UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

HOW AM I DOING? THE ROLE OF SELF-EVALUATION IN AN AUTHENTIC WORK SETTING FOR INDIVIDUALS WITH A DEVELOPMENTAL DISABILITY

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

By

TRACY EILEEN SINCLAIR
Norman, Oklahoma
2020

HOW AM I DOING? THE ROLE OF SELF-EVALUATION IN AN AUTHENTIC WORK SETTING FOR INDIVIDUALS WITH A DEVELOPMENTAL DISABILITY

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

BY THE COMMITTEE CONSISTING OF

Dr. Kendra Williams-Diehm, Chair

Dr. R. Nicolle Carr

Dr. Emily Kuntz

Dr. Lara Mayeux

DEDICATION

I was once asked in a job interview what makes me happy. The question had nothing to do with the potential position at the university, but had everything to do with why I have pursued my doctoral degree: my family—Kip, Evie, and Kai. We had a good life before I asked them to uproot everything and begin this journey. I cannot express how much I appreciate the support and love from my husband Kip for being willing to leap with me and take steps to make a *great* life for our family. This process has not been easy, and my family has sacrificed so much to support me. It is difficult to even begin to quantify how I feel about them. When Evie and Kai grow up, I want them to know there is no limit to what they can achieve. I only hope that my pursuit shows them this. I love you all beyond words. Thank you for not only joining me on this adventure, but bringing me joy, love, and laughter throughout.

To my mom, Kristin DesJardin, you are the strongest woman I know. I admire you, and aspire to be half the mom you are. Thank you for your unending support, willingness to get on an airplane to be here for me, and for your fierce love. Daniel DesJardin, Dad, you always told me I can do whatever I want, and to never let someone tell me otherwise. To my siblings, Nate and Andy, thank you for always being my "big" little brothers and taking care of me. I am lucky to call you brothers. To my extended family, all my aunties, uncles, and cousins—I have always felt your support from across the country. I can't wait to celebrate this accomplishment with you at a cabin on a lake in the sun—hopefully I'll have more than a walk-in closet to sleep in next time.

Students I have taught throughout my public school career are a continual source of inspiration to me. I will honor you by helping to develop future educators dedicated to

supporting students of all abilities. I will forever be a teacher, and promise to never lose the connection to the classroom.

How fast four years have gone by. In this time there have been many late nights, long papers, hints of self-doubt, sharing of knowledge, teacher strikes, moments of personal triumph, swimming in proximity to sharks, arduous exams, traveling across the globe, exponential learning, an international pandemic, emails at 3:30 a.m., laughter, tears, and smiles—so many smiles. To everyone who has had a hand in my adventure along the way I say thank you.

To my husband Kip, I am in awe of how much you believe in me. To my children, Evie and Kai, whatever you desire, you can do it. There are no bounds to the heights you can soar in your life. Mommy loves you, and I promise you will always be my reason why.

ACKNOWLEDGEMENTS

I would first like to thank Dr. Kendra Williams-Diehm. When I applied for the doctoral program at OU I was not initially selected for the Sooner Scholar scholarship, but Kendra saw something in me that made her fight to get me to OU. As a result of her tenacity and support, I was named a Dean's Fellow—the first in the Special Education department. From my first day on campus, Kendra has supported me in innumerable ways, has been my champion, and has developed into far more than my academic advisor. Thank you for always having the faith in me when I didn't.

While I wasn't selected for the grant; the OU Zarrow Center welcomed me into the fold. To Dr. Jim Martin and Dr. Amber McConnell, working with you was an honor. Your mentorship and advisement was top notch, and I believe I will be a stronger academic from your support. When talking about the Zarrow Center I would be remiss to not speak about the one person who is the glue, foundation, and heart—Ms. Donna Willis. From her professional edits to her kind, compassionate nature, Donna is an exemplar human. You have been a source of support, laughter, commiseration, and love throughout my doctoral program. I will miss you and your warm smile.

Being part of the Zarrow Center has been a highlight of my academic career. The Sooner Scholar's cohort will always hold a special place in my heart, and I know I have forged forever friendships. To the resident mama bear—Mindy Lingo—you always see the very best in everyone. Your optimism and smile are infectious. Joshua Pulos—for always being ready to make me laugh and be everyone's cheerleader. I can always count on you to help me see beyond my insecurities. Andrea Suk—I will forever admire your willingness to stand up for what you believe. I have been the recipient of your fierce loyalty and passion, and am grateful. Heather

Eisel—we may have only had a short time to work together, but we will forever be friends and colleagues. I can't wait to continue to support your journey to becoming a BCBA. And finally, to my girls Malarie Deardorff and Belkis Choiseul-Praslin—conferences will never be the same without my roommates. There is no way to express how much I cherish our friendship; I love you both in all the ways.

Part of my journey at OU was becoming a BCBA. My first supervisor, Dr. R. Nicolle Carr, taught me how a good supervisor operates and how to stand up for myself and those I serve. Your no-nonsense attitude and approach has made you a favorite part of my Oklahoma life. I am lucky to have had you work with me professionally, and I am even luckier to know you personally. I can only hope to be a fraction of the bad-ass BCBA you are.

To the rest of my dissertation committee, Dr. Lara Mayeux and Dr. Emily Kuntz, I am grateful for your support and advice. Receiving guidance from a powerful group of female advisors made this process all the better. As I move on in my career I hope to advise future graduate students with your same professionalism, constructive support, and kindness.

To my favorite professional power couple: Dr. Ron Martella and Dr. Nancy Marchand-Martella, I am forever grateful for your support and guidance. Ron, you have been an incredible mentor, and I look forward to our future collaborations. Nancy, you exemplify the power of positive reinforcement, and I am so thankful to have learned countless leadership lessons from you.

To the undergraduate and graduate students I have taught and supervised throughout my program—you have all made me a better instructor, and I thank you for that. It has been my honor to serve you during your academic career at OU.

Finally, to the JRCOE Educational Psychology department, thank you for your faith in my abilities as an instructor and graduate student scholar. To the Special Education faculty—I have always felt supported and included. A special shout out to Dr. Corey Peltier for jumping in as a new faculty member and including and supporting me when you didn't even have to.

To everyone who has supported me along the way I am forever grateful. I only hope I can provide my future students the level of guidance and encouragement I have received.

ABSTRACT

Individuals with an intellectual or developmental disability experience poorer postsecondary outcomes compared to same-age peers. Research identified barriers to employment include soft skills. This single case study examined the application of self-evaluation to employable soft skill behaviors for three individuals with an intellectual or developmental disability. Technology was integrated into the evaluation process to increase efficiency. All participants worked in a Project SEARCH site for the majority of their school day fully immersed in an authentic work experience program. This study explored the effect of self-evaluation on a self-selected target employable soft skill behavior, how closely student self-evaluation scores matched with job coach evaluation scores, and the potential relation to self-determination. Data collection were halted due to the COVID-19 pandemic; however, results demonstrated self-evaluation may be a promising practice applied to employable soft skills. As students participated in the self-evaluation intervention, their target behaviors increased, and scores began to trend similarly to the job coach evaluation scores. Social validity evaluation showed key stakeholders felt the intervention was useful, easy to implement, and an important skill to learn to improve self-determined behaviors. Findings from this study provide practitioners with a practical, easy to incorporate strategy within an authentic work experience program.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

The broad purpose of public education is an often-debated topic. Depending on one's perspective, the purpose of education ranges from "creating good democratic citizens" to "passing down the values of American society" to "fostering academic success for all" to "preparing students for life and leisure" and the list continues (Fast, 2016). Regardless of the stakeholder definition of the purpose of education, the reality remains that students participate in the K-12 system for a period of roughly 13-15 years, leaving much of life outside school room walls. With the average life expectancy in 2016 of 78.69 years (World Bank, 2018), 60+ years of an individual's life occurs after formal schooling. To meet the demands of adulthood it is imperative for schools to place an emphasis on supporting skills of transition from high school to postsecondary life, not just academic achievements or success.

Nationally, the graduation rate in the 2015-2016 school year was 84.1% (McFarland et al., 2018). Turning the spotlight onto students with disabilities, the numbers do not look as promising. Thirteen percent of all public school students, 6.7 million individuals aged 3-21, received special education services in 2015-2016 (McFarland et al., 2018). The graduation rate for students with disabilities within the same year was 65.5% (McFarland et al., 2018); almost 20 percentage points lower than the national average. Examining trends in the labor force prove even more dismal. In 2015, individuals aged 25-64 with a disability were significantly less likely to be employed than peers without a disability—27% vs. 77%, employed respectively (McFarland et al., 2018). Results from the National Longitudinal Transition Study-2 further highlighted the discrepancy between individuals with and without disabilities. Newman et al. (2011) found young adults with disabilities were less likely to (a) enroll in postsecondary education (60% vs. 67%), (b) complete that postsecondary education (41% vs. 52%), and (c) live

independently (45% vs. 59%). Furthermore, young adults with disabilities earned a whole dollar *less* than peers without disabilities ($10.40 vs. $11.40) within employment settings (Newman et al., 2011).

A central rite of passage for many adolescents is earning that first paycheck. In fact, for much of society, "getting a job" is equivalent to "becoming an adult". In America, success is often viewed through the employment lens of progressing up the career ladder. Furthermore, one's employment status is tied to quality of life predictors, particularly for individuals with an intellectual or developmental disability (Simões & Santos, 2016). Unfortunately, employment statistics for individuals with disabilities continue to lag behind same-age peers. In 2016, Hiersteiner and colleagues surveyed over 20,000 adults with an intellectual or developmental disability. Only 14.8% of respondents held paid employment, and of those employed a dismal 4.0% were in jobs identified as competitive employment (Hiersteiner et al., 2016).

These statistics highlight the continued disparity to best prepare students with disabilities within educational settings regarding postsecondary outcomes of education, employment, and independent living skills. Students with disabilities are not leaving schools equipped with the tools needed to promote more positive postsecondary outcomes. In response to historically gross inequities between those with and without disabilities, federal legislators responded with a law that dramatically changed the field of education and how disabilities were viewed.

Federal Mandates

The federal department of education was established in 1867. In comparison, formal special education was not established until 1975 with the passage of P. L. 94-142, 108 years later.

Establishment of Special Education Law

Credited as the first special education law, the Education for All Handicapped Children Act of 1975 (EAHCA; P. L. 94-142) established three foundational tenants regarding special education services (a) children with disabilities have a right to a free and appropriate public education, (b) protection for the rights of children and families, and (c) federally-provided financial assistance to states (Yell et al., 2017). Over the next 29 years the EAHCA underwent many changes, including name, finally becoming the Individuals with Disabilities Education Act (IDEA; 1990, 1997, 2004).

IDEA Amendments of 1990

In addition to original language used in EAHCA, major changes included (a) a person-first language focus (marked by the change of name to IDEA and removal of "handicapped children"); (b) recognition of autism and traumatic brain injury as unique disability categories; and (c) addition of transition planning requirements by age of 16 to be included in the individualized education program (IEP; Yell et al., 2017). IDEA (1990) defined transition services as "…as a coordinated set of activities designed with an outcome-oriented process to promote the child's movement from school to postschool activities" (Etscheidt, 2006, p. 28); those outcomes being postsecondary (a) education or training, (b) employment, and (c) independent living. Many saw this as an acknowledgement and attempt to improve postsecondary outcomes for individuals with disabilities who, when compared to same-age peers without disabilities, have poorer outcomes (Blackorby & Wagner, 1996).

IDEA Amendments of 1997

The 1997 round of amendments represented a shift in focus from simply access to education to promoting outcomes of education. Specifically, changes included (a) requirements

for measurable annual IEP goals coupled with progress monitoring and reporting; (b) IEPs must focus on meaningful progress toward educational goals; and (c) disciplinary guidance, such as IEPs including behavior interventions, manifestation determination, protection of FAPE balanced with safe schools, and explicitly addressing problem behaviors in the IEP (Yell et al., 2017).

