORKS BEST FOR STUDENTS WITH DISABILITIES TO LEARN EMPLOYMENT SKILLS?

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VIDEO MODELING AND PRINTED VISUAL SUPPORT:
WHICH INTERVENTION WORKS BEST FOR STUDENTS WITH DISABILITIES TO LEARN EMPLOYMENT SKILLS?

A DISSERTATION APPROVED FOR THE
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BY THE COMMITTEE CONSISTING OF

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Dedication

To my family

Acknowledgments

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Abstract

Students with autism spectrum disorder and intellectual disabilities need extra interventions as they graduate high school and attain completely integrated employment. Targeted programs do exist, but are they teaching the important skills to help promote student success? With the authorization of WIOA, schools are now expected to take a hands-on approach with preparing students with disabilities for a productive and meaningful life after high school. The purpose of this study was to analyze the impact of video modeling and printed visual supports applied to a work/employment study for students with disabilities. Study participants included five high school students enrolled in a transition program who receive one-to-one support in the workplace. Students volunteered to be part of this specific transition program as opposed to attending their home schools. Students ranged from 16 to 18 years of age. All students identified as male, were enrolled in their junior or senior years of high school, and were diagnosed with either ID or ASD. The effectiveness of this study was evaluated using an alternating treatment design. Results indicated that both interventions were able to increase the percentage of task correct, lessen prompting, and helped students' complete tasks in a time frame identified by the employer.

Chapter One

Introduction

A need exists to identify effective interventions for young adults with autism spectrum disorders (ASD) and intellectual disabilities (ID) as they graduate high school and begin their adult lives, in order for them to become productive members of society. Postsecondary employment rates for students with disabilities are substantially lower when compared to individuals without disabilities (U. S. Department of Labor [USDL], 2018). Regardless of age and disability category, individuals within this population are more than twice as likely to attain only part-time employment compared to their nondisabled peers (USDL, 2018); however, individuals with disabilities desire to attain employment at similar rates (Test et al., 2009). Among workers aged 16 to 64, the employment rate of persons with disabilities is 30%, compared to over 65% of the general population of those without disabilities (Test et al., 2009). When controlling for disability category, individuals with ASD and ID have even lower rates of employment (Newman et al., 2011; USDL, 2018). These dismal statistics justify the need to identify effective interventions for teaching job skills to students with ASD and ID in order to increase the likelihood that they can attain and hold a career throughout their lifetimes. Although there are many programs in the public-school system that have been created to help increase the rate of postsecondary employment for students with disabilities, additional intensive interventions are necessary. Efforts must continue to bolster the support for individuals with disabilities, as well as the ASD and ID populations, as they prepare for employment and beyond.

The remainder of this chapter consists of three sections. The first section will provide a brief explanation of ASD and ID. The second section is a review of transition, including discussion of current legislation guiding workforce preparation for individuals with disabilities, and a description of visual tools used for employment training. The third and final section will frame the research study and guiding questions.

Autism Spectrum Disorder and Intellectual Disabilities Defined

Students who have been diagnosed with ASD and ID achieve lower postsecondary employment outcomes when compared to their general education peers, as well as peers in other disability categories (Newman et al., 2011). Postsecondary outcomes such as enrollment in postsecondary education, full-time employment, independent living, and community involvement, are on the rise for students with ASD and ID; however, further research is needed (Trainor et al., 2016). In order to understand more clearly the abilities of these individuals in the workplace, it is imperative to closely examine the characteristics of ASD and ID as defined by the Individuals with Disabilities Education Act (IDEA) 2004. ASD is defined as

> a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. (Section 300.8)

ID is defined as

> significantly subaverage general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period, that adversely affects a child's educational performance. The term "intellectual disability" was formerly termed "mental retardation." (Section 300.8)

Individuals in these populations have many challenges to overcome, including barriers to employment; however, contrary to their definitions, a diagnosis of ASD or ID is not limiting. Individuals within these populations are capable of attaining a successful life after high school that includes employment (Gold, et al., 2013).

Transition Education

IDEA transformed the way students with disabilities are taught and included in schools, outlining how best they can be served and what services should be included in secondary education as they prepare for life beyond high school. IDEA (2004) defines transition as

> a coordinated set of activities for a student with a disability that (a) is designed within an outcome-oriented process, that promotes movement from school to post school activities, including postsecondary education, vocational education, integrated employment (including supported employment), continuing an adult education, adult services, independent living, or community participation; (b) is based on the individual student's needs, taking into account the student's preferences and interests. (Section 300.29) (Wehmeyer & Webb, 2012)

Transition services under IDEA should help facilitate students with disabilities to ensure they are prepared for and experience successful transitions into their lives after high school. These transition services are required to include (a) education goals, (b) employment goals, and (c) independent living goals, when applicable (Wehmeyer & Webb, 2012). Every student receiving special education services must have a transition plan as part of the student's individual education program (IEP), and transition planning should focus on his/her interests and overall goals in the three aforementioned areas (Wehmeyer & Webb, 2012). Federal law requires that a transition plan be developed no later than when the student turns 16 years of age (U. S.

Department of Education [USDE], 2007); however, the majority of states and territories requires this to happen earlier, some as early as 14 (Suk et al., 2018). Development of a transition plan within the IEP is accomplished through a collaborative approach, and teachers, counselors, and parents are integral parts of this team (Wehmeyer & Webb, 2012).This transition plan, like the IEP, should contain best practices for students with disabilities (McConnell et al., 2012) and be tailored to the students' likes, needs, and skills. Addressing academic and nonacademic strengths and weaknesses helps students have the necessary knowledge, skills, and connections to the community that may lead to a more productive postsecondary life (McConnell et al., 2012).

Lindstrom et al., (2011) reported that students with disabilities experienced poor postsecondary outcomes when they did not receive adequate training and preparation for postsecondary education, employment, or independent living compared to students with disabilities who participated in transition activities. Employment is often considered the ultimate outcome, as even the point of postsecondary education is to provide career training (Wagner et al., 2016). Employment is a way for students with disabilities to become contributing members of their communities after high school graduation; however, this population is entering the workforce at a lower rate than their nondisabled peers (Lindstrom et al., 2011; Wagner et al., 2016; Wehmeyer & Webb, 2012). Since these findings were presented, legislation through the Workforce Innovation and Opportunity Act has been reauthorized to further support students with disabilities as they transition from high school.

Work Innovation and Opportunity Act

The Workforce Innovation and Opportunity Act (WIOA) replaces the Workforce Investment Act of 1998 (WIA), the purpose of which was to create job opportunities for displaced and low-income workers who have little-to-no work experience (Decker & Berk, 2011). WIA provided state and local governments the control of funds tapped to create career centers where future employees could receive and find available training, manage career choices, and seek out employment opportunities (Decker & Berk, 2011). WIOA was authorized July 22, 2014 (USDL, 2017), in order to place more emphasis on providing training to more subpopulations of underserved and underprivileged people groups, as compared to WIA (USDL, 2017). The purpose of WIOA is to assist individuals seeking employment, education, training, and support services to be successful in the labor market (USDL, 2017). The act also gives funding to workforce agencies and vocational rehabilitation to aid in the job search for unemployed, newly skilled workers (USDL, 2017). WIOA explicitly states that a need exists for pre-employment transition services for individuals with disabilities and has implemented a funding source for states to develop training programs for individuals with disabilities to gain skills needed for participating in employment (USDL, 2017).

Through WIOA, adults and students with disabilities have access to high-quality training and are more prepared for competitive integrated employment (USDL, 2017). Research indicates that WIOA more clearly defines competitive employment, providing employers with information that helps them better understand the needs and abilities of their workers with disabilities, as well as their responsibilities as employers of individuals with disabilities (USDL, 2017). Competitive integrated employment is defined as “full- or part-time work at a minimum wage or higher with wages and benefits similar to those without disabilities performing the same work, and fully integrated with coworkers without disabilities” (Smith, et al., 2017, p. 195).

Transition Practices

Numerous studies have investigated strategies for increasing positive postsecondary outcomes for students with disabilities (Benz et al., 1997; Mazzotti, et al., 2014; Test et al., 2009). Many of these methods include student participation in unpaid work (Carter et al., 2010; Coogan & Chen, 2007; Haszani, et al., 1985; McConnell et al., 2012), student participation in paid employment (Benz, et al., 2000; McDonnall, 2010; Lindstrom, et al., 2011), and student involvement in work-experience programs (Baer et al., 2003; Benz et al., 2000; Lindstrom, et al., 2011; Mazzotti et al., 2014; Test, et al., 2012). Students learn skills that increase productivity and participation in workplace settings through training that is guided by supportive adults in a positive and protected environment that allows for trial and error, training and retraining, and continuing education that will increase employment knowledge and success (Mazzotti et al., 2014; Test, et al., 2012). In spite of these efforts, it is necessary to continue to investigate the extent to which students are prepared to transfer acquired skills into a real working environment (Trainor, et al., 2016).

New technologies have increased the methods by which employees are trained to complete their jobs, and these technologies may be utilized in efforts to increase practices that promote successful transition to the workplace for students with disabilities. As a twenty-first century job skill, technology integration and use in classrooms and work environments should be viewed as a natural part of transition education (Kellems & Morningstar, 2012). Use of technology in preparing students with disabilities for life beyond high school will only increase their access to the workplace, placing them on a level of understanding that is closer to that of their nondisabled peers (Mason et al., 2013)

Research Purpose

With the authorization of WIOA, schools are now expected to take a hands-on approach with preparing students with disabilities for a productive and meaningful life after high school. Pre-employment transition services have now become a basic part of the curriculum for students who receive special education services, through which they are preparing to transition to life after high school and gain competitive integrated employment. This training can be accomplished numerous ways, including the use of innovative, accessible technologies that serve as acceptable visual methods of training for students with disabilities who are determined to secure and participate in competitive integrated employment, just as their nondisabled peers (Kellums & Morningstar, 2012; Mason et al., 2013)

Visual Methods of Training

Printed Visual Support

Many employers use printed visual supports in order to increase the number of steps performed correctly during an employee's work shift. These printed visual supports provide a task analysis, which creates support for individuals with a disability. A task analysis is defined as "taking a work task and breaking it down into smaller components" (Szidon & Fraznoe, 2009). A printed visual support can be made of words or pictures, and pictures combined with words on cards can aid students in the completion of their job tasks (Lancioni and O'Reilly, 2002). These visual supports are usually printed with a company description of the work tasks and placed in and around the workplace (Szidon & Fraznoe, 2009).

Video Modeling

Video modeling occurs when a student views a video of a peer, himself/herself, or instructor successfully performing a forward-chaining task (Bidwell & Rehfeldt, 2004; Kellems et al., 2016). A forward-chaining task is defined as the behaviors identified in the task analysis that are taught in their naturally occurring order to have total task completion (Cooper et al., 2007).

The purpose of this study was to analyze the impact of video modeling and printed visual supports applied to a work/employment study for students with disabilities. Study participants included five high school students enrolled in a transition program who receive one-to-one support in the workplace. Students volunteered to be part of this specific transition program as opposed to attending their home schools. Students ranged from 16 to 18 years of age. All students identified as male, were enrolled in their junior or senior years of high school, and were diagnosed with either ID or ASD.

Research Questions

The following research questions guided this study:

1) Is video modeling or printed visual support more effective when teaching a student with ID or ASD to complete a job task to 90%?

1) Is there a functional relation between use of video modeling versus printed visual support on the reduction in duration of job task completion by students with a disability?

2) Is there a functional relation between use of video modeling versus printed visual support on the reduction of prompts for students to complete job tasks by students with a disability?

Chapter Two

Review of the Literature

For students with disabilities, the Individuals with Disability Education Act (IDEA) outlines legal requirements for public schools. IDEA explicitly states that schools must develop a transition plan for students with disabilities during their yearly IEP meetings, beginning when the student is 16 years of age (Wehmeyer & Webb, 2012). Researchers believe this stems from the 1980s, during which an investigation into the achieved outcomes for high school-aged students with disabilities indicated they were not transitioning into postsecondary life suitably (Baer et al., 2003). Specifically, students with disabilities experienced lower rates of integration into community-based employment, high unemployment, transition into postsecondary education, and an overall lower quality of independent living (Blackorby & Wagner, 1996; Chadsey-Rusch, et al., 1991; Edgar, 1987; Hasazi, et al., 1985; Roessler, et al., 1990; Wehman, et al. 1985). As a result of these outcomes, great efforts were made to increase transition planning, in order to prepare students with disabilities for more positive postsecondary outcomes.

Postsecondary Outcomes for Students with Disabilities

Several studies investigated the postsecondary outcomes of students with disabilities. Numerous scholars have focused their efforts on determining the specific paths students with disabilities take after they graduate from high school, whether continuing their education at a postsecondary educational institution or other form of training or joining the workforce, whether moving out on their own or continuing to live with their parents. It is critical to consider the outcomes of students with disabilities, particularly when developing individualized plans for preparing for life beyond high school (Benz et al., 1997; Halpern et al., 1995; Mazzotti et al., 2015; Mazzotti, Test, & Mustian, 2014; Test et al., 2009).

Transition into Postsecondary Education

Students with disabilities have opportunities to attend postsecondary educational institutions and obtain employment after high school (Newman et al., 2011). In a 2008 study, Getzel and Thoma found that only 25% of students with disabilities participate in postsecondary education and are less likely to seek out educational opportunities after high school compared to students in general education; however, a subsequent study conducted by Newman et al. (2011), the second National Longitudinal Transition Survey (NLS2), revealed that 40.7% of all students with disabilities who complete high school attend some form of institution of higher education or training, compared to 52.4% of the general education population.

Researchers have stated that one of the reasons why students with disabilities are experiencing such a low rate of attendance of postsecondary institutions has to do with many issues in the public education system (Baer et al., 2003; Mazzotti, et al., 2014; Richards, 2003). Students with disabilities are not learning requisite skills from their core academic classes that facilitate transition into education and employment opportunities after high school (Blackorby & Wagner, 1996). When students with disabilities are (a) included in the general education classroom, (b) receive transition services for postsecondary education, (c) taught with research-based methods for transition, they transition into postsecondary education at a higher rate (Baer et al., 2003; Mazzotti, et al., 2014; Richards, 2003; Shogren et al., 2015). Building in opportunities for students with disabilities to learn about themselves so that they may be able to self-advocate is enriching (Shogren et al., 2015; Test et al., 2004), and a critical element of preparing for transition is participation in activities and opportunities that increase levels self-determination (Arndt, et al., 2006; Shogren, et al., 2015; Test et al., 2004). Self-determination is defined as "the ability to identify and achieve goals based on a foundation of knowing and valuing oneself" (Test et al., 2004), an ability that can be sharpened through a student's involvement in IEP meetings, conduction of self-directed IEP meetings, and self-monitoring of goals within the IEP (Arndt, et al., 2006; Test et al., 2004). Strong self-determination leads to more favorable outcomes in the areas of postsecondary education, employment or workforce training, and independent living (Shogren et al., 2015).

Transition to Employment

The Bureau of Labor Statistics (2012) stated that 80% of adults with disabilities are unemployed or underemployed. In post-high school interviews of students with disabilities, Newman et al. (2011) found that 60.2% of students who had disabilities were employed, compared to 66.1% of their general education peers. Students with disabilities are making less money than their general education peers, an average rate of $10.40 an hour compared to their an estimated $11.40 an hour, respectively (Newmen, et al., 2011). While the discrepancy between these numbers has improved, there is still a gap in wage-earning between the special education and general education population, an improvement credited to increases in transition education and the use of predictors, defined as a research-based intervention that has evidence in its connection to student achievement (Trainor, et al., 2016), to monitor students' progression through the development of academic and nonacademic behaviors associated with postsecondary success.

Predictors

Several predictors of postsecondary employment for students with disabilities have been identified, including (a) participation in paid or unpaid work experience while in high school, (b) inclusion in the general education classroom, (c) opportunities to increase one's self-advocacy or self-determination (Wehmeyer, & Schwartz, 1997), (d) soft skills (how individuals get along with others in life) (Mazzotti et al., 2014), and (e) participation in a comprehensive transition program (Baer et al., 2003; Benz et al., 2000; Lindstrom, et al., 2011; Mazzotti et al., 2014; Test, et al., 2012). While some students with disabilities are improving their rates of postsecondary education and employment in the workforce, many are still not achieving postsecondary employment. There has been much research into transition planning and practices in schools to improve postsecondary success for students with disabilities; however, there are groups of students that still need different types of intervention for obtaining competitive integrated employment.

Postsecondary Outcomes across Disability Categories

Several studies have investigated the different disability categories and how those contribute to postsecondary success (Grigal, et al., 2011; Kellems et al., 2016; Kellems & Morningstar, 2012; Wehman et al., 2012). Students with ASD or ID can still perform job tasks in competitive integrated employment settings (Kellems et al., 2015; Kellems & Morningstar, 2012; Wehman, et al., 2012); however, because of the lack of support on the job or skills not learned before leaving high school, these students are missing out on employment opportunities (Kellems et al., 2015; Kellems & Morningstar, 2012; Wehman et al., 2012).

Autism Spectrum Disorder

ASD is a complicated neurological development disability (Kellems & Morningstar, 2012), and symptoms of ASD usually manifest themselves early on in life (Brio, 2018). Currently, there is not a medical test used to diagnose ASD, but a qualified professional may diagnose after conducting a comprehensive evaluation (Brio, 2018; Kellems & Morningstar, 2012). This evaluation typically includes parent interviews, clinical observations, developmental histories, speech and language assessment, and one or more autism diagnosis tests (Brio, 2018;

Kellems & Morningstar, 2012). Figures related to the prevalence of ASD over the past few years have been on the rise (Biro, 2018), and the Centers for Disease Control and Prevention (CDC) currently estimates that for every 1,000 children, 13 to 29 will be categorized as ASD (Brio, 2018), resulting in a prevalence rate of approximately one to three percent. The range of spectrum disorders varies greatly; most commonly persons with ASD have impairments in attention, working independently, information processing, and memory (Kellems and Morningstar, 2012). These impairments vary in their severity depending on the student. There are three levels of ASD recognized by the Diagnostic and Statistical Manual, 5th edition (DSM-V). The three levels of severity for ASD include (1) Requiring Support: Problems with inflexibility, poor organization, and planning; switching between activities, which impairs independence; poor social skills, difficulty in initiating interactions, and odd and unsuccessful attempts to make friends; (2) Requiring Substantial Support: Marked difficulties in verbal and nonverbal social communication skills; markedly odd; restricted repetitive behaviors; noticeable difficulties changing activities or focus; and (3) Requiring Very Substantial Support: Severe difficulties in verbal and nonverbal communication; very limited speech; odd, repetitive behavior; many express their basic needs only (American Psychiatric Association, 2013).

Newman et al. (2011) found that 43.9% of students who are diagnosed with ASD attend a postsecondary institution; however, Wehman et al. (2012) found that of those students with ASD who graduated from high school, 32% attended postsecondary education, 6% had competitive jobs, and 21% had no employment or education experiences at all. Adults with ASD stated that they typically work 24.1 hours per week, while non-disabled peers worked 37.1 hours a week. On average, adults with ASD were paid $9.20 per hour, while their non-disabled peers were paid $11.40 an hour (Newman et al., 2011). When researchers interviewed adults with

ASD, 37.2% reported being employed, while 66.2% of their general education peers reported being employed (Newman et al., 2011). Newman et al. (2011) stated that, typically, these adults reported having had 3.1 jobs since high school, and the typical job lasted 24.7 months. Researchers found that successful postsecondary employment was due to several factors, including (a) high school transition planning, (b) inclusion in the general education classroom, (c) higher family income while in high school, and (d) high-functioning skills, such as language (Chiang, et al., 2013; Griffin et al., 2013; Roux et al., 2013).

Intellectual Disability

Identification of students with ID has been on the rise since 2014 (Zablotsky, et al., 2017). The CDC reports that five of every 1,000 children will be diagnosed as intellectually disabled every year (Zablotsky, et al., 2017). ID is defined as a set of heterogeneous disorders characterized by difficulties with behavior and self-care (Zablotsky, et al., 2017). Others define ID as having an IQ under 50 and major deficits in adaptive behavior (Camp et al., 1998).

Students who have been identified as having ID have one of the lowest postsecondary education rates when compared to other disability categories (Grigal, et al., 2011; Newman et al., 2011; Papay & Bambara, 2014). On average, only 28.7% of students who are ID attend a postsecondary institution (Newman et al., 2011).

Newman et al. (2011) found that adults with ID have one of the lowest potentials for wage-earning of any disability category at an average of $7.90 an hour. Adults with learning disabilities were paid an average of $10.60 an hour, and adults with speech impairment earn $10.80 an hour. Out of the eleven different disability categories, the closet was adults with multiple disabilities, paid, on average, $8.80 an hour (Newman et al., 2011). The researchers found that only 38.8% of individuals in this group currently had a job, while 66.1% of their non-disabled peers were employed (Newman et al., 2011).

Students with ID experience less connection with and support from outside agencies, such as vocational rehabilitation, in planning for and achieving their long-term transition outcomes, particularly in the area of employment (Smith, et al., 2017). However, research supports the use of transition services for improving employment outcomes for students with ID (Benz et al., 1997; Halpern et al., 1995; Mazzotti et al., 2015; Mazzotti, et al., 2014; Test et al., 2009).The reality of employment statistics for this population supports the need for continued research and development of supportive transition programming and preparation, in order for them to experience more positive postsecondary outcomes.

High School Employment Experiences that Predict Postsecondary Employment

For students with disabilities, involvement in transition programming and participation in paid/unpaid work experiences lead to positive effects successful transitions to life after high school (Benz et al., 1997; Mazzotti, et al., 2014; Test et al., 2009). High school employment experience is one of the top predictors of post-school employment and postsecondary education for students with disabilities (Mazzotti, et al., 2014; Test et al., 2009). When students participate in paid and unpaid work experiences, they are more likely to secure competitive integrated employment after high school (Benz et al., 1997; Mazzotti, et al., 2014 ; Test et al., 2009). Work-experience programs can create more job awareness, job skills, and job-readiness skills for students with disabilities (Mazzotti, et al., 2014; Test et al., 2009).

How can students be supported in transferring work experience to their real worlds? Students with more significant disabilities are still not being employed in competitive integrated work environments. The skills needed for competitive integrated employment need to be taught in a different format for students with more severe disabilities.

Transition Education Practices

When students participate in a comprehensive transition program, their post-high school outcomes improve. Transition programs (a) allow for multiple pathways for students in their postsecondary life, (b) offer accommodations and support services, (c) help adequately train, and (e) give technical assistance to students when they are in the program (Blalock et al., 2003). When transition programs are successful, students are successful (Benz et al., 1997; Siegel, et al., 1992). Research indicates there are predictors that lead to positive postsecondary employment and education for students with disabilities. Among those predictors are transition programs for improving outcomes for students with disabilities in the pursuit of postsecondary education and employment (Mazzotti et al., 2014; Halpern et al., 1995; Test et al., 2009). For example, Siegel et al. (1992) found that when students participated in a comprehensive transition program over a four-year period, 80% of them became competitively employed. The transition program participants also earned a higher hourly wage than the current national average at the time, and over half of these individuals received employer-sponsored benefits (Siegel et al., 1992).

Transition Programs

Kohler (1996) outlined a taxonomy for transition programming, including (a) student-focused planning, (b) student development, (c) interagency collaboration, (d) program structure, and (e) family involvement (Blalock et al., 2003; Kohler, 1996), providing a holistic approach to preparing students with disabilities opportunities to develop the academic and nonacademic behaviors associated with post-high school success.

Student-Focused Planning. Student-focused planning suggests that students with disabilities should be in charge of planning their postsecondary lives. Teachers and staff need to aid students with disabilities in developing their transition and IEP goals (Blalock et al., 2003; Grigal et al., 1997; Kohler, 1996). In the development of these goals, students will need help planning strategies for troubleshooting issues they may encounter. Student involvement in the IEP process will help promote reasonability and self-determination (Blalock et al., 2003; Kohler, 1996; Martin et al., 2016).

Student Development. Student development occurs when students participate in activities that help them acquire and apply self-determination skills, living skills, social skills, occupational skills, career awareness, and appropriate work-readiness habits (Blalock et al., 2003; Kohler, 1996). Students should also be involved in school-based or work-based paid and unpaid work opportunities (Carter et al., 2010; Morgan & Openshaw, 2011; Rabren, et al., 2002). This stage can also include assessment for and evaluation of support services (Blalock et al., 2003; Kohler, 1996).

Interagency Collaboration. Interagency collaboration is a vital part of a long-term successful transition plan. These collaborators should be located within the students' communities that can help promote their pursuit of successful postsecondary outcomes (Blalock et al., 2003; Kohler, 1996). A key component to interagency collaboration is agency representatives being able to share ideas with students, teachers, staff, and parents in IEP meetings.

Program Structure. Comprehensive transition programs need to have a program structure that has a well-defined philosophy, policy, strategic plan, method for program evaluation, resource allocations, and human resource development in place (Blalock et al., 2003;

Kohler, 1996). Transition specialists and special education teachers cannot implement all practices represented in the comprehensive transition educational plan by themselves. Therefore, other personnel in the students' lives need to help guide them as well (Blalock et al., 2003; Kohler, 1996). These individuals may include general academic teachers, vocational teachers, school counselors, higher education instructors, and job coaches, all of whom need to be involved in the planning process (Blalock et al., 2003; Kohler, 1996).

Family Involvement. Family involvement is one of the key factors of postsecondary success for students (Blalock et al., 2003). Teachers must communicate effectively with families in order to create a plan that will support students as they transition into life after high school (Blalock et al., 2003; Kohler, 1996). However, teachers must also be taught not to impose their own values and beliefs on families as their students are preparing to transition (Greenan, et al., 2001). Participating in a range of transition activities, including assessment and implementation, should be a family affair (Blalock et al., 2003; Kohler, 1996). A part of family involvement may involve training or classes for parents and family, participation in the IEP, and visiting available services and opportunities in the family's community (Blalock et al., 2003; Kohler, 1996).

Employment Experiences

Employment is one of the most important post-school outcomes for students with disabilities (Carter et al., 2010; Morgan & Openshaw, 2011; Rabren, et al., 2002). Research has found that obtaining work experiences during high school is one of the most well-documented predictors of positive postsecondary employment (Carter et al., 2010; Morgan & Openshaw, 2011; Rabren, et al., 2002). Studies have found that working during high school can impact students with disabilities in the following ways: (a) positive development of autonomy, (b) influence vocational identity, (c) development of work skills and knowledge, (d) sharpen social skills, and (e) shape career awareness and aspirations (Carter, et al., 2012; Vondracek & Porfeli, 2003). Employment, paid or unpaid, should be part of an overall comprehensive transition plan for students with disabilities (Mazzotti et al., 2014; Test et al., 2009; Vondracek & Porfeli, 2003).

McConnell et al. (2012) identified ten constructs associated with positive post-school outcomes for students with disabilities. Students who are involved in paid and or unpaid work experiences while in high school will be able to actively participate in the development of these constructs, including (a) knowledge of strengths and limitations, (b) actions related to strengths and limitations, (c) disability awareness, (d) employment, (e) goal-setting, (f) persistence, (g) proactive involvement, (h) self-advocacy, (i) support, and (j) utilization of resources (McConnell et al., 2012). Some examples of activities in which students may be able to develop the characteristics associated with these predictors are work-study positions, jobs, internships, and mentorship. All will increase the likelihood of obtaining employment for students with disabilities following high school (McConnell et al., 2012). Many groups of researchers agree that, in order for students to have positive postsecondary outcomes, they must first express the desire to gain employment and then have the skills necessary to actively seek employment (Benz et al., 2000; Benz, et al., 1997; Fabian, 2007).

Unpaid Work Experience. Students with disabilities can also work in non-paid employment. Researchers have studied school-to-work programs and found that students with disabilities could experience work through many different avenues with potential employers that were not paid. Students with disabilities who participate in career-preparation programs experienced work in many different ways (Benz et al., 2000; Hutchins & Akos, 2012; Test et al., 2009). Many participated in (a) internships, (b) job-shadowing, (c) mentorship, (d) community service, and (e) school-based enterprises (Benz et al., 2000; Hutchins & Akos, 2012; Test et al., 2009), and many work-based learning activities were found to be at the core of effective school-to-work programs (Hutchins & Akos, 2012). These experiences can provide students with broad transferable skills in the workplace and encourage higher-level thinking skills. These non-paid activities need to ensure that a connection is made between school and work-based learning (Benz et al., 1997; Gold, et al., 2013; Hutchins & Akos, 2012).

Many businesses and industries do not offer technical or managerial skills training; therefore, students with disabilities have less of an opportunity to job-shadow in more technical fields (Hutchins & Akos, 2012). The greater availability of school-to-work programming was effective among college-bound students, allowing for the development of more realistic expectations regarding their futures and future careers. The more exposure to potential career options appears to help college-bound youth form more precise and realistic expectations about their futures (Hutchins & Akos, 2012).

Paid Work Experience. Paid employment is one of the most revered predictors for successful postsecondary employment for students with disabilities (Benz et al., 2000; Carter et al., 2012; Test et al., 2009). When students have paid employment while in high school, there is a strong correlation with attaining employment for at least one to two years after high school (Benz et al., 2000; Carter et al., 2012; Test et al., 2009). When students are employed while they are in high school, they are able to (a) strengthen job-marketing competitiveness, (b) acquire work skills, (c) increase work performance, (d) assess career expectations, (e) create stronger self-sufficiency beliefs, and (f) develop business contacts and networking for future opportunities (Benz et al., 2000; Gold et al., 2013; Shandra & Hogan, 2008).

Students with disabilities gain valuable work experiences during their summers (Carter et al., 2011; Hasazi, et al., 1985). The highest percentages of jobs for students with disabilities in the summertime were food services (29%) and cleaning (24.7%) (Carter et al., 2011). Researchers found that, for students with disabilities, summer work experiences may lead to avoidance of potential drawbacks compared to working during the school year. In the summertime, students with disabilities can typically work more hours than the school year because they are not faced with time conflicts for studying, extracurricular activities, and other school-related functions (Carter et al., 2011; Certo & Luecking, 2011; Hasazi, et al.,1985).

Impact

Unpaid or paid work experience while in high school is one of the most valuable experiences a student with disabilities can have (Carter et al., 2010; Coogan & Chen, 2007; Haszani, et al., 1985; Hasazi, et al., 1989; Lindstrom, et al., 2011; McConnell et al., 2012., McDonnall, 2010; Sitlington, et al., 1992). Participants gain critical working skills, including opportunities to learn (a) how to behave as a member of a team, (b) work persistence, (c) work ethic, and (d) workplace responsibility (Benz et al., 1997; Benz, et al., 2000; Lyndstrom et al., 2011; McDonnall, 2010).

Students who are placed in a variety of opportunities gain more complex employment skills, which will help them develop a greater sense of confidence when it comes to learning new tasks within a job setting (Benz, et al., 2000; McDonnall, 2010; Lindstrom et al., 2011). Participants benefited from the services and supports offered through the school-to-work programs (McDonnall, 2010; Hasazi et al., 1989; Lindstrom, et al., 2011). They were able to seek help with (a) writing résumés, (b) finding job leads, and (c) learning helpful interview tips (McDonnall, 2010; Hasazi et al., 1989; Lindstrom, et al., 2011). Overall, the message is clear: students with disabilities who participate in paid or unpaid employment while attending high school have a higher rate of gaining postsecondary employment than those who do not.

Employment for students with severe disabilities is a complex issue, one that is increasingly prevalent in society, particularly as policymakers, employers, educators, and parents work on the behalf of individuals with disabilities to increase rates of success after high school. Researchers have been working to develop interventions to address the learning characteristics of this population, the results of which are a collection of strategies and interventions of varying degrees of efficacy (Simpson, 2005). Continuing to develop effective interventions and strategies for this population is a critical task for researchers and practitioners. Current provisions provided through one policy are included here.

Work Innovation and Opportunity Act

The purpose of the Work Innovation and Opportunity Act (WIOA) is to assist individuals seeking employment, education, training, and support services to be successful in the labor market (USDL, 2017). Overall, WIOA allows individuals to gain skills needed for employment and provides training services for adults and students with disabilities. Through WIOA, adults and students with disabilities who have access to high-quality training are more prepared for competitive integrated employment (USDL, 2017). Research indicates that WIOA gives competitive employment a clearer definition, which will help employers better understand the abilities of their workers with disabilities and their responsibilities as an employer: "Competitive integrated employment is full- or part-time work at a minimum wage or higher with wages and benefits similar to those without disabilities performing the same work, and fully integrated with coworkers without disabilities" (Smith, et al., 2017, p. 195).

The WIOA legislation requires that vocational rehabilitation (VR) agencies spend a minimum of 15% of their federal budget on pre-employment transition services (McDonnall, et al., 2018). These pre-employment transition services are supplied to high school students with disabilities ages 14 to 21. Traditionally, students with disabilities have an IEP or 504 in place for them at school (McDonnall, et al., 2018). However, WIOA takes into account consumers that are deemed potentially eligible for VR programming (McDonnall, et al., 2018). These students may have barriers to employment but not have a 504 or IEP after high school. The requirements for pre-employment transition services include (a) job-exploration counseling, (b) work-based learning experiences, (c) postsecondary counseling, (d) workplace-readiness training, and (e) self-determination (McDonnall, et al., 2018). Students receiving pre-employment transition services are not required to be VR clients; rather, they are a population of individuals that have historically struggled in the areas of postsecondary education and employment (McDonnall, et al., 2018).

Strategies to Teach Employment Skills

Response-prompting strategies are commonly used methods for teaching functional skills to students with developmental disabilities, autism, or intellectual disabilities (Lancioni & O'Reilly, 2002; Van Larrhoven, et al., 2009; Wolery & Gast, 1984), including verbal, gestures, modeling, or physical prompts, typically delivered by the student’s direct care provider, teacher, or, perhaps, employer (Van Larrhoven et al., 2009; Wolery & Gast, 1984). There has been an evolution of strategies for prompting or modeling to help students with significant disabilities in vocational tasks. With further research, video modeling and printed visual supports could be identified as best methods to achieve competitive integrated employment for students with significant disabilities.

Printed Visual Supports

Task analysis is the process of breaking a skill down into smaller components. As the smaller steps are mastered, learners can combine steps and become more independent. Once a task analysis has been completed, it can be used to teach learners a skill that is too challenging to learn all at once (Szidon & Fraznoe, 2009). Printed visual supports can be made of words or pictures. Lancioni and O'Reilly (2002) found that pictures on cards aided students in the completion of job tasks. Although using pictures has yielded great results, researchers have determined that manipulating the pictures may become problematic for some participants who require more intense instruction (Lancioni & O'Reilly, 2002; Van Larrhoven et al., 2009). To alleviate this vulnerability, researchers have begun to combine visual and audio-prompting videos to accommodate employees with disabilities (Cihak et al., 2007; Davies, et al., 2002). Making movies that prompt or model different job tasks for student interaction and daily living skills has been found to be beneficial for students with disabilities (Cihak et al., 2007; Davies et al., 2002; Van Larrhoven et al., 2009).