IDEA Amendments of 2004

The 2004 reauthorization of IDEA remains the current special education law. While Congress felt improvements occurred for students with disabilities, a further focus on educational outcomes embodied IDEA 2004 (Yell et al., 2017). Additional requirements for the IEP process included (a) services based on evidence-based research, (b) eligibility determination expansion beyond the discrepancy model to include Response to Intervention (RTI) models, and (c) up to 15% of IDEA funding could be used for intervention services provided for students at-risk for, but not yet diagnosed with a disability (Yell et al., 2017). Outcomes for youth with disabilities exiting high school settings continued to lag behind peers, even after implementing mandated transition planning in 1990, and resulting IDEA amendments in 2004 changed language from an outcomes-oriented process to results-oriented (Etscheidt, 2006).

The 2004 amendments to IDEA solidified federal expectations of accountability regarding student achievement—a far cry from original mandates simply requiring access. Teachers are now required to utilize research-based instructional methods and strategies under IDEA (2004). The trend of special education law shifted from exclusionary practices to mandated access to public school settings, and finally, to expectations of accountability for students with disabilities progress, achievement, and goals for postsecondary settings. While the trend continues in a positive direction, much more must be done to improve postsecondary

outcomes for students with disabilities. This is particularly imperative in the area of employment, as students with disabilities are more likely to enter the workforce after high school vs. enroll in a postsecondary educational program (Newman et al., 2011).

Employment Barriers

Identification of barriers to postsecondary employment is critical to address the deficits in employment outcomes for students with disabilities compared to peers without disabilities. Riesen et al. (2014) identified 84 barriers across 12 domains ranging from moderate to high impact. Of the 16 high-impact domains, seven were from the domain of student involvement/skills: (a) lack of employment skills (e.g., work completion, task accuracy, punctuality, social skills, self-regulation); (b) lack of self-advocacy/self-determination skills; (c) limited knowledge of how to access community resources; (d) lack of soft skills, (e) lack of meaningful on-the-job training prior to exiting the education system; (f) lack of vocational problem-solving skills, and (g) lack of follow-through with activities and commitments (Riesen et al., 2014). Within the barrier domain of student involvement/skills several fall under the umbrella of soft skills. Arguably, lack of employment skills, lack of self-advocacy/self-determination, lack of vocational problem-solving skills, and lack of follow-through with activities and commitments could also qualify as lack of soft skills. Employers indicate soft skills are as important, and often *more* important, than hard skills when it comes to desirable characteristics of employees (Lindsay et al., 2014: Reisen et al., 2014; Robles, 2012). Further examining the construct of soft skills is warranted. To complicate matters, this construct is defined in multiple ways across and within professional fields, and component skills vary considerably.

Self-Management

There are numerous benefits to using self-management strategies with individuals with disabilities. Most importantly, there is no requirement of particular ability level for use of self-management and, consequently, can be used with students from various disability categories. Individuals engaged in self-management of their own behavior are not solely dependent on an external observer to provide instruction or feedback on each task, and can monitor behaviors outside of the treatment environment in the absence of the external agent (Cooper et al., 2020). Self-management strategies increase the likelihood of generalization of behaviors through the continued use of the intervention independently. Additionally, engaging in self-management skills promotes group benefits—with overall performance improving on average (Cooper et al., 2020). Individuals who use self-management effectively feel more in control of one's life and paradoxically feel freer, and this feels good (Cooper et al., 2020). Recording, evaluating, and reinforcing one's own behavior can serve as powerful motivation to continue to behave in similar ways.

Implementation of self-management programs within work settings has occurred since the 1970's with both adults and transition-age students. Seventy-eight studies used self-management interventions within work settings according to two reviews of research (Harchik et al., 1992; Storey, 2007) and a meta-analytic review (Rusch & Dattilo, 2012). Research specific to self-management skills, secondary students or young adults with disabilities, and work settings is generally focused on job-specific tasks with little emphasis on soft skills required for getting and maintain employment (Agran et al., 2016). Job-specific tasks which served as dependent variables across studies included (a) percent of correct sequences of job task, (b) total time working, (c) work quality, (d) percent of units complete, (e) packaging soup, (f)

sweeping/mopping, (g) emptying trash bins, (h) vacuuming, and many more (Harchik et al., 1992; Rusch & Dattilo, 2012; Storey, 2007). Within these reviews and meta-analysis of literature several employable skills emerged as dependent measures: (a) initiating solutions to problems at work, (b) social skills, (c) appearance, (d) number of positive statements per session, (e) checking out on time, (f) average number of inappropriate belches, and (g) occurrences discussed excessive drinking. Moving beyond the work environment, much research is conducted with school-age children (with and without disabilities) and self-management of classroom behaviors or academic skills (Bruhn et al., 2015). Even within the three reviews discussed here, Harchik et al. (1992) primarily examined self-management strategies with academic measures in 35 classroom or clinical settings (i.e. work cubicles within school environment, residential facility, simulated work environment). Authentic work settings examining self-management strategies occurred in 22 of the identified studies (Harchik et al., 1992; Rusch & Dattilo, 2012; Storey, 2007).

The National Technical Assistance Center on Transition (NTACT, 2016) identified self-management as a research-based practice for teaching specific employment skills. Additionally, within the field of applied behavior analysis self-management is a highly-regarded evidence-based practice across a variety of behavioral domains (Cooper et al., 2020). Self-management as an intervention package spans the field of general education, special education, and applied behavior analysis. Additionally, self-management interventions have the potential to be a successful tool to teach and maintain skills of self-determination and employable soft skills.

Importance of Self-Determination, Employable Soft Skills, and Postsecondary Outcomes

A systematic literature review identified 20 predictors of more positive postsecondary outcomes for students with disabilities (Mazzotti et al., 2016). Self-determination was listed as

having potential influence on postsecondary outcomes of education and employment. Additionally, a subcomponent of self-determination, goal setting, was identified as having emerging evidence on postsecondary outcomes of education and employment. This suggests self-determination as a skill set is critical to postsecondary success, but also that components of self-determination like goal setting could become a stand-alone predictor of positive outcomes.

Possible increases in more positive postsecondary outcomes and improved employment for individuals with disabilities is associated with higher levels of self-determination skills (Matorell et al., 2008; Wehmeyer & Palmer, 2003). In 2015, Shogren and colleagues solidified the foundation of these statements. Following-up on 779 students with disabilities one and two years after high school demonstrated significant results in relation to self-determination skills and postsecondary outcomes. For those who received self-determination interventions in high school, exiting high school with a higher level of self-determination was predictive of more positive postsecondary outcomes in employment and community access.

These findings support instruction and intervention in self-determination skills, however, there is an alarming lack of connection between identified importance of self-determination intervention and actual incidence of instruction in self-determination skills within school settings. Wehmeyer et al. (2000) found perceptions of self-determination's importance by teachers is disconnected to instructional activities to promote these skills. More must be done to close the research-to-practice gap to implement evidence-based strategies, like self-management to promote skills of self-determination, and down the road, potentially more positive postsecondary outcomes.

As stated previously, employers have identified employable soft skills as equally, if not more, important than job-specific hard skills (Agran et al., 2016). As there is limited research in

how to provide instruction for employable soft skills, framing these skills within the context of a pairing with self-determination skills might prove beneficial, particularly with interventions rooted in self-management strategies. Lack of employable soft skills is a potential reason for job loss, even over sufficient job-specific technical skills (Agran et al., 2016; Lindsay et al., 2014) and more must be done within secondary settings to promote these skills. Furthermore, schools must go beyond teacher-directed interventions and incorporate more student-led interventions such as self-management programs and self-evaluation, in particular. Transferring the control from teacher to student provides additional support for the student to manage their own behavior as they transition into the working world, often without supports afforded in secondary settings.

Addressing a Gap in Literature

Examining employable soft skills and self-determination skills as intertwined and potentially complementary constructs is an area worthy of future examination. Theoretically, these two umbrella terms seem related, but more must be done to thoroughly analyze the relation. To promote both skill sets, the integration of self-management strategies, like self-evaluation, within the authentic work setting is an area with little to no research-base. Given the benefits of self-management, there is potential to positively impact student postsecondary outcomes. Providing strategies students are able to apply independently, and generalize to the world outside of secondary schools can potentially support job attainment and maintenance over time. The flexibility and individualized nature of self-management approaches further ensures students may carry over these skills.

Study Purpose

This study aims to extend the current literature within the fields of applied behavior analysis and special education transition through the use of a self-management based

intervention applied to essential employable soft skills linked to skills of self-determination associated with more positive postsecondary outcomes.

CHAPTER 2: REVIEW OF LITERATURE

Supporting postsecondary outcomes for students with disabilities is an essential component of special education programs. Lessening the gap between individuals with and without disabilities in the areas of education/training, employment, and independent living is paramount. Federal legislation provides guidance on use of best practices in the field of special education.

Transition Services

Transition services are an essential requirement of the IEP for students beginning at age 16. These services are specific to provide support and preparation for life *after* high school. According to federal law, transition services are:

> a coordinated set of activities that (a) is designed to be within a results-oriented process, that is focused on improving the academic and functional achievement of the child with a disability to facilitate the child's movement from school to post-school activities, including postsecondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation; (b) is based on the individual child's needs, taking into account the child's strengths, preferences, and interests; and (c) includes instruction, related services, community experiences, the development of employment and other post-school adult living objective, and, when appropriate, acquisition of daily living skills and functional vocational evaluation.
>
> (34 C.F.R. § 300.43)

The broader purpose of including transition services is threefold according to Yell (2016). First, transition services focus IEP planning on long-range perspectives of the individual's future

goals. Second, transition services are designed to facilitate a meaningful transition into post-school settings. Finally, transition services assist students to better reach their potential as adults (Yell, 2016).

Applied Behavior Analysis

Historically the study of behavior has long preceded the conceptualization of special education, and much like special education, has evolved over time into the effective, data-driven approach in existence today. "Applied behavior analysis is the science in which tactics derived from the principles of behavior are applied systematically to improve socially significant behavior and experimentation is used to identify the variables responsible for behavior change" (Cooper et al., 2020, p. 19). Or more simply put,

> ABA is an evidence-based method of examining and changing what people (and other living creatures) say and do. Applied behavior analysts transfer their experimental investigations to the study and management of behavior in the real world. They examine behavior-environment relationships of relatively immediate individual, social, and cultural importance. (Mayer et al., 2014, p. 4)

Transition and Applied Behavior Analysis

Transition skills necessary to increase positive postsecondary outcomes can be taught in a variety of ways. The field of behavior analysis has been teaching job skills, community-based instruction, social skills, communication skills, direction-following, goal setting, quality of work performance, self-monitoring, social interacting, task completion, vocational skills, and many others essential to transition planning for decades (Mayer et al., 2014). Providing instruction via applied behavior analysis to individuals with disabilities in relation to transition skills is not only an efficient approach, but a socially relevant and evidence-based one as well. Defining target

behaviors is critical to the success of ABA programs of intervention. Examining definitions of job-specific skills, their relation to skills of self-determination, and how self-management interventions support instruction of said skills is couched within the literature on evidence-based practices in the fields of special education and applied behavior analysis.

Employable Soft Skills

Executives and employers alike use the term "soft skills" (Lindsay et al., 2014; Robles, 2012). In the field of special education, researchers use the term "employment social skills" (Agran et al., 2016) and "employability skills" (Ju et al., 2012). In an effort to be parsimonious and all-inclusive I propose to call this particular set of skills "employable soft skills". Drawing on several fields of study, a non-exhaustive list of employable soft skills is presented in Table 1. In all three studies, authors developed their respective lists based on iterative processes from survey research and individual expert interviews. Participants across studies included special educators, transition coordinators, vocational rehabilitation counselors, business managers, and business executives (e.g., company president, CEO, director, owner). Comparing employable soft skills from the fields of education and business demonstrate the shared vision bridging public school settings and the workplace. Unfortunately, a considerable gap continues to exist between what are recognized as critical employable soft skills, what skills beginning employees with disabilities possess, and what is being taught to students in educational programs. There is a discrepancy between identified importance of employable soft skills and instruction within those domains (Agran et al., 2016). Youth with disabilities continue to demonstrate deficits across many categories of employable soft skills (Elksnin & Elksnin, 2001; Lindsay et al., 2014). As a result, employees often have lost jobs not due to performance of job-related tasks, but due to the lack of socially appropriate employable soft skills (Agran et al., 2016). Even before obtaining the

job, Lindsay et al. (2014) found employers perceived youth with disabilities to lack employable soft skills, specifically (a) presenting oneself well, (b) good attitude, and (c) good communication skills. This perception of individuals with disabilities lacking desirable skills further hinders job attainment.