Video Modeling

Video modeling allows for students to view a video of a peer, of themselves, or of an instructor successfully performing a chained task (Bidwell & Rehfeldt, 2004; Kellems, et al., 2016; LeGrice & Blampied, 1994). Albert Bandura's *social learning theory* and the idea of learning through observation is the root of video-based interventions (Bandura, 1977). Using this decades-old theory, researchers began investigating the use of video or film for changing and shaping behavior as early as 1968 (Thelen, et al., 1979) to improve the skills of students and adults, and recently there has been a resurgence in the method due to portability of modern-day electronic devices (Delano, 2007; Thelen et al., 1979). Students who have deficits in social communication, play, academic, adaptive behavior, and independent-living skills have used video-based interventions very effectively (Mason et al., 2013). Although video modeling has been identified as an evidence-based practice (Bellini & Akullian, 2007; Mason et al., 2013), questions remain as to which types of video modeling are most effective, if video modeling is more effective than other non-technology interventions, and for whom video modeling is most likely to be effective (Rayner et al., 2009).

The subject of video modeling is a chained task, also known as forward chaining, defined as the behaviors identified in the task analysis that are taught in their naturally occurring order (Cooper et al., 2007). Many times students are asked to view a video of a chained task, then attempt to complete tasks independently. The subject of the video is a model performing the steps of a task or target behavior correctly. Preferably, the model in the video is someone to whom the student can relate in terms of age and/or gender (Bidwell & Rehfeldt, 2004; Kellems et al., 2016). Research indicates this is an effective strategy for teaching a variety of skills to persons with significant disabilities (Bidwell & Rehfeldt, 2004; LeGrice & Blampied, 1994), including (a) conversation techniques, (b) daily living competencies (c) meal preparation, and (d) vocational skills (Bidwell & Rehfeldt, 2004; Charlop & Milstein, 1989; D'Ateno, et al., 2003; Lasater & Brady, 1995; Van Larrhoven et al., 2009; Wu, Cannella-Malone, et al., 2016).

The advantages of video modeling are multiple. First, students can repeatedly watch the model perform the skill without deviation; second, several students can watch the video simultaneously; third, students are able to acquire the skill more rapidly by watching a video of the skill being performed, rather than receiving simple instruction on how to perform the skill; and finally, video modeling reduces the need for sophisticated prompting and prompt-reduction strategies (Bidwell & Rehfeldt, 2004; Charlop & Milstein, 1989; Norman et al., 2001; Lasater &

Brady, 1995; Rehfeldt, et al., 2003). Finally, studies suggest that video modeling may more effectively facilitate generalization of acquired skills or behaviors to other contexts for individuals with disabilities (Bidwell & Rehfeldt, 2004).

Evaluating Employment Skill Interventions

Multiprobe designs, a variation of the multiple-baseline design (Cooper, et al., 2007), are often used to evaluate the efficacy of a skill intervention (Cannella-Malone et al., 2011; Kellems & Morningstar, 2012; Wu, 2016). The difference is that a multiple-probe design has intermittent measurements or probes during baseline data collection; however, in this study, more direct comparison using an alternating treatment design is needed (Cooper, et al., 2007).

Alternating Treatment Design

An alternating treatment design (ATD) is used to compare interventions quickly and efficiently (Cooper et al., 2007). Several studies have found ATD useful when comparing two interventions rapidly (Carnett et al., 2014 & Satsangi et al., 2016). ATD uses rapid and repeated interventions of two or more conditions across different observations or environments (Gast & Ledford, 2014). The rapid alterations between interventions can happen by day or by session. This method does not require extended time, making it useful for practitioners and researchers (Gast & Ledford, 2014), and allows the framework to account for the rapidly altering instruction conditions, lending itself to teaching different sets of non-reversible behaviors during each session effectively (Gast & Ledford, 2014). ATD allows data to be collected on duration of task and number of prompts needed when comparing the two interventions. Using this design, each subject serves as his own control, and each data point after intervention serves as a replication of a treatment effect (Gast & Ledford, 2014).

Conclusion

Overall, transition outcomes for students with disabilities are improving (Newman et al., 2011). More students with disabilities are attending college and obtaining employment. Although there are still barriers for students in this population to reach their goals, research indicates that there are efficacious practices that lend themselves to a more successful transition for students with disabilities (Brouck, 2011; Grigal et al., 2011; Papay & Bambara, 2014). Subsequently, a focus should be directed on determining what methods or predictors exist that can aid students with disabilities to secure competitive integrated employment. What programs, experiences, and overall abilities do students with disabilities need to have or take part in during high school to be successful in their employment endeavors after graduation?

Chapter Three

Methodology

Purpose and Research Questions

This study examined the effect of a work-experience program for students with disabilities using video modeling and a visual schedule. Research indicates that paid or unpaid work experience while students with disabilities are in high school is a positive indicator of post-school competitive employment (Carter et al., 2010; Hasazi et al., 1985; Hasazi et al., 1989; Lindstrom et al., 2011; McConnell et al., 2012; McDonnall, 2010; Sitlington et al., 1992). This study evaluated the difference of an intervention using either video modeling or visual support to teach job skills in the context of an employment-based work-experience program. Students were evaluated on (a) ability to perform jobs tasks correctly, (b) duration of each job task to completion, and (c) number of prompts needed to complete the job tasks on a real-life job site. The following research questions guided this study:

1) Is video modeling or printed visual support more effective when teaching a student with ID or ASD to complete a job task to 90%?
2) Is there a functional relation between use of video modeling versus printed visual support on the reduction in duration of job task completion by students with a disability?
3) Is there a functional relation between use of video modeling versus printed visual support on the reduction of prompts for students to complete job tasks by students with a disability?

Program Description

The Business Associated Student Education Project, or BASE, is a community-based vocational and academic program that serves students with disabilities who (a) attend an urban Midwest school district, (b) are 16 years of age or older, and (c) have an Individualized Education Program (IEP). It was started in 1996 by Dale Burns and Sue Roods, who, upon receiving approval from the local school district administration, formed a relationship with one of the local urban hospitals, which agreed to provide space for the program and served as the first site of implementation. The goal of the BASE program is to provide students with opportunities to develop career awareness, exploration, assessment, and positive social skills necessary for successful integration in the world of work and society. In a program that connects classroom instruction and on-the-job training, student participants engage with teachers who incorporate academics and target related skills in a functional manner in natural environments, including (a) communication, (b) independent living, (c) social skills, (d) problem-solving, (e) confidence-building, and (f) self-determination.

The BASE curriculum individualizes instruction for student participants and varies from classroom to classroom. Typically, students are grouped by disability category in an effort to lessen teacher preparation and staff needs. Students are individually matched in settings that align with their job-shadowing interests, and natural support is utilized within the settings. Student support in vocational settings ranges from individualized support to independent work. Because of their exposure to a wide variety of job-shadowing experiences, BASE students are prepared to make an easy transition into the world of work. They experience a greater level of work readiness, as they are not taught solely in typical classrooms but "on the job," where they work alongside professionals on a regular basis.

Through the local school district, the BASE program has seven different programs for student placement, each of which takes place at one of six separate locations, including six local hospital sites and one regional university. Each program enrolls ten students at a time, and at the time of this study there were currently 70 student participants at BASE sites. BASE's basic model is for students to spend half their school day in the classroom and the other half working, but the daily composition varies depending on the program. A typical day in the BASE program runs from 8:30 a.m. to 3:30 p.m. and includes approximately three hours of academic study, the topics of which include (a) pre-employment training, (b) postsecondary education/training, (c) daily living skills, (d) occupational guidance, (e) practical application of mathematics and reading, and (f) working toward attainment of IEP goals.

The work component of the program allows for students to participate in job shadowing a variety of professions for approximately three hours per day. Students choose the occupation they would like to shadow in one the following 20 areas: (a) catering, (b) equestrian, (c) mail room, (d) office, (e) beauty shop, (f) child care, (g) photography, (h) grounds, (i) maintenance, (j) central supply, (k) library, (l) loading dock, (m) computer, (n) bookstore, (o) food and nutrition services, (p) environmental services, (q) radiology, (r) same-day surgery, and (s) patient-transport services. Each quarter, students rotate through different job sites. Every effort is made to match the students' preferences and aptitudes with opportunities. In the past, additional placements, such as a beauty salon, bakery, and bookstore, have been developed to meet students' unique interests and preferences. Built into the daily schedule is an hour for lunch, and if students complete their work early, they may (a) help in other students' tasks, (b) be assigned a special task, or (c) have free time on their Chromebooks, which are provided by the school district.

To enroll in BASE, student candidates are first referred by their home school (teacher), and the decision for placement is made by the entire IEP team. The referral form (see Appendix A) contains basic information about the student, including which high school they attend, their attendance record, any health issues, personal interests, past discipline issues, and established work habits. The form also gathers information in several critical areas, including (a) basic reading, writing, math, and speaking abilities; (b) interpersonal interaction; (c) money-management skills; (d) decision-making skills; and (e) basic hygiene. The information provided in this section does not qualify or disqualify students from BASE. Disqualification occurs when a student has issues with discipline or attendance. For example, if a student is absent more than once per week or has a history of violent behavior, they will not be allowed into a BASE site as a participant. Once BASE teachers determine the site best fit for a student based on his/her strengths and individualized needs, the site's BASE teacher meets with the student to make a final determination or adjustment to placement, if needed. Most students stay through the remainder of their high school tenure.

Setting and Participants

The setting for this study was North Riverside Hospital (NRH) BASE. This site has opportunity for students to work in small groups with a para or special education teacher. NRH was once a fully functional hospital that served the community; however, it has since been transformed into an outpatient facility, psychiatric facility, and an emergency room. All other medical needs are met at other locations throughout the city. Many of the students attending this site were previously perceived only to be capable of working in a sheltered workshop and, before WIOA, were employed in that setting. However, because the NRH BASE site is more accommodating for students with more significant disabilities, placement occurred for student participants, who are described below. NRH BASE students attend this site because they need more support, which the site can offer because they have more staff for the BASE program and the tasks assigned to them at this site can be accomplished at their level or function. Students who are enrolled in the BASE NRH program work in the cafeteria, custodial services, and patient records. Each BASE site is assigned a different level of student in special education.

Students

At the onset of this study, six students enrolled to participate; however, shortly after the study started, one of the six chose no longer to attend the program. Each student participated in baseline research, and all participated in two or three intervention tasks.

Wyatt. Wyatt is a biracial (White and African American) 17-year-old senior diagnosed with autism. At the time of this study, he was in his second year at BASE. Wyatt does not handle deviation in his routine well and experienced escalations in emotion and behavior to the point where he could not complete job tasks; in the previous year, this would lead to daily early dismissals from BASE. Wyatt's parents and teachers report he has "issues" with change and seems to learn tasks slower due to an overwhelming concern with change. Wyatt's coping mechanism for self-soothing is scripting out loud movies, TV shows, and overheard conversations.

Clint. Clint is a white 17-year-old senior with intellectual disabilities. At the time of this study, he was in his first year at BASE. Clint is extremely polite; however, his teachers and parents report that he does not ask for help when it is needed. Clint is limited in expressive language; therefore, he often does not ask for help because he cannot identify the correct words for expressing what he needs. Because of his extreme politeness coupled with his lack of communication, he often responds with “okay,” even if he does not understand the task he is to complete.

Richard. Richard is a biracial (White and African American) 16-year-old junior diagnosed with autism. At the time of this study, Richard was in his first year at BASE. His teacher reported that Richard demonstrates low levels of on-task behavior when completing work. Richard also has problems at home, reporting a tendency to become overwhelmed and unable to perform basic functions of self-care (e.g., eating, getting out of bed, dressing independently), the result of which is frequent absences in the past.

Matt. Matt is a white 16-year-old junior diagnosed with autism. At the time of this study, Matt was in his first year at BASE, before which he attended autism behavioral classes at one of the local high schools. His teachers describe him as having “a lack of work ethic.” His teacher also reports that he does not take constructive criticism well and will “shut down” if he receives any.

Brian. Brian is a white 16-year-old junior diagnosed with an intellectual disability. At the time of this study, Brian was in his first year at BASE, before which he attended a functional skills classroom at his local high school. Brian’s teacher reports that he needs redirection several times to stay on task. Brian’s teacher also reports that he waits to be told to move to the next task and will not move to the next task independently.

Daniel. Daniel is a white 17-year-old senior diagnosed with autism. At the time of this study, Daniel had been enrolled in BASE the previous year but attended a different program, which he was unable to continue due to a need for more significant support. At the conclusion of the previous year, he transferred to Riverside North BASE. Daniel is described as a great worker when he works; however, he likes to make believe he is a dinosaur and tends to walk on the tip of his toes, mimicking a dinosaur, instead of completing work tasks.

Materials

Printed Visual Supports

Printed visual supports were created by the researcher, a BASE staff member and then were reviewed by NRH staff for correctness of task completion. A task analysis was conducted to break down the skills into smaller components, and the steps were listed on printed visual supports provided to each student. This was poster size and posted near each job task. The posters were white, with black printed times new roman font with color pictures attached to each task step. As the smaller steps were mastered, learners combined steps in an effort to become more independent.

Videos

A video ranging in duration from two to three minutes was created for each of the three tasks. The videos were recorded on an iPhone eight and each task was recorded from start to finish. Each video displayed an adult with whom the students were familiar (BASE teacher). Videos were created by the researcher and a BASE staff member and were reviewed by NRH staff for correctness of task completion. The task was performed in sequential order to complete the task and included corresponding verbal instructions for the targeted task. Videos were saved on a thumb drive that was kept in the possession of the researcher. Students were previously assessed and trained on opening the videos on a Chrome book. Students used headphones provided by the district when watching the video modeling video.

Window-washing. The window-washing video included the model who demonstrated the task, the cleaning cart where the supplies were kept, and the supplies students were to use, including spray bottles and cleaning rags, and also featured the window the student would be cleaning.

Dusting. The dusting video included the model demonstrating the task, the cleaning cart where the supplies were kept, and the supplies the students were to use, including dusting spray and cleaning rags, and also featured the tables the student would be dusting.

Vacuuming. The vacuuming video included the model demonstrating the task, the cleaning cart where the vacuum was kept, including the vacuum the students were to use, and also featured the rug the student would be vacuuming.

Experimental Design

Alternating Treatment Design

An alternating treatment design (ATD) was selected to enable comparison between the two interventions to analyze which strategy yielded the highest percentage of tasks completed (Gast & Ledford, 2014). The ATD also allowed data to be collected on duration of task and number of prompts needed when comparing the two interventions. ATD is used to compare interventions quickly and efficiently. The ATD uses rapid and repeated interventions of two or more conditions across different observations or environments (Gast & Ledford, 2014). The rapid alterations between interventions can happen by day or by session. This method does not require extended time, making it useful for practitioners and researchers (Gast & Ledford, 2014). This design also allows the framework to account for the rapidly altering instruction conditions and to teach different sets of non-reversible behaviors during each session (Gast & Ledford, 2014). ATD allows for observation of change between the two intervention methods: video modeling and printed visual schedule.

Independent Variables

Video Modeling

Students were provided videos that consisted of a model performing the task or target behavior correctly. Each video allowed students to see the exact steps required to complete the assigned task independently, allowing for a measure of total task completion. Each video lasted approximately two to three minutes. Students accessed the videos via a thumb drive that the researcher brought to the site daily. Prior to the onset of the research study, students received explicit instruction in the classroom setting on how to access the videos on their Chromebooks.

Visual Support

Students were provided a printed visual support that consisted of a printed step-by-step procedure for the task or target behavior. Each printed visual analysis allowed students to read the exact steps required to complete the assigned task independently, allowing for a measure of total task completion. The visual schedule for each job task was displayed on white poster board, where each student could see it before, during, and after the job task. Each visual schedule was placed on two white poster boards measuring 22 inches by 28 inches. For each task, the poster board displayed five pictures measuring 4 inches by 6 inches and included a short description of each task. Descriptions were printed on white paper using black ink in Times New Roman 16-inch font.

Dependent Variable

There are three dependent variables in this study: (1) the percentage of steps completed correctly for each task in each work session, (2) the number of prompts students needed to complete each task, and (3) the duration of task. A work session lasted no longer than an hour. Each work session was considered complete when the student indicated he had completed his job task.

Percentage of Steps

If the student performed vacuuming a rug and completed seven out of the ten steps in the task analysis correctly, the student received a 70% on the task for that day. To measure the percentage of steps completed correctly, the following formula was used: (number of steps completed correctly/total number of steps) x 100.

Number of Prompts

To measure the number of prompts provided to the student, a frequency count procedure was used. A “prompt” was operationally defined as any time a staff member had to direct a student to complete the task, use a support, or provided support.

Duration of Tasks

To measure duration of task, a stopwatch was used to measure the time spent on task. “On-task behavior” was defined as the point at which the video ended or when the student walked away from the visual support and ended upon the completion of or indication that the student had completed the last step. Total number of seconds in which the student engaged in “on-task behavior” were recorded.