Table 1

Employable Soft Skills: Research-Identified, Overlap Across Studies, and Connections to Self-Determination Component Behaviors

Employment Social Skills (Agran et al., 2016)	Employability Constructs (Ju et al., 2012)	Soft Skill Attributes (Robles, 2012)	Self-Determination Component Behaviors (Wehmeyer et al., 2008)
Seeking clarification for unclear instructions	Basic Work Skills	Teamwork	Self-Awareness and Self-Knowledge; Self-Advocacy and Leadership
Arriving at work on time (punctual)	Basic Work Skills	Responsibility	Self-Management and Self-Regulation
Refrains from inappropriate touching of others	Social Skills	Integrity; Interpersonal Skills	Self-Management and Self-Regulation
Carrying out instructions needing immediate attention	Excluded Item	Responsibility	Choice Making
Notifying supervisor when assistance is needed	Basic Work Skills	Teamwork	Self-Awareness and Self-Knowledge; Self-Advocacy and Leadership
Responding appropriately to critical feedback	Social Skills	Flexibility	Self-Awareness and Self-Knowledge
Interacts well with customers/clients	Social Skills	Interpersonal Skills	Choice Making
Responding appropriately to job-related emergencies	Excluded Item	Professionalism	Problem Solving
Works as a member of a team, if appropriate	Basic Work Skills	Teamwork	Self-Advocacy and Leadership
Finding necessary information prior to performing a job	Basic Work Skills	Teamwork	Problem Solving
Listening without interrupting	Basic Skills	Communication; Courtesy	Self-Management and Self-Regulation
Working at job continuously without disruptions	Basic Work Skills	Responsibility	Goal Setting and Attainment

Uses appropriate conversational skills (e.g., making eye contact, appropriate volume)	Basic Skills	Communication; Courtesy	Choice Making
Employment Social Skills (Agran et al., 2016)	**Employability Constructs (Ju et al., 2012)**	**Soft Skill Attributes (Robles, 2012)**	**Self-Determination Component Behaviors (Wehmeyer et al., 2008)**
Shows initiative	Excluded Item	Work Ethic	Self-Advocacy and Leadership
Acknowledging what others are saying (e.g., eye contact, saying yes or right)	Social Skills	Interpersonal Skills; Positive Attitude	Self-Awareness and Self-Knowledge
Solve problems	Higher Order Thinking Skills	Flexibility	Problem Solving
Not using objectionable language or gestures	Social Skills	Courtesy	Self-Management and Self-Regulation
Working or producing at rates that equal or surpass company expectations	Basic Work Skills	Responsibility; Work Ethic	Goal Setting and Attainment
Arguing with coworkers or supervisors	Higher Order Thinking Skills	Teamwork; Courtesy	Self-Management and Self-Regulation
Using social amenities (e.g., please, thank you)	Social Skills	Courtesy	Choice Making
Using weak excuses when late or absent from work	Personal Traits	Responsibility	Decision Making
Referring persons to someone qualified to handle the task	Basic Work Skills	Teamwork	Problem Solving
Carrying out instructions needing attention after time has elapsed	Personal Traits	Responsibility	Decision Making
Offering help to coworkers	Basic Work Skills	Teamwork	Self-Advocacy and Leadership
Has appropriate affect most of the time	Personal Traits	Positive Attitude	Self-Awareness and Self-Knowledge
Expressing appreciation to coworkers	Social Skills	Teamwork; Courtesy	Self-Advocacy and Leadership
Providing job-related information to other employees	Basic Work Skills	Teamwork	Self-Advocacy and Leadership

Talking about personal problems at inappropriate times	Social Skills	Professionalism	Self-Management and Self-Regulation
Having friends around during on-the-job hours	Social Skills	Professionalism	Self-Management and Leadership; Decision Making

Self-Determination Skills

Self-determination, like employable soft skills, has undergone several iterations over time, dependent upon researcher perspective (Wehmeyer, 2015). A recent definition sought to operationally define self-determination through a Delphi approach. Rowe et al. (2015) defined self-determination as "the ability to make choices, solve problems, set goals, evaluate options, take initiative to reach one's goals, and accept consequences of one's actions" (p. 121). As an abstraction, self-determination can be compared to a tree with many branches, with the branches representative of the specific component behaviors. Behaviorally, it is more important to pay attention to the specific, component skills. What specific skills does a self-determined individual possess, and what behaviors are exhibited? Seven key behaviors are noted throughout most definitions of self-determination (a) choice making, (b) decision making, (c) problem solving, (d) goal setting and attainment, (e) self-advocacy and leadership, (f) self-management and self-regulation, and (g) self-awareness and self-knowledge (Wehmeyer et al., 2008). Revisiting Table 1 delineates the connection between the research-identified employable soft skills (Agran et al., 2016; Ju et al., 2012; Robles, 2012) and the self-determination component behaviors (Wehmeyer et al., 2008). As is shown, seven of the constructs align with the self-management and self-regulation component of self-determination. Axiomatically, employable soft skills and self-determined behaviors are closely intertwined, and providing instruction in one or both could demonstrate potential positive gains in skills.

While federal mandates require transition services in the IEP, and key education and community stakeholders place emphasis on skills beyond technical job-specific skills, persistent poorer postsecondary employment outcomes continue for individuals with disabilities (Newman et al., 2011; Wittenburg & Maag, 2002). It is essential for special educators to find ways to

further develop employable soft skills and skills of self-determination during secondary settings to promote generalization of these skills to work environments.

Employable soft skills and self-determination skills directly relate to the individual person's own behaviors (i.e., being on time, asking for help when needed, responding appropriately to constructive feedback, setting goals, etc.). Employers are willing to put the time into training a new employee the technical aspects of a job (i.e., how to run a cash register, procedure for changing a tire, etc.), but there is an implied assumption of the employee possessing appropriate self-determination and employable soft skills. These skills are not taught in the work setting, and therefore individuals with disabilities must receive explicit instruction. This is particularly detrimental to this population of students who are already vulnerable to higher rates of unemployment, poverty, and job loss post-high school (Newman et al., 2011). Addressing the need to increase self-determination and employable soft skills for individuals with disabilities in the workplace can be accomplished through evidence-based practices rooted in sound science, with an emphasis on maintenance and generalization across multiple settings. Paramount to the generalization of any skills is the transfer of responsibility, control, evaluation, and reinforcement of one's behavior from an outside source (employer, teacher, or job coach) to oneself. This is highlighted in the workplace by employers' implicit expectation of employees possessing key employable soft skills. Self-management tactics of applied behavior analysis are evidence-based practices essential to success in the classroom and workplace, and a critical component skill of self-determination.

Evidence-Based Practices

Within No Child Left Behind (NCLB; 2002), scientifically-based research is mentioned more than 100 times (Simpson et al., 2004). The model of scientifically based research used

within NCLB was based on the medical model posited above with a bias toward randomized control trial (RCT) experiments (Smith, 2003). At the time, educational research had little in the way of RCT, leaving practitioners in a conundrum of how to determine what are "scientifically-based" instructional methods or procedures. In 2002, further legislation established the Institute of Education Sciences (IES) with its primary purpose to ensure and promote federally-funded research projects as scientifically based (Smith, 2003). To this end, IES created the What Works Clearinghouse (WWC) to evaluate and report evidence of effectiveness for educational programs and practices. IDEA (2004) adopted language directly from NCLB (2002) in relation to students with disabilities. A significant change to IDEA legislation included individualized education programs (IEP) must include provisions ensuring services based on "peer-reviewed research" (Yell et al., 2017). Much like NCLB (2002), IDEA (2004) required progress monitoring within a framework of instructional practices established through rigorous research methodologies. Most recently, ESSA (2015) defined more precisely levels of effectiveness of educational programs in comparison to NCLB's (2002) requirements of practices being "based" on scientific research. There are four levels regarding evidence of effectiveness under ESSA (2015) (a) strong, (b) moderate, (c) promising, and (d) lacking evidence, but under evaluation. Like NCLB (2002) there is an emphasis on RCT for strong evidence of effectiveness. For example, for a practice to have "strong evidence of effectiveness" there must be at least one well-designed and implemented experimental study (i.e., RCT). While the language used in legislation varies from "scientifically based" to "peer-reviewed research" to "evidence-based", what remains firmly in place is the requirement of both general and special education law to utilize practices rooted in scientific inquiry as an evidence-based practice.

Evaluating Evidence-Based Practices

Within the field of education itself, there are various standards developed to evaluate studies of educational practice. This presents another challenge for practitioners selecting an instructional strategy or program—who determines effectiveness and to what extent is it accurate?

What Works Clearinghouse Design Standards

The WWC provides guidance, primarily for general education, to evaluate for group design studies, and more recently, single-case designs. The purpose of WWC reviews are twofold (a) identification of evidence-based interventions and (b) provide freely available information to practitioners (Hitchcock et al., 2014). WWC (2017) designates levels of effectiveness for practices meeting design standards (a) meets without reservations, (b) meets with reservations, and (c) does not meet WWC standards.

Council for Exceptional Children Evaluation Standards

Specific to special education research, the Council for Exceptional Children (CEC) developed guidelines for evaluation of evidence-based practices framed as quality indicators, in both group design (Gersten et al., 2005) and single-case design (Horner et al., 2005). In 2014, CEC updated standards for evidence-based practices in special education merging the quality indicators set forth by Gersten et al. (2005) and Horner et al. (2005). Cook et al. (2015) detailed levels of classification for studies (group or single-case) meeting CEC standards (a) evidence-based, (b) potentially evidence-based, (c) mixed effects, (d) insufficient evidence, or (e) negative effects.

Both WWC (2017) design standards and CEC (2014) standards provide an evaluation of rigor and level of evidence of effectiveness for both group design and single-case design

research. While differences remain between the two organizational review standards, the underlying rationale regarding why evidence matters is clear—practices with a strong foundation of evidence are more likely to produce more positive outcomes for students (Slavin, 2017). Practitioners need to balance what is set forth by review procedures in making instructional decisions reliant on evidence-based practices.

Evidence-Based Practices and Applied Behavior Analysis

Slocum et al. (2014) stated that "evidence-based practice of applied behavior analysis is a *decision-making process* [emphasis added] that integrates (a) the best available evidence with (b) clinical expertise and client values and context" (p. 44). Moreover, Slocum et al. (2014) highlighted the ethical responsibility of behavior analysts to base conduct on best available evidence. The Behavior Analyst Certification Board (BACB) Professional and Ethical Compliance Code for Behavior Analysts (2019) outlines the pivotal nature of science to behavior analysis in the first code of ethics "1.01 Reliance on Scientific Knowledge—behavior analysts rely on professionally derived knowledge based on *science* [emphasis added]" (p. 4). Furthermore, the behavior analyst's responsibility to clients includes providing "effective treatment (i.e., based on the research literature and adapted to the individual client). Behavior analysts always have the obligation to advocate for and educate the client about *scientifically supported* [emphasis added], most-effective treatment procedures" (BACB, 2019, p. 8). As behavior analysts, responsibility for interventions being evidence-based is coupled with the social validity of the treatment.

Evidence-Based Practices and Predictors in Secondary Transition

Test and colleagues (2009) reviewed the literature base of secondary transition practices and identified evidence-based practices in postsecondary outcomes of education/training,

employment, and independent living. Across these categories 32 practices were examined across five domains of (a) student-focused planning, (b) student development (life skills instruction), (c) student development (employment skills instruction), (d) family involvement, and (e) program structure. Teasing out specific practices related to the current project are outlined in Table 2. Elements of 10 identified practices ranging in level of evidence from potential (n = 1) to moderate (n = 7) to strong (n = 1) are infused within the current study.

Table 2

Evidence-Based Practices Identified by Test et al. (2009) Related to Current Study

Evidence-Based Practice	Level of Evidence	Connection to Current Study
Teaching Life Skills	Strong	Employable Soft Skills
Teaching Self-Determination Skills	Moderate	Self-Determination Components
Student-Focused Planning	Moderate	Student-Selection of Target Behaviors
Social Skills Training	Moderate	Employable Soft Skills
Life Skills Using Community-Based Instruction	Moderate	Authentic Work Setting; Employable Soft Skills
Job-Specific Employment Skills	Moderate	Employable Soft Skills; Student-Selection of Target Behaviors; Authentic Work Setting
Employment Skills Using Community-Based Instruction	Moderate	Authentic Work Setting
Teaching Self-Management for Employment Skills	Moderate	Self-Evaluation Intervention
Job-Related Social/Communication Skills	Potential	Employable Soft Skills; Authentic Work Setting
Provide Community-Based Instruction	Moderate	Authentic Work Setting

Predictors of postsecondary outcomes have also extended the effective literature regarding evidence-based practices in transition services. Mazzotti et al. (2016) developed a comprehensive list of 20 predictors of postsecondary outcomes building upon previous literature. Specific predictors related to postsecondary outcomes associated with the current study's

components include (a) self-management and self-determination skills, (b) work experience programs (i.e., work study or paid work experience), (c) social skills, and (d) community employment. While none of the identified evidence-based practices or predictors of postsecondary outcomes specifically address employable soft skills, this calls attention to the need for more research rooted in evidence-based practices to support and examine the skills putting students with disabilities at risk for losing employment. Approaching these behaviors through a behavior analytic lens, utilizing a self-management intervention of self-evaluation will provide a demonstration of effect upon critical behaviors identified by research needed for employment attainment and retention.

It is clear the fields of general education, special education, and applied behavior analysis approach the definition and evaluation of evidence-based practices from different perspectives. Yet, the expectation for professionals working with individuals with disabilities it to use evidence-based practices within legal documents like the IEP, behavior intervention plan (BIP), and within classrooms to demonstrate adequate yearly progress.

Turning attention to a specific practice found in both fields of education and applied behavior analysis, the literature base of self-management is examined and analyzed in relation to an evidence-based practice.

Self-Management

Descriptively speaking, Cooper et al. (2020) defined self-management "as the personal application of behavior change tactics that produce a desired change in behavior" (p. 683). The definition is intentionally left broad because "all self-management tactics involve multiple principles of behavior" (Cooper et al., 2020, p. 683). When application of self-management occurs, implementors must clearly define all procedures used in a self-management program. A

more structured definition describes self-management as a set of procedures to include one or more of the following (a) personal goal setting, (b) self-monitoring, (c) self-evaluation and recording, (d) self-reinforcement, and/or (e) self-charting (Dalton et al., 1999). Variability within defining features of self-management remains a concern (Briesch et al., 2019). Descriptions of several of the most used key components of self-management follows.

Personal Goal Setting

Bruhn and colleagues (2016) examined the goal setting literature. Of the 40 articles reviewed, seven included goal setting as part of a multicomponent self-management intervention. Goal setting within the seven identified studies included the following elements relative to goal self-selection (a) students gave input on goals and (b) student performance was used to individualize goals (Bruhn et al., 2016). Results of the systematic review (a) verify prior research that when students self-select goals a higher commitment to goal attainment is seen, (b) highlight positive student perception of goal setting and self-management interventions, (c) demonstrate student buy in, and (d) show higher rates of actual goal attainment when students are involved in goal-selection process. Bruhn et al. (2016) found themes from the reviewed articles demonstrating the more student input is sought, valued, and used, the more likely goals were achieved resulting in increases in social validity as well as improved behavior.

Self-Monitoring and Self-Charting

Self-monitoring is also referred to as self-recording, self-observation, or self-charting. Self-monitoring involves an individual systematically observing their own behavior and recording a target behavior's occurrence or non-occurrence (Cooper et al., 2020). Behaviors can be self or teacher-selected. Bruhn et al. (2015) examined the research base of self-monitoring and found 41 studies across multiple behaviors, participants, and settings. This component of self-

management was often coupled with several others in a treatment package (i.e., reinforcement or feedback). Overall, in all 41 studies, documented behavioral improvements occurred for participants (Bruhn et al., 2015). Turning attention to the setting of classrooms, Briesch et al. (2019) found self-monitoring coupled with other self-management components (i.e., prompting) to be an effective intervention for school-age children.

Self-Evaluation

Implementation of self-evaluation involves the individual assessing their own behavior relative to (a) a preset goal, (b) a specific criterion level, or (c) an average or typically displayed behavior (Cooper et al., 2020). Historically, self-evaluation is regarded as an essential component of self-management (Spates & Kanfer, 1977). Self-evaluation as an intervention has improved (a) work productivity within a work setting (Grossi & Heward, 1998), (b) use of specific praise by student teachers (Keller et al., 2005), (c) handwriting skills of high school students (Sweeney et al., 1993), and (d) has demonstrated relative closeness to performance criterion standards, suggesting self-evaluation may be a reliable assessment of behaviors or skills (Mabe & West, 1982). Self-evaluation is often utilized in conjunction with other self-management components, and therefore, parsing out its particular effect on behavior is complicated by multiple factors (Cooper et al., 2020). Harchik et al.'s (1992) review of the literature found none of the identified 59 self-management studies utilized self-evaluation in any form. Storey (2007) and Rusch and Dattilo (2012) identified two studies using self-evaluation within an authentic work setting (one overlapped between the two reviews).

Shafer (1987) examined application of self-management techniques of self-evaluation, self-recording, and self-verbalization of instruction. Two participants received individualized interventions. With Shari self-recording was implemented to address checking out early. During

the self-recording intervention coupled with self-evaluation against the standard (zero minutes checked out early), Shari accurately recorded check out time at a rate ranging from 83%-100% during intervention phases. No maintenance data was collected with Shari. The second participant, Bart, was failing to complete steps of a required cleaning task. Bart received a self-labeling (self-instruction) intervention targeting the six required steps to clean the elevator and escalator (a) “spray corner”, (b) “spray corner”, (c) “spray center”, (d) “wipe across”, (e) “wipe up and down”, and (f) “clean, good job”. After introduction of self-instruction training, Bart significantly increased his quality of work and completion of tasks. During baseline, Bart cleaned an average of 56% of glass panels, 84% during intervention phase, and maintained skills at 84% during three-month follow-up. Supported employment settings with follow-along services by job coaches could cautiously apply these results within other settings with other clients. The biggest takeaway from this study highlights the individualized nature and adaptability of self-management strategies for those in need of intervention.

Four individuals with developmental disabilities in a restaurant setting participated in a multiple baseline across tasks design to measure the effects of a self-evaluation package on productivity (Grossi & Heward, 1998).

The self-evaluation package consisted of goal setting, self-monitoring, and self-evaluation. All four participants demonstrated increases in work productivity, while maintaining quality of work, after the self-evaluation package was implemented. Two participants quality of work also showed slight increases. After the participants graduated from the vocational training program at the restaurant they all received paid jobs and continued with the support of a job coach. In one instance, during an interview, Chad discussed his self-evaluation program and suggested if he had trouble working he would simply start timing himself. While no formal

maintenance data was collected, anecdotally, this participant clearly generalized the self-evaluation package skills within his own repertoire of strategies to use when problem solving in the work environment.

While both Shafer (1987) and Grossi and Heward (1998) implemented variations of self-evaluation programs within an authentic work setting, targeted skills focused on job-specific hard skills. Employable soft skills were not explicitly addressed in either study. One could make the argument, however, all participants across both studies increased work productivity, and the self-evaluation package provided an opportunity to take more responsibility and control over that work performance. Instead of someone else timing Chad, for example, he was in control of timing his productivity. This increase in control over one's work performance may include increases in self-determination skills and several employable soft skills indirectly resulting from the self-evaluation interventions.

Most recently, Clark et al. (2019) examined the effects of a curricular package incorporating self-evaluation on student soft skills. This is the first study to specifically combine self-management strategies with evaluation of employable soft skills. Participants were not in authentic work environments, but rather a combination of in-school job sites, classrooms, and community job sites attended for parts of the regular school day. A modified multiple probe design across participants design demonstrated gains in targeted soft skills (self-identified by students) within both school and community job sites, and generalization occurred to non-targeted soft skills. This study incorporated self-selected goal setting, curricular instruction by the researcher, self-recording by participants, and self-evaluation using a unique mnemonic UPGRADE your performance (a) U – you evaluate yourself, (b) P – professional evaluates you, (c) G – graph, (d) R – restate, (e) A – acknowledge, (f) D – decide, and (g) E – execute. Results

from this study showed promise as a multi-component intervention targeting soft skills. Particularly distinctive to this study was the incorporation of soft skills where most self-management interventions target job-specific hard skills, academics, or in-school behaviors.

Expanding the literature search outside of work environments demonstrated much more has been done with the self-management skill of self-evaluation within the traditional educational setting. Algozzine et al. (2001) identified nine total studies using self-observation, self-evaluation and reinforcement on skills of self-determination. Four single-case designs and five group designs were discussed and included in the meta-analytic procedure. These results were lower than the self-determination interventions focused on teaching choice making and self-advocacy. Algozzine et al. (2001) suggested continued exploration of self-management strategies to teach self-determination is needed.

Several other studies on self-evaluation within the educational setting with various skills were found. Spates and Kanfer (1977) used a multicomponent intervention of self-monitoring, goal setting, self-evaluation, and self-reinforcement with first grade students at-risk in mathematics. Results of this pre-post-test control group design demonstrated the critical component of the self-regulation package was criterion-setting for this group of students. While additional components added to the overall benefit of the package, no other components contributed as significantly as goal setting. Sweeney et al. (1993) utilized a delayed multiple-baseline and multiple-probe design to examine the effects of self-evaluation on legibility of cursive handwriting in five secondary students with disabilities. All participants showed improvements in legibility, and maintained treatment effects at around 90% legible after self-evaluation intervention withdrawal. Lastly, Keller et al. (2005) worked with university students, specifically student teacher interns. This multiple baseline across subjects design examined the

intervention of self-evaluation to increase frequency of specific social praise in the classroom with students. All three student teacher interns increased praise statements after implementation of the self-evaluation intervention. Generalization of praise statements to non-targeted settings demonstrated mixed results with two interns increasing praise and one decreasing. Overall, the inclusion of these studies examining self-evaluation outside of workplace settings and across a variety of participants, including those without disabilities, demonstrate the flexibility and utility of both self-management in general, and self-evaluation specifically. Using the self-management strategy of self-evaluation as applied to employable soft skills, and consequently skills of self-determination, within authentic workplace settings has potential to impact more positive post-school outcomes for students with disabilities close to transitioning from educational settings into the real world.

Benefits of Self-Management

Advantages of self-management interventions for individuals with disabilities are numerous. The flexible, adaptive nature of self-management programs allows for individualization based on student ability or level of need. Self-management has been successful for individuals with an intellectual disability (Rusch & Dattilo, 2012), autism spectrum disorder (Newman et al., 2000), specific learning disabilities (McDougall et al., 2017), and emotional/behavioral disorders (Nelson et al., 1991).

Those who engage in self-management of their own behavior are not dependent on external observers to provide instruction or feedback for each task, and can monitor behaviors or progress outside of the treatment environment in absence of the external agent (Cooper et al., 2020). Implications for greater maintenance and generalization due to this should not be ignored as a possible positive outcome of self-management programs. Self-management strategies

increase the likelihood of generalization of behaviors through the continued use of the self-management practice independently. Generality is a critical dimension of behavior analysis and is considered the ultimate goal for behavior change programs (Baer et al., 1968, 1987).