Data Analysis

Data were analyzed using visual analyses to interpret the variability of performance, the level of performance, and the trends within each condition (Gast & Ledford, 2014; Horner et al., 2005). “Level of performance” refers to the mean performance during a condition. “Trend” refers to the rate of increase or decrease of the dependent variable. “Variability” refers to the degree to which performance fluctuates around a mean or slope during a phase (Horner et al., 2005). The two interventions were compared to determine which increased percentages of task completion to the greatest degree.

A visual inspection occurred to reach a judgment about which intervention was most effective in increasing task completion, decreasing prompts, and decreasing duration by visually examining the graphed and charted data according to changes in the percentage of steps completed correctly (Kazdin, 1982). Criterion for task acquisition was demonstrated if participants completed above 90% of the steps correctly for three consecutive data points. Charts documenting task performance were created for each participant using Microsoft Excel.

Interobserver Reliability

Interobserver reliability data was collected on all three dependent variables for all sessions, including baseline. The researcher and BASE teacher completed the checklist when present and collected data simultaneously. Both data collectors took data on the number of prompts given and what prompt was delivered. Duration data was collected using a stopwatch application on a personal iPhone. An item-by-item comparison between data collectors was utilized to determine agreements and disagreements. An agreement was recorded if both observers identically scored the interval. A disagreement was recorded if intervals were not scored identically.

Treatment Fidelity

A treatment fidelity checklist was used for the instructional procedures. Treatment fidelity was established by calculating the percentage of items on the treatment fidelity checklist presented correctly. The use of videos was determined to increase treatment fidelity, as participants watched the same model perform the same task every time. Students accessed the videos using their Chromebooks; videos were stored on a flash drive held in a locked filing cabinet when not in use. Students had an unobstructed view of the video as it was placed on the cleaning cart being utilized by the student, and it was in view at all times for all tasks. The researcher tested the video prior to student use on a daily basis, ensuring it played without issue and sound levels were appropriate through headphones.

The procedures for each phase were listed sequentially on a procedural integrity checklist, and prior to the study, participating teachers were trained to check off each procedural step as it was completed correctly. The teacher was also provided with a list of prompts and instruction on when to give a prompt to a student. Item-by-item scoring from the task analysis was used to determine fidelity for interobserver reliability. An agreement was recorded if the researcher and the BASE teacher identically scored the same items on the fidelity checklist. Percentage agreement for each fidelity checklist was calculated using the following formula: number of agreements/number of steps x 100.

Social Validity

Social validity refers to how appropriate the target behavior is, if the effects the intervention produces are acceptable, and if significant changes occur (Cooper et al., 2007). Methods for assessing social validity outcomes include (a) comparing students with disabilities' performances to performance of a normative sample, (b) asking the community to rate the social validity of the participants' performances, (c) asking experts in the field to evaluate the participants' performance, (d) using a standardized assessment instrument, and (e) taking the newly learned level of performance and testing it in the natural environment (Cooper et al., 2007). In this study, the target behavior was identified as a 90% or better task completion, zero prompts, and a duration of five minutes or less to complete the task. These were appropriate target behaviors, as they will lead to greater opportunities for students to attain competitive integrated employment. Printed visual supports and video models are acceptable in society. Visual supports are used in almost all workplace environments and in many public restrooms.

Significant changes did occur during the study. All five students did not meet criteria for competitive integrated employment in two or more vocational tasks. After the study all students but one student in one task, were able to meet criteria.

Procedures

General

Approval was given by the Institutional Review Board (IRB) the University of Oklahoma, the urban school district, and consent was provided by parents and assent from students for participating in this research study. Procedures were outlined and activities were scheduled through collaboration with the NRH BASE teacher. After a brief overview of each job task described below, students participated in the janitorial work with their baseline performance evaluated over a three-day period. Janitorial work was selected for research since it was a task that was completed daily by students in the same area and in the same way. Many struggled learning the tasks and could not move on to other work until the basic tasks were learned as they would help in other job tasks around the hospital. Other jobs at NRH change daily based on staff needs. An ATD to allow for evaluation of the intervention of video modeling and printed visual schedules in three different work environments: window washing, vacuuming a rug, and dusting tables. The sequence of interventions was determined using a random numbers generator website. If an intervention was used twice in a row in two different sessions, the third intervention session automatically changed. For example, if Monday's intervention was video modeling and Tuesday was also video modeling, then Wednesday would be visual support. Each intervention, video modeling or printed visual schedule, was used for the entire day of work for all students. The students used modeling or a visual schedule to wash windows, vacuum a rug, or dust tabletops. Each student used the same intervention all day. There was a minimum of three data points taken for each intervention in each job task. For example, students washed windows at least three times using the same intervention while data was recorded.

Development of the Printed Visual Schedule

Development of the visual schedule loosely follows the guidelines set in Kellums et al. (2016). Before the intervention began, three different task analyses were created. Based on the task analyses, three different visual supports were created. Steps in the development included the following:

1. **Determine the targeted tasks:** The researcher worked in collaboration with the NRH teacher to determine vocational tasks that would be beneficial for the student to work on. It was decided to focus on the tasks of (1) window washing, (2) vacuuming, and (3) dusting in the "old" main lobby.
2. **Steps:** The steps of the task analysis were agreed on by the BASE teacher, researcher, and employment specialist at NRH. Each member walked through the tasks, and steps were determined by observing several walkthroughs.
3. **Duration:** Team members were timed as they took turns completing the tasks utilizing the task analyses. Times were averaged and discussed for level of appropriateness for a competitive employment situation. Team members' times ranged from 1:02 to 3:55. Duration of task was agreed on by the team.
4. **Creation of printed visual schedule:** The researcher created the printed visual schedule by taking frozen-frame shots of the video-modeling video, printing them out in color, and securing them on a white poster board. The researcher then printed out instructions from the task analysis for each photo.

Development of Video and Intervention Steps

Development of the video-modeling video was modeled after the research of Sigafoos et al. (2007), who established steps to follow when using video modeling with individuals with disabilities. Based on the task analyses, three different videos were created. Modeling videos were kept on a thumb drive and shared to the individual student Chromebooks to provide support as they engaged in their tasks. Every student in the school district was assigned a Chromebook for use during the school year. Students were trained to use their Chromebooks in the previous school year, but students participated in a short tutorial and assessment, completed by BASE staff, to ensure they had the adequate skills and knowledge to access the video. Steps in the development included the following:

1. **Selected behavior or skill becomes the target behavior.** For this study, the target behavior was a new job task. It is important that the target behavior can be clearly defined. A task analysis was chosen as the instrument to clearly define the steps for the video.
2. **Equipment.** Two pieces of equipment are needed when implementing a video-modeling intervention: (a) video recorder and (b) equipment to display the video. Advances in technology have resulted in access to smaller digital cameras, which were used to capture digital video that could be edited on a computer. Videos can be shown in a variety of ways. For this study, the video was recorded and edited on an iPhone, then saved on a thumb drive, which was accessed on student Chromebooks for individual viewing.

3. **Developing a task analysis.** The task analysis was accomplished using the step-by-step order with which the video was developed. Prior to the recording of the videos featuring the model performing the target behavior, it was imperative for the team to

create and agree upon the task analysis for each task, ensuring consistent expectations for task completion.

4. **Making the instructional video**. Three decisions were made before the video was produced: (a) who will serve as the model in the video? (b) from which perspective will the video be filmed? and (c) should voice-over instructions be included? Model selection can have an impact on the overall effectiveness of the intervention (Kellums et al., 2007). This study's model was the BASE teacher, with whom all students were familiar and had positive interactions. Regarding the perspective of the video, two options have been identified as being effective: first person, or from the perspective of the task completer, and third person, or a snapshot view of another individual completing a task (Kellums et al., 2007). Deciding whether to use the participant's or spectator's perspective was taken into account before making the video. The team ultimately determined to film from a spectator view so that the entire job task could be viewed. Regarding audio, the addition of verbal instruction to training videos helps reinforce the visual information presented (Kellums et al., 2016); thus, verbal instructions were added to the videos, as it was determined they could be used to provide additional information about the task that might not have been easily conveyed in a video.

5. **Arranging the Teaching Environment.** Videos should be viewed and made in the setting in which the target behavior is to occur. In this study, videos were recorded in the three different locations in the NRH "old" main lobby where the students would be performing their job tasks. The materials used in the videos are the same materials used by students to complete their job tasks.

6. **Presenting video models**. Some students were able to open and watch the videos easily, while others needed additional assistance. Training and assessment were provided by the BASE staff, if needed. To help all students as they used the videos, the researcher (a) made sure the Chromebook was near the student and that all students had a clear and unobstructed view; (b) removed distractions from the surrounding environment (as much as possible, as the setting was a functioning hospital); (c) directed student attention toward the computer screen before the video started; (d) positively reinforced with praise when the student remained oriented to the video screen as the videotape played (praise was given after the video concluded); and (e) if the student looked away, students were prompted to watch the video. Students had to keep watching the video until the entire video was completed and they watched the video. If necessary, the educators guided the student back toward the video. If five attempts were made to redirect attention and the student did not watch the video, the intervention was terminated for that time period.

7. **Monitoring progress**. Data on percentage of task complete, duration of task, and number of prompts were taken while video modeling was used as an intervention. Data were collected on data collection sheets in figures four, five, and six. Data were compared to baseline data and then compared to data collected during intervention using a visual schedule to determine what effects video modeling or visual schedules had on the job task using an ATD. After the intervention was introduced, data were collected during each session by the researcher and BASE staff.

8. **Troubleshooting.** If progress had not been made after approximately five sessions, Sigafoos et al. (2007) stated it may be due to one of several factors, including (a) lack of reinforcement, (b) poor video content, or (c) lack of prerequisites. Once the problem is

identified, the video-modeling procedure would have modified accordingly; however, this did not occur in this study.

9. **Prompting.** A student was prompted if they needed to be reminded to stay on task, complete the job task, or how to find help. Prompting was completed by the BASE staff member collecting data. A prompt was issued after 15 seconds of nonwork. If the student indicated that they needed help, the BASE staff member would also prompt them and provide support if needed. The prompt was a simple verbal command: “Look at the video,” or, “Look at the visual schedule.” If more intense support was needed after prompting, it was provided.

Baseline

Baseline was established after the group received instruction on how to complete their janitorial job tasks. With the materials they would be using for each job task, the group was brought down to the area of the hospital in which the job task would take place. Each job task was explained in a step-by-step verbal manner and then modeled for students while the directions were simultaneously read step by step from the task analysis for each task.

After the one-day training, baseline data collection started and was recorded over a three-day period. Data was collected on each task that was completed correctly, duration on task, and numbers of prompts needed to stay on task. A task was determined to be complete when 90% of the steps on the data sheets were checked off by the researcher and BASE teacher, indicating completion. Duration, or how long the job task took the student to complete, data collection began when the student completed the video or turned away from the visual schedule poster after viewing it before the job task commenced. Prompting was counted by tally mark on the data-collection sheets (figures five, six, and seven). A prompt was tallied for any instance in which the BASE teacher redirected a student after observing 15 seconds of non-movement or if the student asked for help. If a student asked for additional assistance during baseline, they were instructed, “Try your best to remember your training.” During baseline, no attempt was made to alter the typical work behavior, other than a reminder of the job task’s title.

During the summer school season, students attended one hour of classroom work with their paraprofessionals and teacher. The teacher reminded students of their job tasks for the day and assigned paraprofessionals to go out with the students to their respective job sites. Then, after the students collected their materials, they were escorted to their workplace and reminded of their job task. Students were prompted, “It is time to clean up here. Go ahead and start.” The students cleaned until they determined they were finished with the job task. Even if students did not complete their job tasks, but perceived completion by being asked if they were done with their job, the paraprofessionals or teacher instructed the student to move on to the next work area.

The researcher, teacher, and NRH supervisor excluded a student from the study based on the following criteria: (1) task performance with 90% accuracy, (2) task completion in less than five minutes, or (3) no prompting required for completion. The researcher, teacher, and supervisor agreed that students who met the aforementioned criteria in their job tasks would be suitable for competitive integrated employment and required no intervention.

Intervention

Following baseline, a random number generator was used to select which intervention should be used, either video modeling or visual schedule. An intervention could be used two days in a row but would automatically switch to the other intervention on day three. Students rotated when their task was completed. If a student went first on Monday, he was second on

Tuesday, then third on Wednesday, and so on. Students were taken to complete their work tasks individually, accompanied by the researcher and BASE staff collecting data. Each student was instructed to watch the corresponding modeling video or to look at the visual schedule before he began his job task. If help was needed, the students were instructed to watch the video again or look at the visual schedule. The researcher and a BASE site staff member took data on the following: (a) percentage of steps complete, (b) duration, and (c) number of prompts given during the task. The researcher used a stopwatch app on her iPhone to record time. Time began after students were prompted to start the job task and ended when the student confirmed task completion. Both the researcher and BASE site staff took data on the percentage of task steps complete and the number of prompts. The BASE site staff prompted, if needed.

Students received a prompt if they did not move forward with their tasks after 15 seconds. Since students were being timed, this was an easy process to track. If a student did not start the task after four prompts, the researcher ended the job task. Prompts included, “Stay on task,” or, “Look back at your intervention if you need help.” Students were allowed to view modeling videos or to seek guidance from the visual schedules as many times as needed. If the job task was not completed in 30 minutes, the task was terminated by the researcher. Once a student was able to complete a job task with 90 percent steps correct, under five minutes, and with no prompts, intervention ended. All criteria to complete the task, start the task, and end the task was agreed upon by the BASE teacher, supervisor of the hospital, and the researcher.

Figure 1

Task Analysis Steps to Cleaning a Table

Steps
1. Go to the table and move items on the table off the table onto the floor
2. Go to the cleaning cart
3. Pick up spray bottle off cart and go to the table

4. Spray dusting bottle four to six times
5. Take bottle back to the cleaning cart and pick up dusting cloth
6. Take cloth to table
7. Wipe the entire table
8. Wipe edges of table
9. Take cloth back to the cleaning cart
10. Go back to the table and place the items on the floor back on the table.

Note. This figure breaks down dusting a table into for the "old" main lobby in steps NRH.

Figure 2

Task Analysis Steps for Cleaning a Window

Steps

1. Pick up spray bottle off cleaning cart.
2. Move to stand in front of the window
3. Spray cleaner on the window three-six times
4. Put cleaner back on the cleaning cart
5. Pick up window cloth from the cleaning cart and bring it to the window
6. Starting in the upper left corner wipe the window from top to bottom
7. Move slight right and start from the top repeating until all wiped
8. Wipe the edges of the window
9. Place cloth back on cleaning cart
10. Move to the next window

Note. This figure breaks down cleaning a window in the "old" main lobby into steps at NRH.

Figure 3

Task Analysis Steps for Vacuuming

Steps

1. Pick up vacuum off cleaning cart.
2. Un-wrap cord from the vacuum and plug in cord to nearest wall outlet
3. Move vacuum to ready position (vacuum handle released from upright position to tilted position)
4. Turn vacuum on
5. Slowly move the vacuum up and down the rug cleaning the entire rug
6. Vacuum edges of rug

7. Turn vacuum off and place back in stand position
8. Unplug vacuum from the wall
9. Re-wrap cord on vacuum
10. Place vacuum back on the cleaning cart

Note. Figure 3 breaks down into 10 steps the process for cleaning a window in the "old" lobby of NRH

The researcher and NRH staff used two research-based methods in three different job tasks to analyze which intervention increased the percentage of job task completion according to the task analysis. These methods were visual support and video modeling while cleaning windows, dusting tabletops, and vacuuming a rug. An alternating treatment design was utilized to determine which method was the most effective for students in completing each job task.

Data Collection

Data on percentage of job completion was collected in tandem by two individuals, consisting of the BASE teacher and the researcher using the data collection sheet (figures four, five, and six). The researcher and BASE teacher went over the task analysis before the intervention began and discussed what a completed task should resemble. The researcher was present during all data sessions to ensure no extra prompting was given. The BASE teacher and researcher reviewed the video modeling video and task analysis for each task. All data collectors were trained on each intervention, ensuring a 90% agreement on what a completed task resembled. All data collectors used the same task analysis to assess task completion.

Figure 4

Data Collection form for Vacuuming

ST name observer Name

Vaccuming Please check every completed step

Please add a mark in the prompts section for everytime you promted them to work or check the VM/VS

	Completed	Vaccuming
Duration:		1. Pick up vacuum off cleaning cart.
		2. Un-wrap cord from the vacuum and plug in cord to nearest wall outlet
Prompts:		3. Move vacuum to ready position (vacuum handle released from upright position to tilted position)
		4. Turn vacuum on
		5. Slowly move the vacuum up and down the rug cleaning the entire rug
		6. Vacuum edges of rug
		7. Turn vacuum off and place back in stand position
		8. Unplug vacuum from the wall
		9. Re-wrap cord on vacuum
		10. Place vacuum back on the cleaning cart
	/10	

Note. This data collect sheet was used on every student while they were vacuuming during baseline, intervention, and probe.

Figure 5

Data collection sheet for dusting a table

ST name Observer Name

Dusting Please add a check mark to every task completed

Please add a mark in the prompts section for everytime you promted them to work or check the VM/VS

	Completed?	
Duration:		1. Go to the table and move items on the table off the table onto the floor or chair
Prompts:		2. Go to the cleaning cart
		3. Pick up spray bottle and dust rag off the cart
		4. Spray dusting bottle four to six times on dusting rag
		5. Place bottle back on cart
		6. Take cloth to table
		7. Wipe the entire table
		8. Wipe edges of table
		9. Take cloth back to the cleaning cart
		10. Go back to the table and place the items on the floor back on the table.
	/10	

Note. This data collect sheet was used on every student during baseline, intervention and probe while the student dusted.

Figure 6

Data collection sheet for window cleaning

ST name Observer Name

Windows Please add a check mark to every task completed

Please add a mark in the prompts section for every time you prompted them to work or check the VM/VS

Duration: Completed Windows

1. Pick up spray bottle off cleaning cart.

Prompts:

2. Move to stand in front of the window

3. Spray cleaner on the window three-six times

4. Put cleaner back on the cleaning cart

5. Pick up window cloth from the cleaning cart and bring it to the window

6. Starting in the upper left corner wipe the window from top to bottom

7. Move slight right and start from the top repeating until all wiped

8. Wipe the edges of the window

9. Place cloth back on cleaning cart

10. Move to the next window

/10

Note. This data collect sheet was used on every student while they cleaned windows during baseline, intervention and probe.

Chapter Four

Results

Overview and Research Questions

This study examined the effect of a work-experience program for students with disabilities using video modeling and a visual schedule. This study evaluated the difference of an intervention using either video modeling or visual support to teach job skills in the context of an employment-based work-experience program. Students were evaluated on (a) ability to perform jobs tasks correctly, (b) duration of each job task to completion, and (c) number of prompts needed to complete the job tasks on a real-life job site. The following research questions guided this study:

1) Is video modeling or printed visual support more effective when teaching a student with ID or ASD to complete a job task to criteria?
2) Is video modeling or printed visual support more effective in decreasing the frequency of prompts that students with ID or ASD need to complete a job task to criteria?
3) Is video modeling or printed visual support more effective in decreasing the duration of time students with ID or ASD need to complete a job task to criteria?

The following results are organized by research questions. Each research question shows results at both the student levels and across each job skill.

Research Question 1: Is video modeling or printed visual support more effective when teaching a student with ID or ASD to complete a job task to criteria?

Both video modeling and visual schedule were successful in students being able to complete all three job tasks to a completion rate of 90% or better, which was part of the criteria to attain competitive integrated employment in the hospital setting in which the intervention took place. Results varied from student to student and are described below. Results were analyzed using visual analysis. "Visual analysis is the systemic approach for behavior research and treatment programs. That entails visual inspection of graph data for variability, level, and trend within and between experimental conditions" (Cooper et al., 2007, p. 708).

Brian

Baseline data for Brian showed a downward trend for percent correct of task complete for vacuuming and cleaning windows; however, dusting showed no trend. He had a mean of 35% in vacuuming, 40% for windows in baseline, and 35% in dusting. The intervention mean level for vacuuming using visual schedule was 95% and 85% for video model, dusting visual schedule had a mean of 80% in video modeling 76%, windows visual schedule had a mean of 82% and video model had a mean of 72%. Both interventions had considerable variability at the beginning of the intervention but at all times had an upward trend. Brian did achieve Mastery in vacuuming and dusting. Brian did not achieve Mastery (90% task complete) in window cleaning. There is considerable overlap when looking at the interventions or clean windows and vacuuming. There was no overlapping data within the interventions of visual schedule and video modeling when it came to dusting.

Clint

The Baseline data mean for Clint when it came to vacuuming was 57%, dusting 26%, windows 47%. During the intervention stage for vacuuming Clint had a mean using visual schedule of 96% and a mean of 83 % for video modeling, for dusting visual schedule with 85% and video modeling 43%, for vacuuming visual schedule was 83%, and 84% for video modeling. Clint was able to achieve mastery and all three vocational tasks. There is overlap of the interventions and window cleaning and dusting. Intervention data during the intervention phase had an upward trend.

Matt

Baseline data for Matt showed a downward trend for percent correct of task complete for vacuuming and cleaning windows; however, dusting was held steady. During baseline for vacuum Matt had a mean of 80%, for 80% or windows and for dusting 86%. During intervention the mean level for window cleaning visual schedule with 84% and video modeling 92.5%, vacuuming visual schedule 95% and video modeling vacuuming 94%, visual schedule dusting 93% and video modeling dusting 95%. For vacuuming and dusting percentage of correct completion was steady at 80% or above for both tasks however window cleaning have large variability. All data have an upward or steady trend compared to Baseline throughout the intervention. All throughout the intervention, each task showed large overlap between the two interventions.

Wyatt

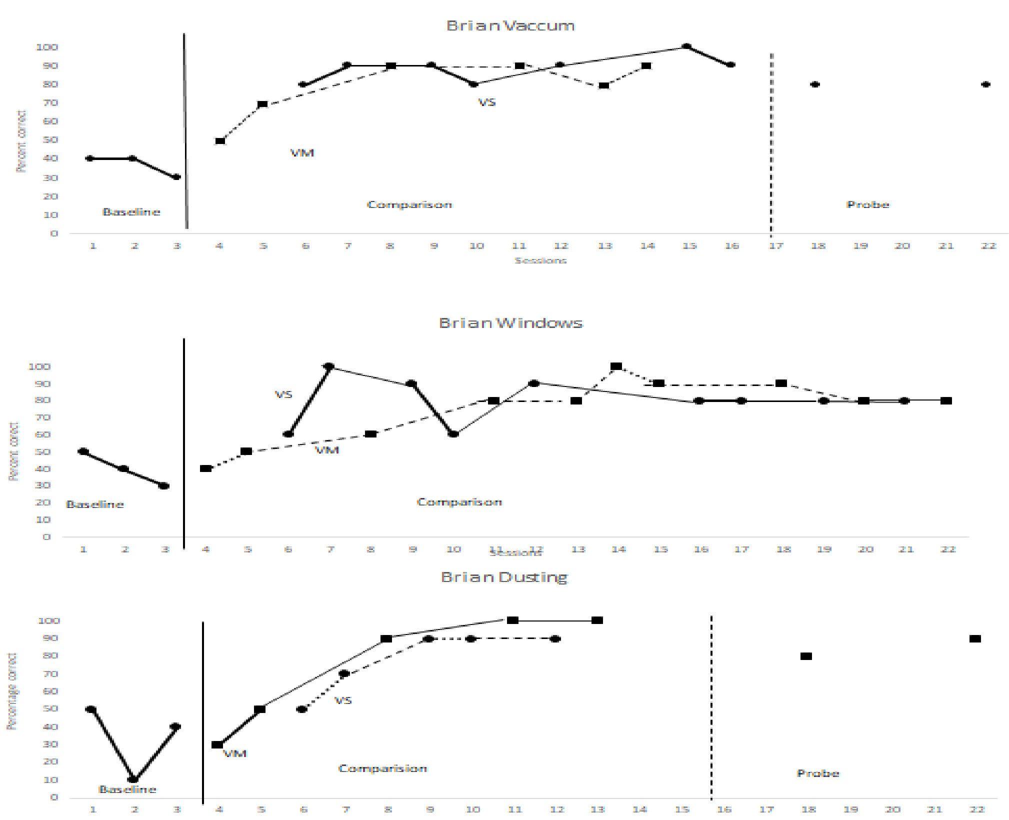
Wyatt only completed interventions for dusting and cleaning windows, as he did not meet the criteria for intervention in vacuuming. Baseline data for Wyatt showed a downward trend for percent correct of task complete when it came to dusting and a steady trend for cleaning windows; however, the mean for both in baseline was 56%. Wyatt's intervention for mean for window cleaning using a visual schedule was 86% and video modeling was 83%, dusting visual schedule had a mean of 95% and 90% for video model. All at Wyatt's intervention data had an upward trend overall when compared to baseline. Wyatt has considerable variability when cleaning windows however not during dusting. There is overlapping data for window cleaning but no overlapping data for dusting.

Daniel

Daniel only completed intervention in window cleaning and dusting, as he did not meet the criteria for intervention in vacuuming. Daniel's baseline data for window cleaning was on a downward trend, while his baseline data for dusting was at a steady trend. His mean for dusting baseline was 86% and window cleaning was 86%. The intervention mean level for window cleaning visual schedule was 95% and video modeling was 85%, dusting visual schedule mean was 100% and video modeling was also 100%. There is no overlapping data in any of Daniel's interventions. Window cleaning had an upward trend and Daniel's data however dusting was steady.

Figure 7

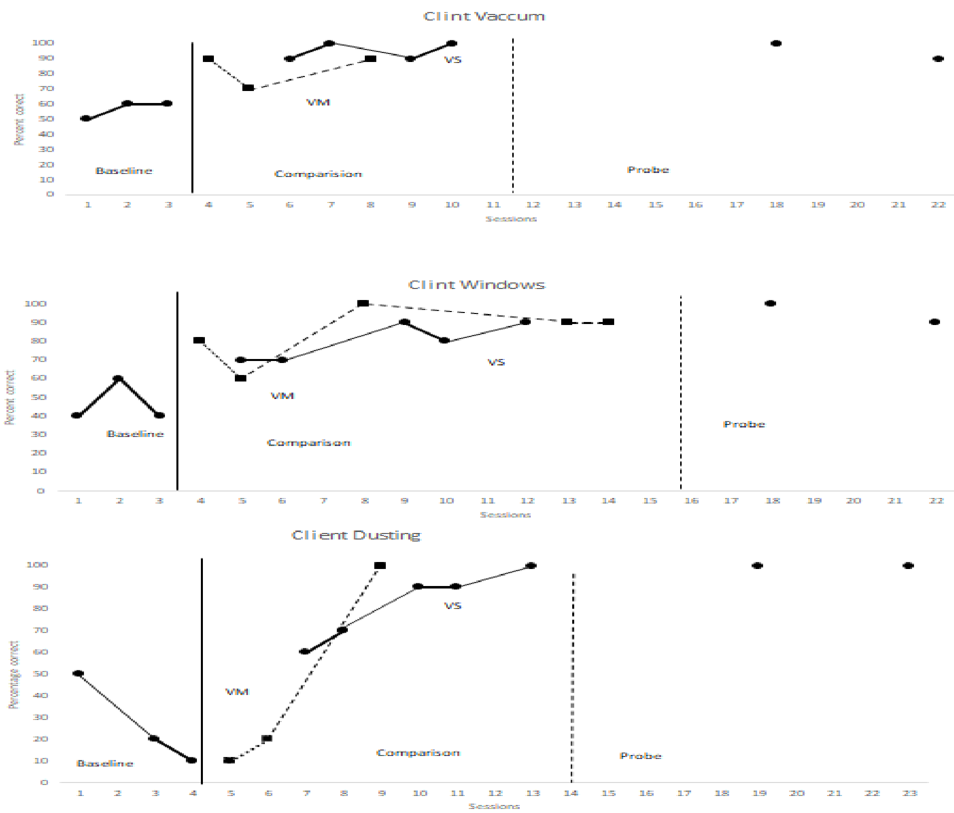
Brian's Percent Correct on Job Skill Performance



Note. These graphs each show the percentage of each task, vacuuming, window cleaning, and dusting. The line graphs show the use of video modeling (VM) the solid line with a square marker, and visual schedule (VS) the dotted line with a round marker.

Figure 8.

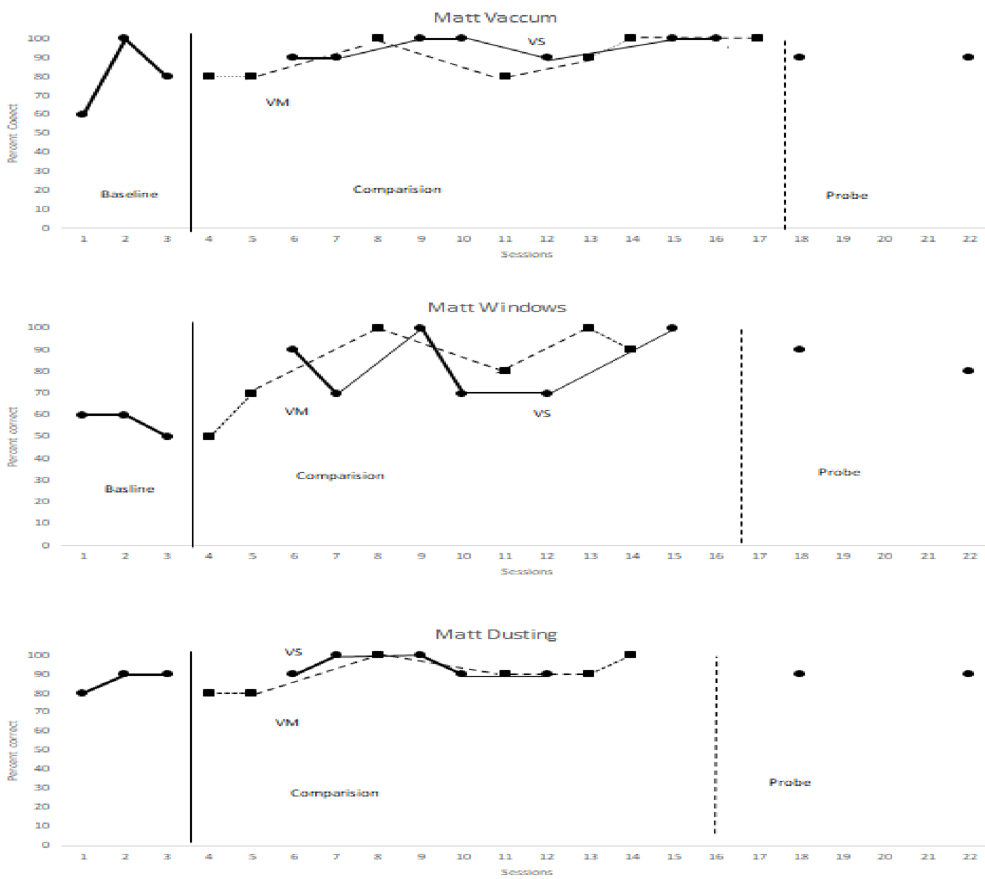
Clint Percent Correct on Job Skill Performance



Note. These graphs each show the percentage of each task, vacuuming, window cleaning, and dusting. The line graphs show the use of video modeling (VM) the dotted line with a square marker, and visual schedule (VS) the solid line with a round marker.

Figure 9.

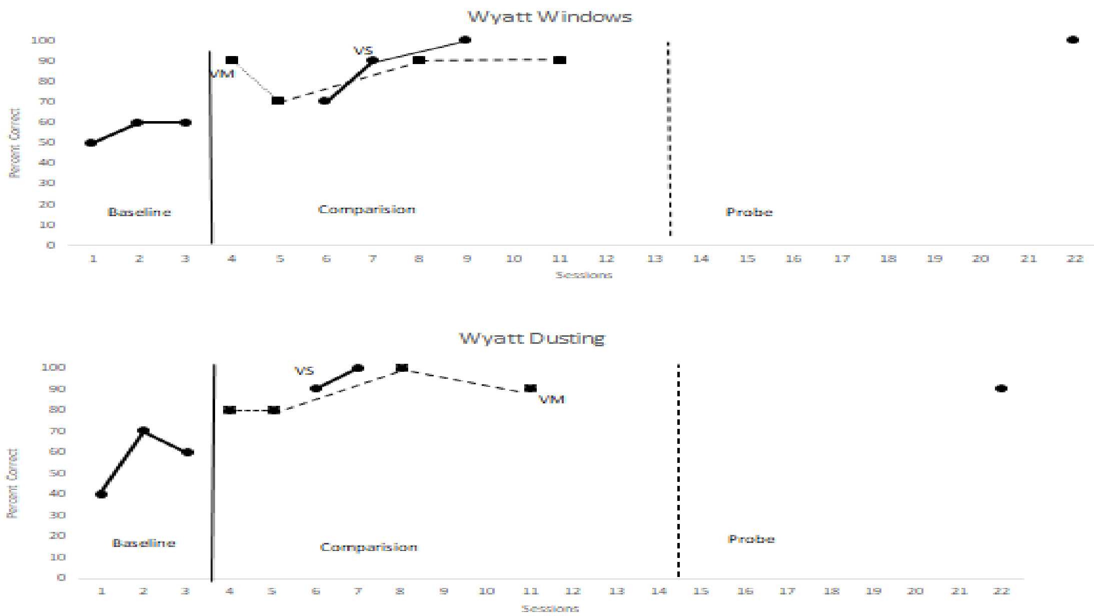
Matt Percent Correct on Job Skill Performance



Note. These graphs each show the percentage of each task, vacuuming, window cleaning, and dusting. The line graphs show the use of video modeling (VM) the dotted line with a square marker, and visual schedule (VS) the solid line with a round marker.

Figure 10.