Self-management for individuals with moderate to severe disabilities promotes goal attainment, acquisition of new life skills, and increases community independence (Browder & Shapiro, 1985). Shafer (1987) found a self-management program decreased job-threatening behaviors, thus, increasing job retention in a competitive work environment for individuals with an intellectual disability. Other behaviors identified as improved in conjunction with self-management programs include (a) task performance (Bahri et al., 2016); (b) job tasks (Harchik et al., 1992); and (c) social skill interactions with peers (Lee et al., 2007).

The adaptive nature of the self-management intervention can be applied across settings from elementary classrooms (Briesch et al., 2019) to naturalistic employment settings (Grossi & Heward, 1998) to preschools (Lee et al., 2007) to supported employment environments (Storey, 2007). Additionally, the adaptability of self-management strategies is shown through variations involving picture-based programs (Pierce & Schreibman, 1994) and incorporation of technology tools (Cheng Chia et al., 2018).

Comprehensive Reviews of Self-Management

In the last 30 years, numerous reviews and meta-analyses have been conducted, exploring self-management across settings, behaviors, and disability categories. Nelson et al. (1991) identified self-management to be effective with social and academic behaviors for students with behavioral disorders across 16 studies. Harchick et al. (1992) identified 59 studies with individuals with developmental disabilities and self-management; finding 55 studies

demonstrated positive changes in behavior across domains of academics, social skills, and work behaviors.

Eleven articles studying self-management and students with autism were critically analyzed using meta-analytic techniques resulting in a mean percentage of nonoverlapping data (PND) effect of 81.9% for improvements in socially appropriate behaviors (Lee et al., 2007). Updated in 2015, Aljadeff-Abergel et al. reviewed 54 studies involving students with autism and identified self-management effective in (a) natural settings, (b) clinical settings, and (c) mixed settings.

Effects of self-management on appropriate classroom behaviors studied between 1988 and 2008 were explored by Briesch and Chafouleas (2009). Researchers included 30 studies for review and concluded their examination further supported self-management as an effective intervention across disabilities and settings. In 2013, Maggin et al. applied WWC design standards to the same data set from Breisch and Chafouleas (2009). Findings recommended self-management be designated an evidence-based practice for classroom behavior improvement (Maggin et al., 2013).

Most recently, an overall measure of effect of .93 (using PND) was found by Briesch and Briesch (2016) across self-management studies from 1971 to 2011. This further adds to the vast literature base examining self-management in multiple settings, applied to multiple behaviors, and for individuals across disability categories.

CHAPTER 3: METHODOLOGY

The purpose of this study is to further the literature on self-management strategies, specifically self-evaluation, for individuals with disabilities in a dynamic, authentic work setting. Oftentimes, individuals with developmental disabilities (i.e., autism or intellectual disability) are evaluated by supervisors, job coaches, or instructors. Axiomatically, employees are often asked to provide input on their personal performance as part of an annual employee review process without any prior experience, training, or understanding of the process of self-evaluation. Developing skills of self-evaluation as a high school student provides individuals with a developmental disability an opportunity to explicitly learn skills of self-reflection, self-awareness, and critical self-evaluation—all essential components of self-determination (Wehmeyer et al., 2008). Prior research suggests involvement of the individual themselves in the evaluation process is rarely used, but has shown a positive effect on work performance (Grossi & Heward, 1998). Carr et al. (2014) reviewed literature on self-management and found self-evaluation to be a key component of self-managed behavior and called for continued exploration of these procedures in a variety of settings including community-based environments.

Furthermore, the use of high-tech tools in self-management programs is an emerging area of research; promising results demonstrating increases in independence with the application of technology tools on self-managed behavior (Bouck et al., 2014). Examining self-evaluation within a full-immersion work program targeting complex job performance for transition-age individuals with disabilities has yet to be done. The literature involving self-evaluation and application to soft skills for individuals with a disability working in a community setting is even more sparse.

Research Questions

The following research questions guided the data collection process. Target behaviors were collaboratively chosen between the instructor, job coach, and student themselves.

Directly Observable Research Questions

- After implementation of a self-evaluation assessment tool, is there a change in the target employable soft skill behavior?
- Do student self-evaluation scores on the target behavior match job coach scores on employment target behavior?

Indirectly Observable Research Questions

- Do scores of self-determination change after a self-evaluation intervention?
- Do scores of employer-identified traits for employees change after a self-evaluation intervention?
- What is the social validity of self-evaluation practices according to key stakeholders (a) students, (b) teachers, (c) job coaches, and (d) work site coworkers?
- What is the feasibility of incorporating self-evaluation into an already existing observational evaluation process?

Sample

The setting for this study was a Project SEARCH site within a suburban environment in a Southeastern state. Participants included three individuals with a disability. Convenience sampling procedures identified willing educators working with transition-age students with disabilities within an authentic work setting. At the student level, purposive sampling was employed based on inclusion criteria of: (a) diagnosis of developmental disability, (b) teacher-identified employable soft skill deficit, (c) self-identified employable soft skill deficit, (d)

adequate attendance record (average of no more than 1.5 absences/month), and (e) willingness to participate in the study.

Setting

Project SEARCH High School Transition Programs are a business-based intervention for students with moderate to significant disabilities (Rutkowski et al., 2006). The end goal of Project SEARCH internships is competitive employment. Full immersion in the employment environment is the trademark of Project SEARCH (Wehman et al., 2012). Project SEARCH began in 1996 at the Cincinnati Children's Hospital Medical Center. The program has expanded across North America and internationally, including Project SEARCH sites in South America, the Middle East, Europe, and soon, New Zealand. In Oklahoma, there are six sites in four cities within both hospital and hotel environments.

Prospective project SEARCH interns undergo an interview process mimicking a real-world experience of applying for a job. Selected interns typically have a moderate disability (i.e., autism or intellectual disability). Interns must be between 18-21 years old, have completed all high school requirements for graduation, and provide transportation to/from work (i.e., personal or family transportation; ability to navigate public transportation). Once selected, students participate in work rotations throughout the Project SEARCH site. During work rotations students are trained on-the-job specific technical skills on-the-job with a secondary focus on the development of soft skills (i.e., punctuality, social skills, self-regulation) needed for employment (Agran et al., 2016).

Project SEARCH, Embassy Suites Hotel by Hilton. The program at Embassy Suites has been in place since 2015. The work rotations available to student interns include the following (a) banquets, (b) housekeeping, (c) laundry, (d) front desk, (e) comp breakfast, and (f)

engineering. Within each rotation there is a hotel supervisor who assigns activities and tasks to the interns. This Embassy Suites site employs over 200 full-time or part-time employees. This community-based employment site for students with disabilities allows for student interns to participate in actual work environments vs. synthetic or unrealistic ones.

Participants

Six transition-age students were interning at Embassy Suites as part of Project SEARCH. All six students provided consent to participate in the study; however, after disruptions to data collection, three young adults with a disability ultimately participated in this study. Below is a description of each participant. See Table 3 for further participant data.

Table 3

Participant Demographic Information

Demographics	Carson	Daisy	Sarah
Gender	Male	Female	Female
Race/Ethnicity	White	Black	White
Age	19	19	19
Disability Category	Autism	Intellectual Disability	Intellectual Disability

Carson. Carson is a 19 year old fifth-year senior in high school diagnosed with autism. His academic skills are significantly below grade level in mathematics (0.1 percentile rank) and reading comprehension (5th percentile rank); word reading skills were within the average range (70th percentile rank) (Wechsler Individual Achievement Test-III, WIAT-III). Carson's cognitive abilities fall within the lower extreme range (Composite: 65; Kaufman Brief Intelligence Test,

2nd ed.; K-BIT2). His identified postsecondary goal in employment is to work at a store specializing in electronics or video games.

Daisy. Daisy is a 19 year old fifth-year senior in high school diagnosed with an intellectual disability. Her academic skills are below grade level in mathematics (3.0 grade equivalent; Key Math-3 Diagnostic Assessment) and reading skills (3.7 grade equivalent; Gates-MacGinitie Reading Test; GMRT). Her cognitive skills are in the very low range (Composite: 51; K-BIT2). Daisy identified her postsecondary goal is to work as an artist, writer, or photographer.

Sarah. Sarah is an 18 year old fifth-year senior in high school diagnosed with an intellectual disability. Her academic skills are below grade level in mathematic applications (2.9 grade equivalent) and reading (3.5 grade equivalent); math computation skills are at a functional level (7.2 grade equivalent) (Kaufman Test of Educational Achievement, 2nd ed; KTEA-II). Sarah's desired postsecondary goal in employment is to work as a sign language interpreter.

Job Coach. Stacy has been a job coach with Project SEARCH for one year. Prior to that she worked in the field of computers and programming. Stacy has a high school diploma with some college course work completed (~85 credit hours). Stacy is a parent of a child with autism.

Project SEARCH instructor. The classroom teacher is employed by the local school district. She holds a master's degree in special education and a transition specialist certificate. The teacher has been teaching for 12 years in the public school system at the secondary or postsecondary level. She has been the primary instructor at the Project SEARCH site since its inception (5 years).

Experimenter. The experimenter is a fourth-year doctoral student in special education at the University of Oklahoma. The experimenter has a master's degree in special education, is a

certified special education teacher, a transition specialist, a Board Certified Behavior Analyst, and a licensed behavior analyst in the state of Oklahoma. She has 12 years of teaching experience in both elementary and high school levels in general and special education settings. The experimenter was the primary data collector for the direct observations throughout the study.

Dependent Variables and Measurement

Data was collected on both directly and indirectly observed behaviors.

Indirectly Observed Behaviors

Indirect measures included pre/post-assessment scores of the *AIR Self-Determination Scale*, and pre/post-assessment scores of *Employer-Identified Traits for Employment Assessment* (EITA). Finally, a measure of social validity was collected via semi-structured interviews.

Directly Observed Behaviors

Direct measures included student attainment of a self-selected target soft skill behavior and the correspondence between student and job coach on evaluation scores of the target behavior.

Soft Skill Target Behaviors

Students collaborated with their Project SEARCH instructor and job coach to self-select soft skill target behaviors. The instructor and job coach provided each student with input regarding several observed behaviors. The observed behaviors were identified as skill deficits for each individual. Secondary to professional identification, the suggested soft skills for individual improvement were identified as socially significant via research-identified traits and significant for each individual student's goal of obtaining future employment.

Carson

Carson chose the soft skill of interpersonal skills. For Carson, interpersonal skills were defined as (a) with more than three people present following expected job directions the first time; (b) responding to questions from unknown people the first time; and (c) answering others (known and unknown) with appropriate pace and volume (i.e., not too quickly, not so the speaker has to ask Carson to repeat himself).

Measurement of interpersonal skills utilized a confederate. The confederate was an unknown individual to Carson who worked at the hotel. The decision to use an unknown individual as a confederate was because Carson expressed an aversion to strangers or new people. He actively avoids new people, and the confederate allowed for measurement of Carson's ability to interact with an unknown person. The confederate was trained to approach Carson during the direct observation sessions and ask him questions specific to Carson's job task. Example questions included (a) where are the muffins? (b) can you please get me a new set of silverware? (c) what time does breakfast end? and (d) where are the restrooms? Event recording was the mode of direct measurement used during the 20-minute direct observation session. There were 20 opportunities to respond to questions for Carson each session.

Daisy

Daisy chose the soft skill of communication. For Daisy, communication was defined as: (a) appropriate voice level, and (b) appropriate articulation of words (i.e. clearly stated words, speaking within talking distance of the listener). Daisy does not struggle with unknown vs. known people during interactions, and therefore, a job coach, teacher, or hotel coworker acted as the confederate. The job coach, teacher, and consistent coworker was trained to approach Daisy during the direct observation sessions and ask questions specific to Daisy's job task. Example

questions included (a) do you have your spray bottle? (b) how many floors have you completed? (c) where can I find an extra laundry cart? and (d) when will you be done vacuuming today? Event recording was the mode of direct measurement used during the 20-minute direct observation session. There were 20 opportunities to respond to questions for Daisy each session.