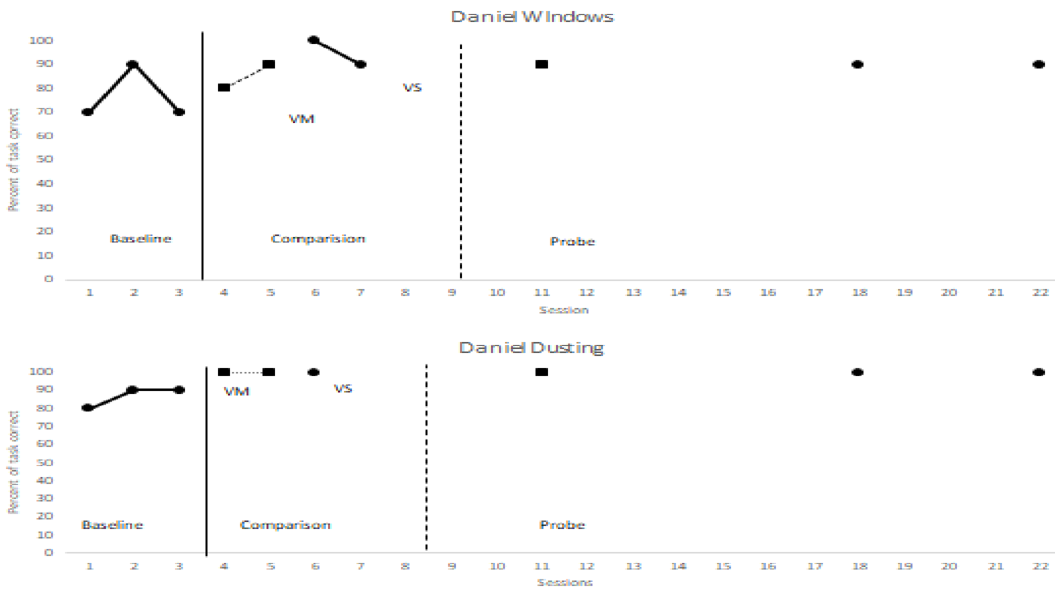
Wyatt Percent Correct on Job Skill Performance



Note. These graphs each show the percentage of each task, vacuuming, window cleaning, and dusting. The line graphs show the use of video modeling (VM) the dotted line with a square marker, and visual schedule (VS) the solid line with a round marker.

Figure 11.

Daniel Percent Correct on Job Skill Performance



Note. These graphs each show the percentage of each task, vacuuming, window cleaning, and dusting. The line graphs show the use of video modeling (VM) the dotted line with a square marker, and visual schedule (VS) the solid line with a round marker.

Research Question Two: Is there a functional relation between use of video modeling versus printed visual support on the reduction in duration of job task completion by students with a disability?

A summary of performance for each student participant is provided below. Table two includes all duration data for each student and each vocational task.

Brian

Brian took longer to complete vacuuming compared to other tasks because he struggled with wrapping the vacuum cord. Brian's duration data for dusting and cleaning windows indicates difference between video modeling and visual schedule.

Clint

Clint had his longest on-task time took place during the vacuuming task. When reviewing durational data, there was no appreciable differentiation between video modeling or visual schedule in all three vocational tasks for Clint.

Matt

Data indicate that vacuuming took the longest for Matt to complete; however, most of his durational data were roughly the same between video modeling and visual schedule.

Wyatt

Wyatt only completed the intervention for dusting and window cleaning. Wyatt had several intervention sessions in which he completed the intervention in under one minute. In some of these sessions, he achieved 90% or above correctness, and for some he did not based on the amount of time he took to reach completeness of task. Wyatt rushed through his vocational task regardless of whether using video modeling or visual schedule.

Daniel

Daniel only completed interventions in window cleaning and dusting because he met criteria during the baseline stage. For Daniel, the intervention did not appear to impact task completeness, as he finished all tasks within two to three minutes.

Table 1

Duration Data Broken Down by Each Vocational Task and Session

	Number of Sessions	Vacuum Visual Schedule	Vacuum Video Modeling	Dusting Visual Schedule	Dusting Video Modeling	Windows Visual Schedule	Windows Video Modeling
Brian	1	4:16	4:09	2:40	1:40	2:42	0:53
	2	4:02*	4:18	1:40	2:13	2:10*	1:09
	3	5:00*	4:19*	2:34	2:52	1:19*	1:38
	4	5:00	4:50*	1:26*	2:52*	1:26	2:22

	5	2:34*	3:30	1:29*	1:37*	1:30*	1:07
	6	2:45*	1:20*	2:29*	1:23*	1:51	3:23*
	7	3:50		1:11		1:35	0:46*
	8	4:07				0:50	0:50*
	9						1:30
	10						1:33
Clint	1	4:10*	4:01*	3:03	1:59	3:39	2:25
	2	4:59*	3:55	3:52	2:57	2:45	2:30
	3	3:59*	4:23*	3:02*	3:20*	1:35*	2:31*
	4	4:40*		2:29*		0:45	1:30*
	5	4:05*		3:22*		1:58*	1:52*
	6					1:55*	
Matt	1	3:00	2:08	3:33	2:42	1:37*	1:03
	2	3:08	2:16	1:42	2:28	3:10	1:48
	3	4:09*	4:02*	1:45*	1:33*	1:32	1:33*
	4	2:40	2:03	1:43*	2:36*	1:28*	1:35
	5	2:48*	3:06*	3:31*	1:36*	1:25*	1:20*
	6	3:42*	1:39*	1:15*		1:06*	1:15*
	7	2:45*	3:00*	2:34*		1:15	
	8	2:28*					
	9	2:50*					
Wyatt	1			0:58	1:19	1:12	0:59*
	2			1:20*	0:53	1:13*	0:52
	3			1:17*	1:05*	1:35*	0:54*
	4				0:58*	1:34*	1:10*
Daniel	1			2:20*	2:21*	2:23	1:25
	2			3:41*	2:31*	2:25*	1:15*
	3			2:07*	1:54*	2:06*	1:39*
	4					2:20*	

Note. Asterisk next to time indicates steps complete at 90% or higher.

Research Question 3: Is there a functional relation between use of video modeling versus printed visual support on the reduction of prompts for students to complete job tasks by students with a disability?

Overall, both video modeling and video schedule helped reduce the numbers of prompts needed to complete vocational tasks and helped students find the correct time balance for each of the tasks.

Brian

Brian took his prompting amount down to zero using both video modeling and visual schedule. During video modeling intervention sessions, Brian was told to ensure he watched the video, which is why he had singular prompts later in intervention numbers.

Clint

Clint started off needing very few prompts, with the exception of his first day using a visual schedule while cleaning windows. Clint’s main prompts directed him to complete his task or, when using the video model, to continue watching the video model.

Matt

Matt received more prompts during the visual schedule than video modeling. Matt received most prompts in response to safety concerns or interaction with research staff in an attempt to avoid the task altogether.

Wyatt

Wyatt only participated in window cleaning and dusting; therefore, he has no prompting data for vacuuming. Wyatt needed very few prompts, most of which occurred during video modeling, during which he was instructed to continue watching the video modeling video.

Daniel

Daniel received no prompts during his two interventions: window cleaning and dusting. Daniel was able to watch the video modeling video in its entirety, as well as use the visual schedule with no prompting required by any person on the research team.

Table 2 provides the number of prompts collected for each student and vocational task.

Table 2

Number of Prompts by Session until Mastery Broken Down by Vocational Task

	Number of Sessions	Vacuum Visual Schedule	Vacuum Video Modeling	Dusting Visual Schedule	Dusting Video Modeling	Windows Visual Schedule	Windows Video Modeling
Brian	1	4	4	4	0	3	1
	2	2	3	2	3	1	2
	3	2	3	1	7	1	2
	4	5	6	1	0	0	1
	5	2	0	0	0	0	1
	6	0	0	3		1	0
	7	0				1	1
	8	0				0	0
Clint	1	1	1	2	1	5	1
	2	1	2	1	2	2	1
	3	0	0	0	1	0	2
	4	0	0	0	0	1	0
	5	0		0	0	0	0
	6					0	
Matt	1	1	0	2	0	0	0
	2	1	0	0	0	2	2
	3	1	0	0	3	0	0
	4	0	0	1	2	0	1
	5	0	0	0	0	0	0
	6	0	1	0	0	0	0
	7	0	0		0		0
	8	0	0		0		0
	9	0	0				
Wyatt	1			0	1	0	0
	2			0	2	0	1
	3				0	0	0
	4				0		0
Daniel	1			0	0	0	0
	2			0	0	0	0
	3			0	0	0	0
	4					0	0

Interobserver Reliability

Interobserver reliability data was collected on all three dependent variables for all sessions, including baseline. The researcher and BASE teacher completed the checklist when present and collected data simultaneously. Both data collectors took data on the number of prompts given and what prompt was delivered. Duration data was collected using a stopwatch application on a personal iPhone use by the researcher. An item-by-item comparison between data collectors was utilized to determine agreements and disagreements. Agreement was made 96% of the time, which is considered an acceptable rate according to (find citation).

Treatment Fidelity

A treatment fidelity checklist was used for the instructional procedures. Treatment fidelity was established by calculating the percentage of items on the treatment fidelity checklist presented correctly. The use of videos was determined to increase treatment fidelity, as participants watched the same model perform the same task every time. Students accessed the videos using their Chromebooks; videos were stored on a flash drive held in a locked filing cabinet when not in use. Students had an unobstructed view of the video as it was placed on the cleaning cart being utilized by the student, and it was in view at all times for all tasks. The researcher tested the video prior to student use on a daily basis, ensuring it played without issue and sound levels were appropriate through headphones.

The procedures for each phase were listed sequentially on a procedural integrity checklist, and prior to the study, participating teachers were trained to check off each procedural step as it was completed correctly. It was decided before the study that the researcher was the only person giving prompts but both the researcher and BASE took promoting data. Item-by-item scoring from the task analysis was used to determine fidelity for interobserver reliability. Data was taken and compared 100% of the study, including baseline, intervention, and probes.

Chapter 5

Discussion

A large body of research indicates that students with disabilities benefit from opportunities to work in their communities, whether paid or unpaid (Benz et al., 2000; Carter et al., 2010; Coogan & Chen, 2007; Hasazi et al., 1985; Hasazi et al., 1989; McConnell et al., 2012; McDonnall, 2010; Lindstrom et al., 2011; Sitlington et al., 1992). The purpose of this study was to analyze the impact of video modeling versus printed visual schedules when applied to a work/employment study for students with disabilities. Using an alternating treatment design, this study aimed to determine which method, video modeling or visual schedules, improved job performance for students with low-incidence disabilities when examining (a) ability to perform jobs tasks correctly, (b) duration of each job task to completion, and (c) number of prompts needed to complete the job tasks on a real-life job site.

Findings

Video and Visual Schedule Development

Video development and steps for video creation were determined prior to intervention with all stakeholders: BASE (Business Associated Student Education) teacher, North Riverside Hospital staff, and the researcher. All stakeholders agreed that the videos and visuals for the visual schedule should take place in the worksite, performed by one of the BASE teachers, and narrated by the researcher. This provided consistency for all of the participants. Both videos and visual schedules were based on the task analysis developed by the researcher and agreed upon by all stakeholders. Prior to the intervention, the BASE teacher met all students, ensuring familiarity with the teacher. All three vocational videos took place at the worksite where students would learn and perform the vocational tasks. Filming took three hours to complete.

Filming began with two BASE teachers and the researcher going over the task analysis several times verbally and then walking through each task before filming. Filming was done in one complete take, as the stakeholders wanted the video to reflect the task in its entirety, from start to finish, in an authentic manner. This took multiple tries for each video. Many attempts were deleted because of missteps made by the model, mispronunciation from the narrator, or interference from the public in the hospital lobby.

The videos were created in the work environment, which meant there was a constant stream of people using the lobby to conduct personal and professional business in the hospital. The team agreed that the task analysis for all three vocational tasks was very clear; however, prior to filming, the team did not engage in any practice before entering the worksite. Based on this experience, it is recommended that teams practice filming to ensure adequate preparation and to mitigate effects of miscommunication, time-management challenges, and contextual factors that may present challenges in video production. Additionally, this will allow for team members to increase their comfort levels in front of a camera, and adjustments in camera placement, body movement, and voice level can be made prior to moving to the setting in which filming will take place. The team also discussed that the time of day for filming created other issues and prolonged the process. During the three-hour period of filming, there were several factors resulting in a busier lobby, including visiting hours, shift changes, and meal delivery. The hospital is the psychiatric hub for the urban city in which it is located, and there are limited visiting hours. Filming, which took place in front of the main elevators that allow access to hospital patients, took place during visiting hours when the lobby was at its peak use. During this three-hour filming period, night nurses and day nurses changed shifts, and meal delivery from the cafeteria began, creating more lobby congestion that led to a need for additional filming time.

Many pictures for the visual schedule were taken at many different angles to achieve the correct instructional impact. Some still photos were taken from the filmed videos that were recorded on the researcher's iPhone. The BASE teachers and the researcher chose the photos for each of the visual schedules based on the goal of each step and photo clarity.

Students expressed excitement at seeing their teacher in the video and in the photos on the visual schedules, which they reiterated several times during intervention. Matt, however, stated he did not like the videos because he thought they were boring and that his BASE teacher was not the best actor. When creating a video that includes a model, research suggests that the model be a person that represents the student in the same age, gender, and ethnicity, or be a person with whom the student is familiar (Kellums et al., 2007). In this study, the team decided to use the BASE teacher with whom the students were familiar as a video model instead of a fellow student, a decision made based on availability and time. Additionally, BASE teachers were already familiar with the task analysis and the worksite. Videos were filmed in late May, after school was completed for the year. The BASE program takes place in local business locations; therefore, teachers do not have access to other high school students who could be used as models for the videos. It would have taken more time to find a student, explain the tasks, and record. Even though the model was not a person similar to the study participants, they were familiar with the model, which led to successful completion of the vocational tasks.

Creating videos that were filmed at the site at which the students would complete their work allowed for students to envision themselves completing the tasks, as they were familiar with the location, the materials, and the procedures. A generic video of the tasks could have presented confusion to students, as the variations in location, materials and tools needed, and unfamiliar faces may have contributed to fixation on the differences that are characteristic of individuals with diagnoses such as ASD; therefore, it was determined that producing videos and visual aids specific to the participants in the study may lead to higher rates of success and, ultimately, a higher likelihood of task generalization to other contexts, due to the familiarity of the setting and procedures.

Social Validity

Social validity refers to the appropriateness of the intervention, the social importance of the effects of the intervention, and the social significance of the goals of the intervention (Cooper et al., 2007). Social validity data were collected through discussions with stakeholders and observation of the intervention. Three noteworthy observations were made between data collected and relation to the social validity of the intervention, as consistent with previous studies (Kellems & Morningstar, 2012). First, the students' teachers agreed that using video modeling and the visual schedule each had positive impacts on students' job performances, as both interventions resulted in positive results. This indicates that students were able to perform vocational tasks correctly and with more independence. Secondly, all participants reported liking either the video modeling video and/or the visual schedule. This finding is important because students are more likely to use the intervention they favor (Kellems & Morningstar, 2012). Finally, the employer of the vocational setting liked the idea of visual schedule and video modeling support for employees during work time, as it resulted in an overall reduction in employee mistakes and less time spent providing individualized targeted instructions for employees. Social validity data were positive and strongly supported the conclusion that participants, teachers, and vocational site employers held positive overall opinions regarding the use of video support or printed support.

Task Completion Data

The primary research question aimed to determine which intervention, video modeling or visual schedule, improved a student's ability to complete a vocational task to the highest percent. The research team hypothesized that video modeling would yield the highest rate of task completion, a conclusion drawn from the perception that students enjoy using their Chromebooks and watching videos in their spare time, not only in the classroom, but at home. Students expressed excitement and joy when they were told they would be able to watch a video while working; however, at the completion of both interventions, the research team discovered that teachers and students preferred a visual schedule. Results were mixed between the effectiveness of video modeling or visual schedule and which one yielded the highest percentage of a task completed by a student. Observational data taken at the time of intervention showed that students often became bored while (a) watching the video one or two times per task, (b) watching three videos in one day to complete different tasks, and (c) rushing through the videos before being able to start a task. Although videos lasted only one or two minutes, students had previously viewed the video and there was no exciting content. After the novelty of seeing their BASE teacher as the model wore off, it was just a work video.

Overall, findings were inconsistent with previous research that had investigated the effects of video modeling interventions compared to non-video modeling interventions. The results of a study conducted by Cannella-Malone et al. (2011) indicated that one intervention was superior across all participants, a study contradictory to the results of this research study.

Mastery criteria for each vocational task for each student was the same at 90% correct. All but one student in one task mastered each task to the set criteria, a difference noted when results of this study are compared to previous studies. In previous studies in which only video-based interventions were used, some participants were unable to master skills according to the mastery criteria set by the authors of the study (Cannella-Malone et al., 2011; Kellums & Morningstar, 2012; Mechling & Collins, 2012). For example, Kellums and Morningstar were able to improve all four of their participants, but not all reached 100% of the assigned vocational task mastery in their study (Kellums & Morningstar, 2012). Perhaps the combination of both video and non-video-based intervention, in addition to the personalized videos and photos, made the difference in this research study. It is possible that the familiarity of the intervention site as well as the consistency of stakeholders contributed to greater student success.

The visual schedule seemed to be the most effective tool for students and the most used tool during the intervention. Two students, Clint and Wyatt, read the visual schedules out loud, even though they were never instructed to do so. A consistency found across all participants was returning to the visual schedule to check steps needed for completion, an occurrence that never happened during video modeling. Students were reminded that they could review the video if needed; however, none of the students did. These behaviors show that the students gained more independence from adults by being able to use a visual schedule and complete tasks.

Durational Data

The second research question focused on the duration of time needed for students to complete each task, with a goal of completion in under five minutes. Duration was considered important because, in order to stay employed, individuals must complete their work in a timely manner. For some students, specifically Matt and Wyatt, completing a task in under five minutes was never a concern; rather, these students needed to spend additional time to complete the task correctly. During the research study, it was determined that there should be a "sweet spot" for the appropriate amount of time needed to complete a task. Students often rushed through a task, making it difficult for them to actually complete the task correctly. A range of time was needed to determine the “sweet spot” dependent upon the task and the student. For example, for Brain, time spent vacuuming was four minutes, but Max was able to complete the same task correctly in two minutes. Each student had to complete the task correctly to find their needed time for completion to the desired quality. This resulted in a range of 90 seconds up to four minutes, times that would allow for competitive employment, as they are similar to the time in which typical individuals would be expected to perform each vocational task.

Durational data collection during baseline and intervention was taken using the stopwatch on the researcher’s iPhone. Data collection did not begin until students had watched the video modeling video in its entirety or had a chance to view the visual schedule; however, as the intervention progressed, students took progressively less time to review the visual schedule than it took to watch the video modeling video. As a result, students were able to begin their tasks, return to the visual schedule, check their progress, and then complete the task more quickly. When students used the video modeling video, they had to watch the entire video again to check progress and review information. Even though they were reminded to review the video as needed, students never watched a video a second time. Ultimately, both staff and students reflected that they preferred the visual schedule over the videos because it was more accessible for student use.

Prompting Data

The final research question investigated whether video modeling or a visual schedule was more effective at reducing the number of prompts needed for a student to complete a vocational task. Students referred to the visual schedule when prompted; however, when students were told to revisit the video, they refused. Students independently went back to the visual schedule without being prompted to complete their vocational tasks independently. Many times, students received prompts during the video modeling intervention, but the prompt was to watch the video in its entirety; this was not the case with the visual schedule. Research indicates that when students are given video-modeling prompts, they need fewer prompts from staff in the room and, therefore, can act independently (Cihak et al., 2007); however, there is no current research comparing video modeling and visual schedule when it comes to evaluation most-to-least prompt reduction. In conclusion, both video modeling and visual schedule reduced the amount of prompts each student needed to complete their vocational task, indicating a need for further research.

In conclusion, both interventions were successful in increasing the percentage of tasks completed correctly, reducing the need for adults to prompt students to complete work, and found the correct amount of time for the student and their employer. This was made possible by all stakeholders having a common goal and working together. Development of the task analysis, videos, and printed visual supports were created and viewed by stakeholders. Everyone involved with the research planning and implementing was 100% and believed in the project. This helped the interventions become successful. When developing the task analysis, videos, and visual schedule, all stakeholders were present and each step was talked through for 100% accuracy and understanding. The BASE teachers believed in the project so strongly that they requested and kept the visual schedule and a copy of the videos, as well as the task analysis and check sheet. These interventions changed the way work will be taught in this program.

Ultimately, this study displays that, regardless of disability, students can work with support in forms other than a supportive supervisor or job coach. Students were chosen for this specific vocational program because of their aptitude to perhaps participate in competitive integrated employment and their enjoyment of working. Prior to this study, the BASE site limited students to working one-on-one with an adult; however, results indicate that students do not have to have adult support, as they can learn to complete job tasks successfully with visual schedule or video models. This may be the catalyst for change for students with more significant disabilities in the working world.

Results indicate that the interventions were extremely successful for the participants. It is hypothesized that one of the reasons this intervention was successful was because there was support from all stakeholders. Both BASE teachers were happy to try a new intervention that would help their students become more independent. Both BASE teachers spent time and energy researching and understanding both interventions to increase their abilities to answer student and parent questions. The head custodian at the hospital also spent some time understanding exactly what each intervention was. She was present during some of the interventions and appreciated the way each step was displayed in both pictures and in words. The stakeholders involved in the study determined the intervention was extremely worthwhile and could be replicated not only in other areas of the hospital, but with other jobs and, perhaps, other students and staff who would need this kind of support.

Limitations

When conducting single-subject research, there are several threats to internal validity that may occur. Kellums and Morningstar (2012) identified several potential threats to internal validity that were taken into account in the design and implementation of this study, including history, selection biases, methods, and work environment. The Institution of Education Sciences (IES) *What Works Clearinghouse* has identified that five data points should be collected to ensure mastery of task to criteria (90% or higher for this study); this study only collected three data points to assess mastery of task (U.S.D.E).

Outside events or former training may influence the results of the intervention. Neither Daniel nor Wyatt participated in all three of the vocational tasks because they had participated in previous training of vacuuming and were able to complete the task of vacuuming a rug to 90% steps correct with no prompts and within five minutes during baseline. An attempt to control for outside training was made by speaking with the BASE teachers, students' parents, and BASE paraprofessionals, asking them not to provide any other training to the vocational tasks during the study.

Another limitation was that only male students were included in the study. This particular BASE site has female students; however, these students did not attend summer school during the session in which the intervention occurred. The lack of female representation should be considered when looking at the results of this study. It is possible that preference for learning can be dependent upon gender.

One of the limitations to the study was the use of an alternating treatment design. An advantage of this design is the omission of collecting baseline data and the ability to make a direct comparison to different interventions; however, it was unclear as to whether one intervention was better than the other because of the quick change and the strong possibility that one might influence the other.

This research took place in an active work environment. As a result, there were many times when students were interrupted in their vocational tasks because of outside, unexpected changes in the environment. For example, a rug being vacuumed was directly in front of a doorway or an elevator where a person needed to walk. NRH is the psychiatric hub for this urban midwestern city; therefore, there were always people not related to the research study in the students' work area. Many times, there were psychiatric patients or persons in the lobby that would try to engage students and researchers in conversation during periods of intervention. This situation was very distracting for students; however, the goal of competitive integrated employment is being able to complete one's job or vocational task in the public environment, and so this experience could be considered authentic in terms of teaching students to complete tasks when competing factors are present.

This study also used a controlled population consisting of students who had been previously selected for the BASE program. These students were handpicked from the largest school district in the state. Students who were not expected to be successful did not participate. This could be one reason the intervention was so successful, as the students were chosen because success was probable. It would be interesting to attempt the same intervention with a general population of students with ID and ASD. Class sizes are limited to ten students, which means they have a lot of support with limited class size and at least one teacher and paraprofessional per site, and these students and their families support their goals of competitive integrated employment.

Finally, the use of video modeling instead of prompting could be considered a limitation. Students did not use the videos to their full capacity because they could not skip through videos to the exact step for which they needed prompting. Had the intervention used video prompting, allowing students to access a menu in which they could select a video prompt for the specific step needed to complete their task, significantly cutting time from one to two minutes to a few seconds. Students responded better to the visual schedule because of its ease of use. The video modeling video may have been punishing because of the time needed, and students did not want to watch it just to check for correctness of one step.

Implications for Future Research

Future research should include probes of the participants to see if they retained any of the skills learned during the summer school session. Additionally, it would be beneficial to determine whether students were able to generalize learned skills into other settings that were not included in the study; for example, after learning to wipe down tables in the NRH, the student is able to wipe down tables in a fast-food restaurant. This would confirm that the student has expanded his repertoire of skills and is capable of generalization to other environments. Future research on the effectiveness of visual schedules should occur in order to determine whether students can learn a vocational task more quickly after learning how to use a visual schedule.

Teachers in the BASE program or in the classroom should use video modeling and visual schedules to see if the intervention creates a higher level of independence for their students not only in the educational setting, but also in the work setting. Additionally, work programs should research if these methods would work for their program in their settings and perhaps with different devices, such as a handheld visual schedule or an iPhone.

Using video modeling or visual schedule in classrooms should be further explored. Many teachers use a visual schedule to show students the agenda for their days; however, future research needs to go further. In collaboration with stakeholders in the study, it was determined that future studies may consider the creation of binders for other simple tasks around the site that could be completed by students more independently. Teachers could be using visual schedules or video models for everyday tasks in classrooms. For example, if the student is learning how to put clothes in the washing machine, there could be a video or visual schedule created for that task.

Student ability to generalize the skill of using a video model or visual schedule to complete tasks demands further exploration. Expanding the use of these two tools could make a difference in the lives of students, their families, and their future employers.

As a researcher, I was excited to obtain and interpret the results of this study, but I was left with questions. I would like to revisit these students to see if they were able to maintain the level of work achieved in the study and to ascertain whether they were able to use or will use skills learned in the intervention in the future. I would also like to explore the idea of making a visual schedule in a pocket-sized format, which would list task steps on small, laminated cards with pictures on one side and instructions on the other on a small keyring. I would also like to add to the research being completed on comparing video modeling and video prompting.

Conclusion

Students with moderate to severe disabilities can be competitively integrated employed if they are taught how to use different instruments to make their jobs more attainable. Using a video model or a visual schedule can help students succeed in competitive integrated employment. The results of this study indicate that when students are taught to use tools, they can work with little-to-no adult support, a barrier that has prohibited the addition of more BASE staff at the study site. If we support students in their efforts to gain the skills they need and to advance from adult to support to individual competitive integrated employment, the BASE program could impact more lives and help change the landscape of the working world.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA.

Americans with Disabilities Act National Network. (2015). *An overview of the Americans with Disabilities Act.* Retrieved from https://adata.org/factsheet/ADA-overview

Arndt, S. A., Konrad, M., & Test, D. W. (2006). Effects of the self-directed IEP on student participation in planning meetings. *Remedial and Special Education, 27,* 194-207.

Baer, R. M., Flexer, R. W., Beck, S., Amstutz, N., Hoffman, L., Brothers, J., Stelzer, D., & Zechman, C. (2003). A collaborative followup study on transition service utilization and post school outcomes. *Career Development for Exceptional Individuals, 26,* 7-25.

Baio, J. (2018). Prevalence of autism disorder among children aged 8 years. *Autism and Developmental Disabilities Monitoring Network*, United States, 2014. Retrieved from https://www.cdc.gov.mmwr/volumes/67/ss/ss6706al.htm?s_cid=ss6706a1_w

Bandura, A. (1977). Social learning theory. Upper Saddle River, NJ: Prentice Hall.

Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorders. Exceptional Children, 73(3), 264-287.

Benz, M. R., Lindstrom, L., & Yovanoff, P. (2000). Improving graduation and employment outcomes of students with disabilities: Predictive factors and student perspectives. *Exceptional Children, 66,* 509-529.

Benz, M. R., Yovanoff, P., & Doren, B. (1997). School-to-work components that predict postschool success for students with and without disabilities. *Exceptional Children, 63,* 151-165.

Bidwell, M. A., & Rehfeldt, R. A. (2004). Using video modeling to teach a domestic skill with an embedded social skill to adults with severe mental retardation. *Behavioral Interventions, 19,* 263-274.

Blalock, G., Kochhar-Bryant, C. A., Test, D. W., Kohler, P., White, W., Lehmann, J., Bassett, D., Patton, J. (2003). The Need for Comprehensive Personnel Preparation in Transition and Career Development: A Position Statement of the Division on Career Development and Transition. *Career Development for Exceptional Individuals, 26, 207-226.*

Blackorby, J., & Wagner, M. (1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the national longitudinal transition study. *Exceptional Children, 66,* 509-529.

Boyle, C. A, & Lary, J. M. (1991). Prevalence of selected developmental disabilities in children 3-10 years of age: The Metropolitan Atlanta Developmental Disabilities Surveillance Program. *Morbidity and Mortality Weekly Report, 45,* 1-14.

Brouck, E. C. (2011). A snapshot of secondary education for students with mild intellectual disabilities. *Education and Training in Autism & Developmental Disabilities, 46,* 399-409.

Bureau of Labor Statistics. (2012, January 6). *News release: The employment situation December 2011*. Bureau of Labor Statistics, U.S. Department of Labor. Retrieved from http://www.bls.gov/news.relsease/pdf/empsit.pdf

Camp, B. W., Broman, S. H., Nichols, P. L., & Leff, M. (1998). Maternal and neonatal risk factors for mental retardation: Defining the “at-risk” child. *Early Human Development, 50,* 159-173.

Cannella-Malone, H. I., Fleming, C., Chung, Y., Wheeler, G. M., Basbagill, A. R., & Singh, A. H. (2011). Teaching daily living skills to seven individuals with severe developmental disabilities: A comparison of video prompting to video modeling. *Positive Behavior Interventions, 13,* 144-153.

Carnett, A., Raulston, T., Lang, R., Tostanoski, A., Lee, A., Sigafoos, J., Machalicek, W. (2014). Effects of a Perseverative Interest-Based Token Economy on Challenging and On-Task Behavior in a Child with Autism. Journal Behavior Education, 23, 368-377.

Carter, E. W., Austin, D., & Trainor, A. A. (2012). Predictors of postschool employment outcomes for youth adults with severe disabilities. *Disability Policy Studies, 23,* 50-63.

Carter, E. W., Ditchman, N., Sun, Y. Trainor, A., Swedeen, B., & Ownes, L. (2010). Summer employment and community experiences of transition age youth with severe disabilities. *Exceptional Children, 76,* 196-212.

Carter, E. W., Trainor, A. A., Ditchman, N., Swedeen, B., & Ownes, L. (2011). Community-based summer work experience of adolescents with high-incidence disabilities. *Special Education, 45,* 89-103.

Centers for Disease Control and Prevention. (2014). Prevalence of autism spectrum disorder among children aged 8 years-autism and developmental disabilities monitoring network, 11 sites, United States, 2010. *Morbidity and Mortality Weekly Report: Surveillance Summaries, 63,* 1-24.

Chadsey-Rusch, J., Rusch, F. R., & O'Reilly, M. F. (1991) Transition from school to integrated communities. *Remedial and Special Education, 12,* 23-33.

Chiang, H. M., Cheung, Y. K., & Tsai, L. Y. (2013). Factors associated with participation in employment for high school leavers with autism. *Autism and Developmental Disorders, 43,* 1832-1842.

Certo, N. J., & Luecking, R. G. (2011). Transition and employment: Reflections from a 40 year perspective. *Vocational Rehabilitation, 35,* 157-161.

Charlop, M. H., & Milstein, J. P. (1989). Teaching autistic children conversational speech using video modeling. *Applied Behavior Analysis, 2,* 275-285.

Cihak, D., Alberto, P. A., Taber-Daughty, T., & Gama, R. I. (2007). A comparison of static picture prompting and video prompting simulation strategies using group instructional procedures. *Focus on Autism and Other Developmental Disabilities, 21,* 89-99.

Cooper, B. P., Heron, T. E., & Heward, W. L. (2007). *Applied Behavior Analysis.* Pearson.

Coogan, P. A., & Chen, C. P. (2007). Career development and counseling for women: Connecting theories to practice. *Counseling Psychology Quarterly, 20,* 191-204.

D'Ateno, P., Mangiapanello, K., & Taylor, B. A. (2003). Using video modeling to teach complex play sequences to a preschooler with autism. *Positive Behavior Interventions 5,* 5-11.

Davies, D. M., Stock, S., & Wehmeyer, M. L. (2002). Enhancing independent task performance for individuals with mental retardation through use of a handheld self-directed visual and audio prompting system. *Education and Training in Mental Retardation and Developmental Disabilities, 37,* 209-218.

Decker, P. T., and Berk, J.A. (2011). Ten years of the workforce investment act (WIA): Interpreting the research on WIA and related programs. *Policy Analysis and Management, 30,* 906-926.

Delano, M. (2007). Video modeling intervention for individuals with autism. *Remedial and Special Education, 28, 33-42.*

Edgar, E. (1987). Secondary programs in special education: Are many of them justifiable? *Exceptional Children, 53,* 555-561.

Fabian, E. S. (2007). Urban Youth with Disabilities: Factors Affecting Transition Employment. *Rehabilitation Counseling Bulleting, 50, 130-138.*

Gast, D. L., & Ledford, J. R. (2014). *Single case research methodology: Applications in special education and behavioral sciences*. Taylor and Francis.

Getzel, E. E., & Thoma, C. A. (2008). Experiences of college students with disabilities and the importance of self-determination in high education settings. *Career Development for Exceptional Individuals, 31,* 77-84.

Gold, P. B., Fabian, E. S., & Luecking, R. G. (2013). Job acquisition by urban youth with disabilities transitioning from school to work. *Rehabilitation Counseling Bulletin, 51,* 31-45.

Geenen, S., Powers, L., & Lopez-Vasquez, A. (2001). Multicultural aspects of parent involvement in transition planning. *Exceptional Children, 67, 265—282.*

Griffin, M. M., Taylor, J. L., Urbano, R. C., & Hodapp, R. M. (2013). Involvement in transition planning meetings among high school students with autism spectrum disorders. *Special Education, 47,* 256-264.

Grigal, M., Hart, D., & Migliore, A. (2011). Comparing the transition planning, postsecondary education, and employment outcomes of students with intellectual and other disabilities. *Career Development for Exceptional Individuals, 34,* 4-17.

Halpern, A. S., Yovanoff, P., Doren, B., Benz, M. R. (1995). Predicting participation in postsecondary education for school leavers with disabilities. *Exceptional Children, 62,* 151-164.

Hasazi, S. B., Gordon, L. R., & Roe, C. A. (1985). Factors associated with the employment status of handicapped youth exiting high school from 1979-1983. *Exceptional Children, 51,* 455-469.

Hasazi, S. B., Johnson, R. E., Hasazi, J. E., Gordon, L. R., & Hull, M. (1989). Employment of youth with and without handicaps following high school: Outcomes and correlates. *Special Education 23,* 243-255.

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71*(2), 165-179.

Hutchins, B. C., & Akos, P. (2013) Rural high school youth's access to and use school-to work programs. *Career Development Quarterly, 61,* 210-225.

Individuals with Disabilities Education Act, 20 U.S.C. 1401 *et seq.* (2004).

Kazdin A. E. (1982). Single-case research designs. Methods for clinical and applied settings. Oxford University Press. New York.