Sarah

Sarah chose the soft skill of responsibility. For Sarah, skills of responsibility were defined as (a) asks for directions from supervisor when doesn't understand a task, and (b) remains on-task when given a job assignment. "Understanding a task" is defined as beginning the task correctly within 30 seconds of the supervisor's direction. If she does not begin the task, she has been instructed to ask for clarification or a repeat of directions. Nonexamples of asking for further direction are: standing in one place not working and looking around the work area; walking around the work area with no purpose or focus (looking around not working).

Measurement of responsibility for Sarah was done using two measures. Momentary time sampling every 1 minute of the 20-minute direct observation session was used to track remaining on task when given a job assignment.

Correspondence Between Student and Job Coach Evaluations

Job coaches completed evaluations of student performance of targeted soft skill behaviors during baseline and throughout the intervention. Students completed a self-evaluation of personal performance of targeted soft skill behaviors during the intervention only. The rationale behind students completing the self-evaluation assessment during intervention only is two-fold. One, students completing the self-evaluation during baseline would require a level of instruction that would negate "business as usual" protocol for baseline; essentially students would be taught how to use the evaluation tool. The second reason being the specificity of the evaluation questions.

The questions were written to be specific and precise based on the student's target employable soft skill behavior. If students were given the self-evaluation assessment during baseline they would have clearly understood the behavior in question and participating in self-evaluation during baseline would have mimicked the intervention condition, not business as usual.

Self-Determination Measure

Self-determination was measured using the *AIR Self-Determination Scale* (Wolman et al., 1994). This assessment is a research-validated assessment of self-determination skills with ample supporting evidence. The *AIR* provides scores of capacity (knowledge, ability and perceptions) to be self-determined, opportunity (at school and home) to be self-determined, and an overall self-determination score. The *AIR* was completed by both the student and the instructor. See Appendix A for the *AIR* assessment. Participants were assessed prior to the study beginning and after study completion.

Employer-Identified Traits Measure

Ju et al. (2012) developed the *Employer-Identified Traits Assessment* (*EITA*) to assess employability skills identified by employers themselves. This assessment has preliminary validity and reliability evidence. The *EITA* was designed to assess an individual's ability to perform certain necessary tasks for entry-level employment in five constructs: (a) basic skills, (b) higher order thinking skills, (c) basic work skills, (d) social skills, and (e) personal traits (Ju et al., 2012). Participants were assessed pre- and post-study. Both students and professionals completed the *EITA*. See Appendix B for the *EITA* assessment.

Social Validity

Highlighted over 40 years ago by Wolf (1978) social validity is the heart of applied behavior analysis. Semi-structured brief interviews were conducted with participants of each key

stakeholder group (a) students, (b) teacher, (c) job coaches, and (d) coworkers. Wolf's (1978) suggestions for social validity of behavior analytic studies directly guided interview questions based on the (a) social significance of goals, (b) social appropriateness and feasibility of procedures, and (c) social importance of results. See Appendix C for interview questions used for participants.

Inter-Observer Agreement

Inter-observer agreement (IOA) data was collected on 30% of data during each condition. The Project SEARCH instructor was trained in data collection via the Model-Lead-Test approach. The instructor served as IOA-rater for the direct observation sessions. IOA for momentary time sampling data collection procedures was calculated via percent-agreement IOA. For event recording data collection procedures total-count IOA was used. Across each condition IOA averaged 91% (range 85%-96%).

Experimental Design

To answer the research questions, this study employed a multiple baseline across participants single case design (Barlow et al., 2009). Additionally, pre- and post-intervention assessment data was collected to examine scores of self-determination and employer-identified work traits. Social validity data was collected from all key stakeholders through semi-structured interviews.

The multiple baseline design is the most widely used design within applied behavior analysis (Cooper et al., 2020). Establishing baseline conditions across participants allows for each subject to serve as their own control. Students serving as their own control allows for comparison to prior performance *of that individual*—the foundation of single-case design (Sidman, 1988). This is replicated across participants with three students.

Materials

For this study, the necessary materials for all participants included a personal technology device (i.e., smart phone or laptop computer) with internet access. Participants accessed the evaluation Google Form via their personal device. Each individualized evaluation form is included in Appendix D.

Procedures

This multiple baseline across participants study employed the conditions of (a) baseline, (b) self-evaluation intervention with prompting, and (c) self-evaluation without prompting. The job coach and student were trained individually on the evaluation forms. The job coach was trained prior to baseline. The student participants were trained prior to each individual intervention condition.

Job Coach Evaluation Training

The job coach was trained in using the evaluation form through a Model-Lead-Test format. I provided direct instruction in how to access the Google Form, which was achieved with 100% accuracy within one instructional session. Training in completing the evaluation form occurred in 4 sessions for each student (total of 12 sessions). The first session, the job coach watched as I completed the evaluation form for the student. Direct instruction of what was an example and non-example of each behavior was discussed. Sessions 2 and 3 involved the job coach and me evaluating the same student at the same time to ascertain agreement of display of target behavior. Across all six sessions, 98% agreement was met. Disagreement was discussed and a consensus was reached. The final session was reserved for independent evaluation by the job coach and me during the same observational session to verify agreement. There was 100% agreement across the three sessions.

Baseline

During business as usual, students worked in their rotations, following typical procedures and no additional expectations were placed upon students. Job coaches completed the evaluation form for all three student participants throughout the baseline conditions. Evaluations were completed at natural breaks in the workday (i.e., before lunch break, after afternoon work session).

Direct observation of target behaviors was completed by the primary experimenter. Observations were standardized at 20 minutes. As stated previously, event recording and momentary time sampling were used for data collection. Whether it was event recording or momentary time sampling there were 20 opportunities to respond. Data are presented as percent of occurrence of behavior (over the 20 opportunities/session).

Instruction on Self-Evaluation

Instruction was provided to participants individually on the self-evaluation tool and procedures. Total instructional time took approximately 75 minutes. Students were initially provided an overview of what self-evaluation is, how it is helpful, and why it is important. The method of instruction for using self-evaluation was Model-Lead-Test.

Model

During this phase of instruction, the student watched as I modeled "working" in their rotation for 15 minutes and then used self-talk to work through how I would evaluate my personal performance using the Google Form self-evaluation tool. During this time the student was encouraged to ask clarifying questions. The target behaviors I demonstrated in the work simulation were specific to each students personally identified behaviors (i.e., Carson: interpersonal skills, Daisy: communication, Sarah: responsibility).

Lead

During this phase of instruction, students were asked to evaluate my performance as I "worked" in their rotation for 15 minutes. They paralleled completion of the evaluation form as I completed the self-evaluation. During this phase in particular, demonstrations of both appropriate and inappropriate target behavior provided clear examples and non-examples for the student to evaluate. We debriefed together each question on the evaluation form talking through what the examples/non-examples of behavior showed and how it should be rated on the evaluation form.

Test

During this final phase of instruction, students were retaught the purpose of self-evaluation and what their specific target behaviors were. Students worked in their rotation for 15 minutes and then completed the Google Form self-evaluation tool. Students were encouraged to ask any clarifying questions at this point. Prompting was provided as needed.

Self-Evaluation Intervention with Prompting

The self-evaluation intervention introduction was staggered across participants after stable baseline was achieved across a minimum of three points. Determining who received intervention first was based on the Project SEARCH instructor's recommendation. This recommendation was rooted in (a) who she determined was in most need of intervention, and (b) who would require the most time for instruction and support in self-evaluation.

Prompting was provided to students when they completed their personal self-evaluation tool. Prompting occurred as students answered their evaluation questions. Example prompting questions included (a) After you scan the QR code, what is the next step? (b) Today during rotation, did you have to repeat answers to questions? Do you remember how many times? and

(c) How many times were you reminded to return to your task today? The rationale for including a phase of intervention with prompting is based on previous research showing the need for extended support during the initial self-evaluation process. Using self-evaluation requires practice in skills of self-reflection and self-awareness of personal areas of strength or weakness. Fading of prompting was initiated as soon as students were completing the self-evaluation with self-talk demonstrating self-reflection and awareness (i.e., student stated: "I did ok today, I had to repeat myself a few times to a guest. I am giving myself a '2'." vs. "I always do the best job. I never have to repeat myself."). Direct observation of target social skill behaviors continued throughout this intervention phase.

Self-Evaluation Intervention without Prompting

After prompting was faded, students continued to self-evaluate their daily performance at the end of their shift. Job coaches continued to evaluate student performance during this time as well. Comparison of scores continued and natural reinforcers were used for completion of the self-evaluation without prompting. The only reinforcer used for independent completion was verbal praise. Direct observation of target social skill behaviors continued throughout this intervention phase.

Maintenance

Two weeks after data collection was completed maintenance probes were completed for target social skill behaviors. Students were asked to complete the self-evaluation form; job coaches completed the student evaluation form. Scores were compared to determine if correspondence still remained within 5% of each other.

CHAPTER 4: RESULTS

This single-case study was guided by both directly and indirectly observable research questions to determine the efficacy of self-evaluation on employable soft skills for individuals with a developmental disability at an authentic work setting. Results of the research questions are discussed in both narrative and graphic representation.

Impact of COVID-19

This study remains incomplete across all three participants. Two participants were able to complete baseline and intervention, but not maintenance probes. One participant was able to complete baseline and only intervention with prompting. Post-assessments were slated to be conducted via a web conferencing interface, and only after distance learning was instituted as teachers were told no instructional activities were to resume until after the state closure. It was decided that post-assessments would *not* occur as 3.5 weeks had passed when the teacher could conference with me; too much time had passed for there to be any accuracy between pre and post-assessment scores and proximity to intervention. All social validity interviews were also conducted via a web conferencing interface. Teacher, job coach, and coworker interviews were conducted prior to schools reopening for distance learning. Attempts at student interviews did not occur until after distance learning began.

The stunted nature of the study does not provide a rigorous multiple baseline design (i.e. at least three participants [Cooper et al., 2020; Sidman, 1988]). Results are presented as is.

Directly Observable Research Questions

Two research questions involved directly observed employable soft skill behaviors previously detailed in Chapter 3. Results are presented in graphic and narrative form.

Research Question 1: After implementation of a self-evaluation assessment tool, is there a change in target employable soft skill behavior?

The effects of self-evaluation on participant target employable soft skill behaviors are presented in Figure 1. Results indicated all three participants improved target behaviors during the study.

Carson

Carson chose interpersonal skills as his target employable soft skill behavior, specifically, giving an appropriate response to a question by an unknown person. An appropriate response is defined as clear articulation (i.e., confederate doesn't have to ask for the answer to be repeated); correct answer to the question (i.e., yes/no if appropriate or location of an item). Event recording was used during a 20-minute observation session. A confederate approached Carson, asked him a question particular to his job (i.e., "Where are the muffins?"). There were 20 total opportunities to appropriately respond during each observation session. During baseline, Carson's appropriate responses ranged from 3 to 5, with a mean of 4. During self-evaluation with prompting, Carson's appropriate responses ranged from 6 to 11, with a mean of 8.75. An increase in appropriate responding occurred from baseline after introduction of self-evaluation. After prompting was faded, Carson's appropriate responses continued to increase with a range of 9 – 13 and a mean of 11.8. This further indicated Carson's appropriate responses to confederate questions increased throughout the intervention.

Visual analysis of Carson's data show a progressively upward trend from baseline throughout intervention. The immediacy of intervention effect is small. Variability within Carson's baseline stayed within 2 points, and intervention variability decreased over time,

although remained. A stable state was not achieved for Carson. Median level line analysis demonstrated an increase over time.

Daisy

Daisy chose the skill of communication as her target employable soft skill behavior. For Daisy, communication in the form of an appropriate verbal response is defined as clear articulation (words understood by confederate first time; appropriate distance to speaker) using appropriate voice level (no whispering or shouting). Event recording was used during a 20-minute observation session. A confederate approached Daisy and asked her a question particular to her job (i.e., "Have you emptied the linens?"). There were 20 total opportunities to appropriately respond during each observation session. During baseline, Daisy's appropriate verbal responses ranged from 5 to 7, with a mean of 5.55. When self-evaluation with prompting was introduced, Daisy's responses ranged from 7 to 10, with a mean of 8.2. Daisy's appropriate verbal responses increased after implementation of self-evaluation. Finally, with prompting faded, Daisy's appropriate verbal responses continued to increase with a range of 11 to 15 and a mean of 13.17. Like Carson, over time, Daisy's appropriate verbal responses continued to increase.

Visual analysis of Daisy's data demonstrated an ever increasing trend from baseline's slight downward trend to the intervention's increasing trend. Immediacy of effect from baseline to intervention was similar to Carson's—minimal. Daisy's data path demonstrated less variability throughout the study. Median level line analysis showed increases from condition to condition.

Sarah

Due to COVID-19 shutting schools down for the remainder of the school year, Sarah was only able to participate in baseline and self-evaluation with prompting. Despite this, Sarah's results demonstrated a promising effect on increasing on-task behavior. During a 20-minute observation session, there were 20 opportunities to observe Sarah's on-task behavior. If at the timer going off, Sarah was on-task, a positive rating was recorded. Baseline results showed Sarah's on-task behavior ranged from 4 to 8 minutes using momentary time sampling, with a mean of 5.21 minutes. When self-evaluation with prompting was implemented Sarah's on-task behavior ranged from 10 to 15 minutes, with a mean of 12 minutes. Results demonstrated Sarah increased time on task by an average of 6.79 minutes. Sarah was not able to participate in the study using self-evaluation with no prompting.

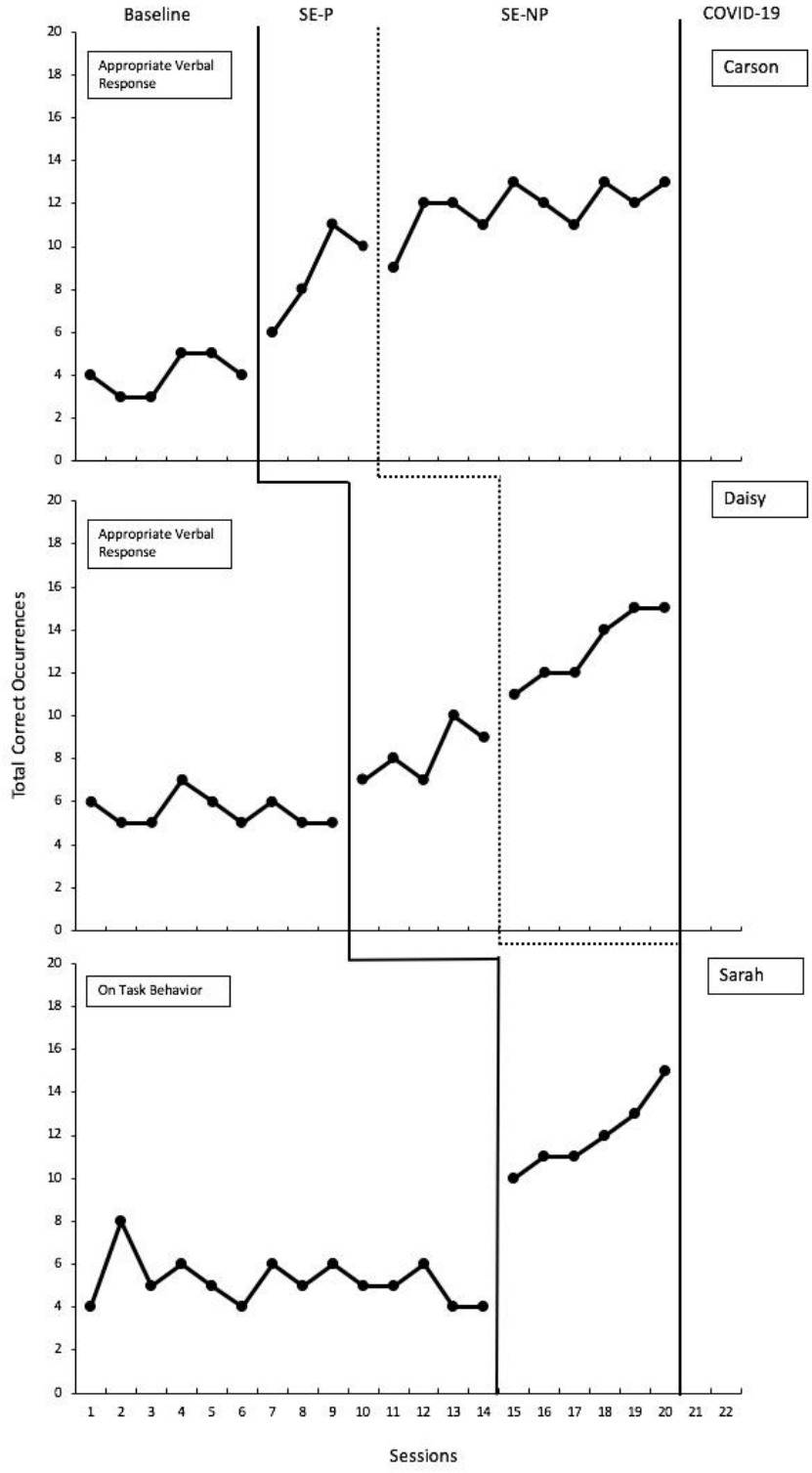
Visual analysis of Sarah's data path showed the most dramatic change from baseline to intervention. Variability was higher in baseline compared to intervention. After the introduction of self-evaluation, Sarah's data showed very little variability in the upward trend. Median level line analysis showed a large increase from baseline to intervention.

Overall Evaluation of Directly Observed Behaviors

Across all three participants target employable soft skill behaviors increased over time. All data trended in the positive direction suggesting that a possible correlation was present between the introduction of the self-evaluation intervention and increasing target behaviors. While there are not three demonstrations of intervention effect, there is evidence suggesting a tenuous claim of possible functional relation between self-evaluation and behavior change.

Figure 1

Direct Observations of Target Employable Soft Skill Behavior



Note. SE-P = Self-Evaluation with Prompting; SE-NP = Self-Evaluation with No Prompting.

Research Question 2: Do student self-evaluation scores on target behavior match job coach scores on employable soft skill behavior?

The comparison of self-evaluation scores on target employable soft skill behaviors to job coach evaluation scores are presented in Figure 2. Results indicated that over time, all three participants' scores began to trend similarly with job coach evaluations of their employable soft skill performance. Table 4 explores the difference between student and job coach evaluation scores.

Carson

Overall, Carson demonstrated the closest match to the job coach. For the 14 sessions available during intervention, 8 sessions Carson perfectly matched the job coach evaluation for a matching rate of 57%. On average, there was an 8% difference between Carson's self-evaluation scores and the job coach's.

Daisy

Daisy had 11 sessions available during intervention for comparison. On average, Daisy's matching rate was 36%. A 16% difference in scores occurred between Daisy's self-evaluation and the job coach's.

Sarah

As Sarah's time in intervention was cut short due to COVID-19, she only had 6 sessions available for comparison. During the 6 sessions, a 33% matching rate was present, and the difference between Daisy's self-evaluation scores and the job coach's was 14%.

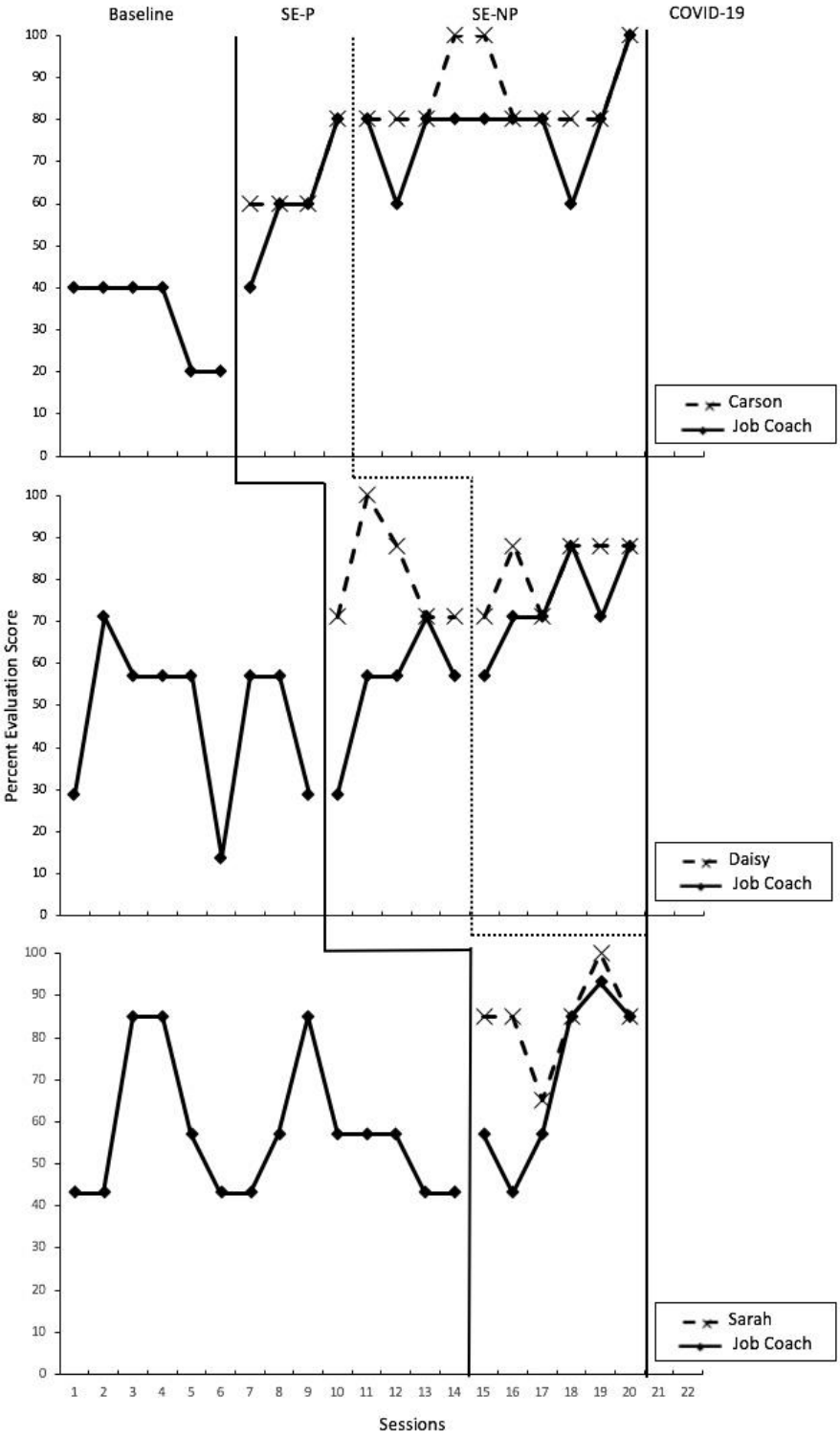
Overall Assessment of Job Coach and Student Evaluation Scores

Variability was present throughout both job coach evaluations across all conditions and phases; variability was also present in student self-evaluations. Examining both data sets using

median line analysis showed minimal increases over time. A positive effect of this data set is the convergence of student self-evaluation scores with job coach evaluation scores.

Figure 2

Matching of Job Coach Evaluation Scores and Student Self-Evaluation Scores



Note. SE-P = Self-Evaluation with Prompting; SE-NP = Self-Evaluation with No Prompting.