Kellems, R. O., & Morningstar, M. E. (2012). Using video modeling delivered through iPods to teach vocational tasks to young adults with autism spectrum disorders. *Career Development and Transition for Exceptional Individuals, 35,* 155-167.

Kellems, R. O., Mourra, K., Morgan, N. A, Riesin, R. L., Riesen, T., Glasgow, M., & Huddleston, R. (2016). Video modeling and prompting in practice: Teaching cooking skills. *Career Development and Transition for Exceptional Individuals, 39,* 185-190.

Kohler, P. D. (1996) *Taxonomy for transition programming: A model for planning, organizing, and evaluating transition education, services, and programs.* Champaign, IL: University of Illinois. Retrieved from http://www.nssed.org/wp-content/uploads/2011/10/Taxonomy.pdf

Lancioni, G. E., & O'Reilly, M. F. (2002). Teaching food preparation skills to people with intellectual disabilities: A literature overview. *Applied Research in Intellectual Disabilities, 15*, 236–253.

Lasater, M. W., & Brady, M. P. (1995). Effects of video self-modeling and feedback on task fluency: A home-based intervention. *Education and Treatment of Children, 18,* 389-407.

LeGrice, B., & Blampied, N. M. (1994). Training pupils with intellectual disability to operate educational technology using video prompting. *Education and Training in Mental Retardation and Developmental Disabilities, 29,* 321-330.

Lindstrom, L., Doren, B., & Miesch, J. (2011) Waging a living: Career development and long-term employment outcomes for youth adults with disabilities. *Exceptional Children, 77,* 423-434.

Mason, R. A., Davis H. S., Boles, M. B., Goodwyn, F. (2013). Efficacy of Point-of-View Video Modeling: A Meta-Analysis. *Remedial and Special Education, 34, 333-345.*

Martin, J. E., Marshall, L. H., Maxson, L. M., & Jerman, P., L. (2016) *The self-directed IEP* (3rd ed.). Retrieved from http://www.ou.edu/content/education/centers-and-partnerships/zarrow/choicemaker-curriculum/self-directed-iep.html

Mazzotti, V. L., Kelley, K. R., & Coco, C. M. (2015). Effects of self-directed summary of performance on postsecondary education students' participation in person-centered planning meetings. *Special Education 48,* 243-255.

Mazzotti, V. L., Test, D. W., & Mustian, A. L. (2014). Secondary transition evidence-based practices and predictors: Implications for policymakers. *Disability Policy Study, 25,* 5-18.

McConnell, A. E., Martin, J. E., Juan, C. Y., Hennessey, M. N., Terry, R. A., El-Kazimi, N. A., Pannells, T. C., & Willis, D.M. (2012). Identifying nonacademic behaviors associated with post-school employment and education. *Career Development and Transition for Exceptional Individuals, 36*, 174-187. doi: 10.1177/2165143412468147

McDonnall, M. C. (2010). Factors predicting post-high school reemployment for young adults with visual impairments. *Rehabilitation Counseling Bulletin, 54,* 36-45.

McDonnall, M. C., Crudden, A., Steversn, A. (2018) Impact of Workforce Innovation and Opportunity Act Changes on Agencies Serving Consumers with Blindness and Low Vision. *Journal of Rehabilitation, 84, 39-45.*

Mechling, L.C., Ayres, K.M., Bryant, K.J. & Foster, A.L. (2014). Comparison of the Effects of Continuous Video Modeling, Video Prompting, and Video Modeling on Task Completion by Young Adults with Moderate Intellectual Disability. *Education and Training in Autism and Developmental Disabilities, 49*, 491-504.

Morgan, R. L & Openshaw, K. P. (2011). Targeted transition assessment leading to job placement for young adults with disabilities in rural areas. *Rural Special Education Quarterly, 30,* 28-31.

Newman, L., Wagner, M., Knokey, A-M., Marder, C., Nagle, K., Shaver, D., Wei, X., Cameto, R., Contreras, E., Ferguson, K., Greene, S., & Schwarting, M. (2011). *The post high school outcomes of young adults with disabilities up to 8 years after high school. A report for the National Longitudinal Transition Study-2.* (NLTS2) (NCSER 2011-3005) (NCSER 2001). Menlo Park, CA: SRI International.

Norman, J. M. Collins, B. C. & Schuster, J. W. (2001). Using an instructional package including video technology to each teach self-help skills to elementary students with mental disabilities. *Journal of Special Education, 16,* 5-18.

Papay, C. K., & Bambara, L. M. (2014). Best practices in transition to adult life for youth with intellectual disabilities. *Career Developmental and Transition for Exception Individuals, 37,*136-148.

Rabren, K., Dunn, C., & Chambers, D. (2002). Predictors of post-high school employment among youth adults with disabilities. *Career Development for Exceptional Individuals, 25*, 25-40.

Rayner, C. 2011. Teaching students with autism to tie a shoelace knot using video prompting and backward chaining. *Developmental Neurorehabilitation,* 14,339-347.

Rehfeldt, R. A., Dahman, D., Young, A., Cherry, H., & Davis, P. (2003). Teaching a simple, meal preparation skill to adults with severe and mental retardation using video modeling. *Behavioral Intervention, 18,* 209-218.

Richards, A. M. (2004). Rural transition: Knows no bounds. *Rural Special Education Quarterly, 23*, 36-40.

Roessler, R. T., Brolin, D. E., & Johnson, J. M. (1990). Factors affecting employment success and quality of life: A one year follow-up of students in supported employment. *Career Development for Exceptional Individuals, 13,* 94-107.

Roux, A. M., Shattuck, P. T., Cooper, B. P., Anderson, K. A., Wagner, M., & Nareendorf, S. C. (2013). Postsecondary employment experiences among youth adults with an autism spectrum disorder. *Journal of the American Academy of Child & Adolescent Psychiatry, 52,* 931-939.

Satsangi, R., Bouck, E. C., Taber-Doughy, T., Bofferding, L., Robets, C A. (2016). Comparing the Effectiveness of Virtual and Concrete Manipulatives to Teach Algebra to Secondary Students With Learning Disabilities. *Learning Disability Quartley, 39, 240-253*

Siegel, S., Robert, M., Waxman, M., and Gaylord-Ross, R. (1992). A follow-along study of participants in a longitudinal transition program for youths with mild disabilities. *Expectational Child, 58,* 346-356.

Sigafoos, J., O'Reilly, M., & de la Cruz, B. (2007). How to use video modeling and video prompting. Austin, TX: Pro-Ed.

Simpson, R. L. (2003). Policy-related research issues and perspectives. Focus on Autism and Other Developmental Disabilities, 18, 192-196.

Sitlington, P. L., Frank, A. R., & Carson, R. (1992). Adult adjustment among high school graduates with mild disabilities. *Exceptional Children, 59,* 221-233.

Shandra, C. L, & Hogan, D. P. (2008). School-to-work program participation and the post-high school employment of young adults with disabilities. *Journal of Vocational Rehabilitation, 29,* 117-130.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Rifenbark, G. G., & Littler, T.D. (2015). Relationships between self-determination and post school outcomes for youth with disabilities. *The Journal of Special Education, 48, 256*-267.

Sitlington, P. L., Frank, A. R., & Carson, R. (1992). Adult adjustment among high school graduates with mild disabilities. *Exceptional Children, 59,* 221-233.

Smith, T. J., Dillahunt-Aspillaga, C. J., & Kennery, R. M. (2017). Implementation of customized employment provisions of the Workforce Innovation and Opportunity Act within

Suk, A. L., Martin, J. E., McConnell, A. E., & Biles, T. L. (2018). *States decrease the age when secondary transition planning must begin.* Manuscript submitted for publication.

Szidon, K., & Franzone, E. (2009). Task Analysis. Madison, WI: National Professional Development Center on Autism Spectrum Disorders, Waisman Center, University of Wisconsin.

Test, D. W., Mason, C., Hughes, C., Konrad, M. Neale, M., & Wood, W. M. (2004). Student involvement in individualized education program meetings. *Exceptional Children, 70,* 391-412.

Test, D. W., Mazzotti, V. L., & Mustian, A. L., (2012). Leadership for transition to post-secondary settings. *The handbook of leadership and administration for special education.* New York, NY: Routledge.

Test, D. W., Mazzotti, V. L., Mustian, A. L., Fowler, C. H., Kortering, L., & Kohler, P. (2009). Evidence-based secondary transition predictors for improving postschool outcomes for students with disabilities. *Career Development for Exceptional Individuals, 32,* 160-181.

Thelen, M. H., Fry, R. A., Fehrenbach, P. A., & Frautschi, N. M. (1979). Therapeutic videotape and film modeling: A review. *Psychological Bulletin, 86, 701–720.* doi.org/10.1037/0033-2909.86.4.701

Trainor, A. A., Morningstar, M. E., & Murray, A. (2016). Characteristics of transition planning and services for students with high-incidence disabilities. *Learning Disability Quarterly, 39,* 113-124.

U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse. Early Childhood Education [Internet]. Cited 2020 April 9th. Available from: http://ies.ed.gov/ncee/wwc/topic.aspx?sid=4

U. S. Department of Education, Office of Special Education and Rehabilitative Services. (2018). *A Transition guide to postsecondary education and employment for students and youth with disabilities.* Washington, D. C.: U. S. Department of Education.

Van Laarhoven, T., Johnson, J. W., Van Laarhoeven-Myers T., Grider, K. L., Grider, K. M. (2018). The Effectiveness of Using a Video iPod as a Prompting Device in Employment Settings. *Journal of Behavioral Education, 18, 119-141*.

Wagner, M., Newman, L., & Javitz, H. S. (2016). The benefits of high school career and technical education (CTE) for youth with learning disabilities. *Journal of Learning Disabilities, 49,* 658-670.

Wehman, P., Kregel, J., & Barcus, J. M. (1985). From school to work: A vocational transition model for handicapped students. *Exceptional Children*, *52,* 25-37.

Wehman, P., Schall, C., McDonough, J., Molinelli, A., Riehle, E., Ham, W., & Thiss, W. R. (2012). Project SEARCH for youth with autism spectrum disorders: Increasing competitive employment on transition from high school. *Journal of Positive Behavior Interventions*, *20,* 1-12. doi: 10.1177/1098300712459760

Wehmeyer, M. L., & Webb, K. W. (Eds). (2012). *Handbook of adolescent transition education for youth with disabilities*. New York: Routledge.

Wehmeyer, M. L., & Schwartz, M. (1997). Self-determination and positive adult outcomes: A follow-up study of youth with mental retardation or learning disabilities. *Exceptional Children, 63,* 245-255.

Wolery, M., & Gast, D. L. (1984). Effective and efficient procedures for the transfer of stimulus control. *Topics in Early Childhood Special Education*, *4***,** 52–77.

Wu, P. F., Cannella-Malone, H. I., Wheaton, J. E., & Tullis, C. A. (2016). Using video prompting with different fading procedures to teach daily living skills: A preliminary examination. *Focus on Autism and Other Developmental Disabilities, 31*, 129-139.

Zablotsky B, Black, LI, Blumberg, S.J. (2017). Estimated prevalence of children with diagnosed developmental disabilities in the United States, 2014–2016. NCHS Data Brief, no 291. Hyattsville, MD.

Appendix A

B.A.S.E. PROJECT REFERRAL FORM

Student Name: ______________________________

Referring Teacher/Case manager: ______________________________

School: ________ CHS ________ GHS ________ HHS ________ KHS ________ PHS

Attendance: ________ %

Discipline: _____ # of incidents this year _____ OSS _____ ISS Does their behavior impact their participation? ___ YES ___ NO

Health: Does the student have a significant health concern they are not able to independently manage? __ YES __ NO

If so, what is the specific health concern? ______________________________

Currently attending class daily? ____ YES ____ NO

Student's postsecondary area of interest for employment: ______________________________

Please fill out the following to the best of your ability, accurately reflecting the skills and abilities of the student. We expect areas where there are low scores. This will not prevent a student from being considered for B.A.S.E. This isn't something to agonize over, it just gives us a better idea of which site(s) we will be looking at for potential placement.

Employability Skills Assessment

Basic Skills				
	1 Needs Work	2 Can do OK	3 Pretty Good at This	4 Very Able
Speak	Speaks clearly so others can hear. Respect others with their words.	Speaks clearly and use words that are right for the time and place.	Discusses complex ideas in an organized and brief way.	Presents to a group and use well-organized format, the right words and clear speech.
Listen	Developing listening skills; works to make eye contact and make sure others understand.	Listens carefully; make eye contact; repeat instructions to make sure that they understand.	Listens carefully and show that they understand by answering questions well.	Keeps complex information in their mind over time and apply it to their studies.
Read	Reads written directions and school materials with assistance.	Reads written directions and school materials on their own.	Reads and understands written materials, and science and technical material on their own; ask questions where appropriate.	Read difficult material and do the tasks that go with it, on their own.
Write	Learning to write clearly with correct grammar. Can write demographic information with assistance.	Writes information in a clear, logical, legible, and correct manner.	Writes clearly using course related terms.	Writes and develops term papers, newsletters and other important papers.
Math	Able to perform basic math (time, money, add, subtract,	Able to perform basic math independently.	Interpret and apply math and use tables,	Present math explanations using

	multiply divide) with help.		graphs, diagrams, and charts as needed.	tables, graphs, diagrams, or charts.
Thinking Skills				
Combine ideas or information in new ways	Put thoughts together with help from a teacher.	Put thoughts together with occasional help from a teacher.	Put thoughts together independently.	Make judgements about ideas. Think about abstract ideas.
Make decisions	Make decisions with help from a teacher.	Make decisions with occasional help from a teacher.	Make decisions independently.	Make multiple decisions, weigh risks and benefits.
Identify and solve problems	Identify problems with help from a teacher.	Identify and solve problems independently.	Explore cause of problems and options with others when solving problems.	Be a leader when finding creative solutions and system changes to become more efficient or productive.
Foundation Skills				
Attendance and appearance	Has fair attendance, is on time, and follows dress code with assistance.	Has acceptable attendance and appearance without help from others. Is punctual.	Has excellent attendance and dress.	Represents school at meetings and school events, displaying excellent attendance and dress.
Manage myself	Completes tasks and projects assigned by teacher with assistance.	Completes tasks and projects assigned by the teacher, independently.	Starts and completes projects independently.	Delivers high-quality school work with due.
Accept direction and criticism	Learning to accept directions.	Accepts direction with a positive attitude.	Accepts criticism with a positive attitude.	Accepts and applies criticism to improve their work.
Honest and trustworthy	Keeps private information to their self with assistance.	Keep private information to their self without help.	Can be trusted. Shows honesty and understands why certain information must be kept private.	Models good decisions about private information and with respect to others.
Resource Management				
Manage time	Meets assigned class deadlines with assistance.	Meets assigned class deadlines independently.	Sets their own priorities and deadlines.	Manages multiple tasks and projects.
Manage money	Manages a budget with assistance.	Manages a budget independently.	Helps establish a school or family budget and work within it.	Set up and manage a school or family budget.
Interpersonal Skills				
Interact with others	Can talk with others with assistance.	Easily talks with others.	Initiates conversations. Sometimes works on teams. Can talk in front of the class with ease.	Leads other students to complete projects well and on time.
Interact with people who may be difficult	Knows how and went to ask for help with difficult people and situations.	Can deal with difficult people and situations.	Can fix problems with difficult people/situations independently.	Prevents difficult situations from happening.
Respect people's differences	Understands that people are different and the benefits of this.	Understand the differences and similarities among	Shows that they are good at working with all sorts of people.	Looks for opportunities to work with people different from themselves.

		people and appreciates these.		
Information Management				
Collect and organize information	Learning to collect and organize information and materials needed for school.	Good at putting information and materials together in clear and readable format.	Organizes and considers information for a paper or other presentation.	Identifies and finds missing information based on knowing a subject well.
Interpret and communicate information	Select the right information with occasional assistance.	Analyzes information in an organized way.	Analyzes information and communicate it in a brief way.	Presents information to a group using an organized format, brief language and speaks clearly.
Systems				
Recognize health and safety issues	Is careful and safe at school. Makes healthy food choices with some help.	Follows safety procedures on my own. Reports unsafe activity to a leader or teacher.	Recognizes the importance of being safe and healthy at school. Uses these skills in other situations.	Sets an example of good health and safety practices. Helps others to understand how important these are.
Understand school policy and laws	Learning school policies and laws.	Understands school policies and relevant laws.	Obeys school policies and understands their impact on others.	Understands school policies and their impact on the school; contributes to a positive school climate.
Technology				
Select tools and procedures	Able to use procedures, tools and computers with supervision.	Able to use procedures, tools and computers with minimal supervision.	Able to use procedures, tools and computers independently.	Able to decide which procedures, tools and computers to use and at the right times.
Apply technology to task	Can identify problems related to technology with supervision.	Can identify problems that relate to technology with minimal supervision.	Can identify the right technology and use it to prevent problems.	Uses technology correctly to identify, prevent and solve problems.

Miscellaneous				
Navigate the environment	Can navigate the building with assistance. Needs assistance with breakfast/lunch.	Can navigate the building independently, including cafeteria during meals.	Can navigate the surrounding neighborhood independently.	Navigates the community independently and understands how to access resources.
Hygiene	Displays good hygiene and grooming, with assistance.	Has acceptable hygiene. Is independent with grooming.	Has good hygiene.	Has excellent hygiene.
Behavior	Can self-regulate moods and behavior with assistance.	Self-regulates moods and behavior independently.	Uses strategies to deal with emotions or situations that are difficult.	Exemplary behavior and mood. Model of self-regulation.