Table 4

Difference Between Student Self-Evaluation Scores and Job Coach Evaluation Scores

	Prompting				No Prompting									
Carson	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Student Self-Evaluation Score	60%	60%	60%	60%	80%	80%	80%	80%	100%	100%	80%	80%	80%	100%
Job Coach Evaluation Score	40%	60%	60%	80%	80%	60%	80%	80%	80%	80%	80%	60%	80%	100%
Difference	20%	-	-	20%	-	20%	-	-	20%	20%	-	20%	-	-
					Prompting				No Prompting					
Daisy				10	11	12	13	14	15	16	17	18	19	20
Student Self-Evaluation Score				71%	100%	88%	71%	71%	71%	88%	71%	88%	88%	88%
Job Coach Evaluation Score				29%	57%	57%	71%	57%	57%	71%	71%	88%	71%	88%
Difference				42%	43%	31%	-	14%	14%	17%	-	-	17%	-
									Prompting					
Sarah									15	16	17	18	19	20
Student Self-Evaluation Score									85%	85%	65%	85%	100%	85%
Job Coach Evaluation Score									57%	43%	57%	85%	93%	85%
Difference									28%	42%	8%	-	7%	-

Note. – no difference in scores.

Indirectly Observable Research Questions

Complimenting the directly observed behaviors, measures of self-determination and employer-identified traits for employees were examined. Finally, the social validity and feasibility of self-evaluation practices were explored with key stakeholders.

Research Questions 3 & 4: Do scores of self-determination change after a self-evaluation intervention? Do scores of employer-identified traits for employees change after a self-evaluation intervention?

Premature shutdown of the study prevented any post-assessments to be completed. Scores for students pre-study are displayed in Table 5.

AIR Self-Determination Assessment

Air Self-Determination scores are out of a total of 120. For Carson, his self-identified level of self-determination was 83 overall (68%). He viewed himself as having a higher availability or opportunity to express self-determined behaviors, however, his capacity to display self-determined behaviors was lower. Daisy viewed her level of overall self-determination to be a score of 75 (62.5%). She felt she had a higher capacity to perform self-determined behaviors vs. the opportunity to express them. Finally, Sarah scored herself 85 overall (70.8%). Like Carson, she saw herself as having more opportunity to express self-determined behaviors over the actual capacity to execute them.

Employer Identified Traits Assessment

The EITA assessment scores were averaged per construct. Carson's highest self-identified construct was that of personal traits, his lowest was basic skills. For Daisy, she perceived her highest construct area to be basic skills and her lowest in the area of personal traits. Finally, Sarah's highest self-identified score was in personal traits, and her lowest construct was higher order thinking skills.

Table 5

Participant Assessment Scores

Participant	*AIR* Pre-Test	*AIR* Post-Test	*EITA* Pre-Test	*EITA* Post-Test
Carson				
Capacity	39	**	-	**
Opportunity	43	**	-	**
Overall	83	**	-	**
Basic Skills	-	**	3.5	**
Higher Order Skills	-	**	3.6	**
Basic Work Skills	-	**	4.14	**
Social Skills	-	**	4	**
Personal Traits	-	**	4.6	**
Daisy				
Capacity	39	**	-	**
Opportunity	36	**	-	**
Overall	75	**	-	**
Basic Skills	-	**	3.5	**
Higher Order Skills	-	**	2.6	**
Basic Work Skills	-	**	2.43	**
Social Skills	-	**	2	**
Personal Traits	-	**	1.8	**
Sarah				
Capacity	47	**	-	**
Opportunity	54	**	-	**
Overall	85	**	-	**
Basic Skills	-	**	3.5	**
Higher Order Skills	-	**	3	**
Basic Work Skills	-	**	4.86	**
Social Skills	-	**	4.2	**
Personal Traits	-	**	5	**

Note. **denotes inability to assess post-study due to COVID-19.

Research Question 5: What is the social validity of self-evaluation practices according to key stakeholders: (a) students, (b) teacher, (c) job coach, and (d) work site coworkers?

As a result of COVID-19, not all social validity interviews could be conducted. Attempts to gain a student participant willing to talk via phone were unsuccessful. Out of

respect for participants in very uncertain times; I did not make more than 3 attempts. Attempts were made via phone. I was able to interview the teacher, job coach, and coworker via telephone.

All adult stakeholders viewed self-evaluation as socially significant and important to student growth and learning. Interview questions focused on the themes of self-determination, self-management, self-evaluation intervention, and employment for individuals with disabilities.

Teacher

The participating educator felt the most important skills of self-determination were self-awareness and self-advocacy. She discussed the critical nature of self-determination behaviors for future success, but also noted the lack of emphasis in educational programs. She stated, “these skills [self-determination] are expected of students but not modeled or shown.” Ms. S. also stressed the importance of students leaving high school with skills of self-management—being able to “navigate the world yourself.”

Regarding the self-evaluation intervention, the teacher saw these skills as very important and necessary, but she also saw challenges to implementation. Interestingly, Ms. S. talked about the emphasis placed in schools on strengths, preferences, and interests of students, but the lack of attention paid to identification of deficits or areas of weakness. She stressed the need for more skills of self-evaluation to be able to “at the end of the day be realistic about our personal expectations for our futures; including what we do good or poor.”

Addressing questions of employment, Ms. S. discussed the importance of self-determination skills, particularly self-evaluative skills, specific to the jobs at the hotel. “If they [students] don’t have a true or accurate picture of skills or deficits, it could place themselves in harm’s way.” She further emphasized lack of knowledge about oneself could

cause students to misrepresent their skills and be a cause of safety concern. This "over-inflation" of skills can be addressed through instruction in self-evaluation, Ms. S. highlighted.

Involving soft skills as part of the self-evaluation process was seen as beneficial to the teacher. She ranked the importance of communication, responsibility (i.e. attendance, punctuality), and working as a team member over other areas of employable soft skill behaviors.

Job Coach

Questions for the job coach were not as extensive as the primary educator. Overall, the job coach saw the self-evaluation intervention as important, useful, impactful, and easy to do. She talked about how regularly assessing hard job skills was her primary focus, but saw the benefit to involving evaluation of soft skills.

The job coach saw the evaluation of personal performance as very important to learn for students with disabilities. She referenced "moving away from unrealistic ideas about what he can do and then the reality of what his skills are." For the job coach, she viewed skills of following through with all steps—beginning to end—as the most critical piece of self-management and self-determination.

Coworker

While the Embassy Suites coworker was not directly involved in the evaluation process or data collection, it was important to gain an employer perspective on the study and tool of self-evaluation. Tommy worked at Embassy Suites for 3 years in the role of day supervisor for banquet staff; working directly with Project SEARCH interns throughout his career at the hotel. Tommy's primary role in relation to the study participants involved job-specific skills training, providing daily instructions, and monitoring work.

Tommy thought self-management was especially important for working in the banquets area because so many of the tasks were dependent upon serving others. “If you can’t manage yourself when you’re trying to work a 200 person meeting then you’re going to get a lot of angry people.” He went on to say that he viewed the skills of communication, mannerisms, greetings, speed/time management, and interpersonal skills as the most important for his supervisees. Tommy talked about how much he enjoyed working with the Project SEARCH interns, and in his eyes, they are equivalent workers to other employees. He also felt self-evaluation was a tool that he personally used every day. “I ask myself ‘What can I be better at?’ It helps to set goals for yourself, and reflect and adjust what you do every day.” When asked if he thought students should be evaluating their own performance at work, Tommy thought it wasn’t “just a good idea, but something every worker should do.”

Research Question 6: What is the feasibility of incorporating self-evaluation into an already existing observational evaluation process?

For key stakeholders who perform evaluation of student behaviors, the teacher and job coach, all felt self-evaluation would be easily incorporated into their current observation system. The teacher, in particular, saw self-evaluation as a value-added skill to integrate into the current program and instruction. She spoke at length about placing order of importance of self-determination behaviors on self-awareness (i.e. awareness of one’s own strengths and weaknesses).

Overall, key stakeholders felt the intervention was worthwhile, important, and easy to use. Coupling the social validity results with data, self-evaluation applied to employable soft skill behaviors demonstrates promise as an effective intervention.

CHAPTER 5: DISCUSSION

The purpose of this study was to extend the current literature within the fields of Applied Behavior Analysis (ABA) and special education transition through the use of self-evaluation applied to essential employable soft skills in the authentic work environment. Individuals with an intellectual or developmental disability continue to lag behind same-age peers in postsecondary employment (Hiersteiner et al., 2016; McFarland et al., 2018). Providing strategies and tools to increase the potential for higher levels of postsecondary outcomes, as defined by greater employment, is critical for this population.

While the timeline for this study did not go as planned, the results warrant thorough discussion as to the potential application to future research, and most importantly, to practitioners in the fields of ABA and special education.

Study Disruption

Due to the COVID-19 global pandemic, all data collection was abruptly halted during week three of the study, an estimated three weeks of data collection were still anticipated. Further data collection would consist of maintenance data and more student participants entering intervention followed by maintenance. However, a state order was issued to halt public schools' instruction for three weeks (spring break and two weeks following). Following this 3-week period, public schools would re-open in the form of "distance learning". For study participants, continuing their "typical" day through distance learning was rendered impossible, as approximately 90% of their school day was spent mimicking fulltime employment for Embassy Suites. Thus, students would not return to complete the study, including all maintenance probes. Ironically, external socio-political challenges were also experienced during a study previously conducted examining self-evaluation in Spring

2018. Teachers across the state of Oklahoma implemented a teacher walkout and schools were out for three and a half weeks; data collection had to be shifted and the study restarted.

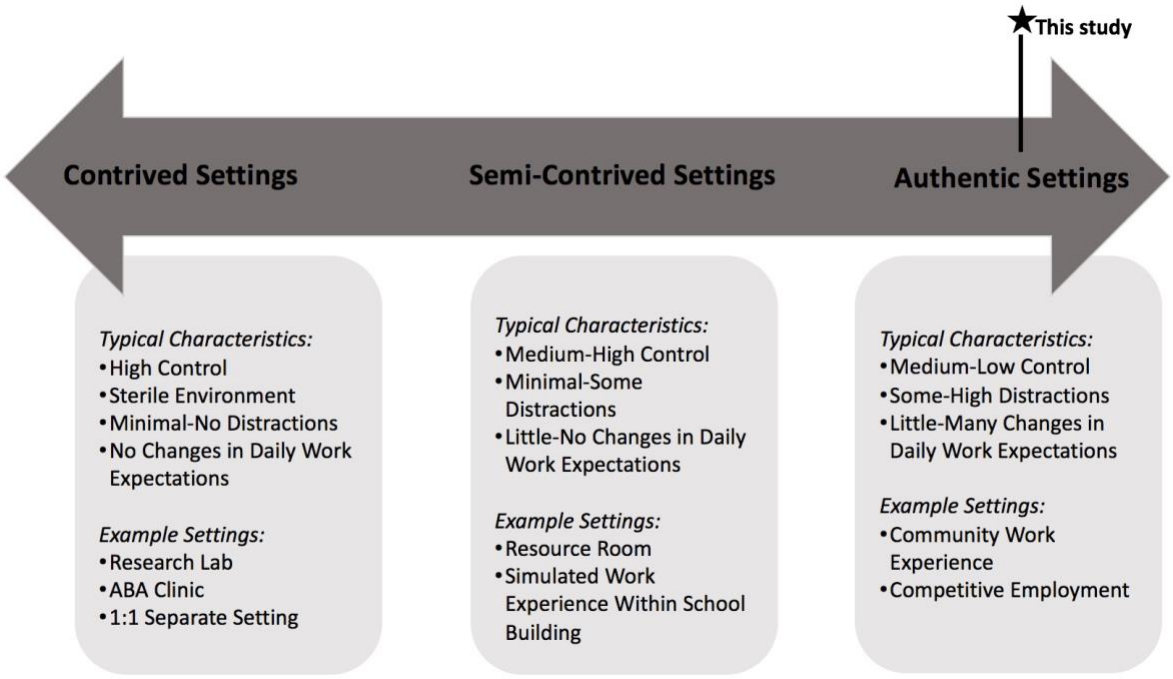
School-based research can pose significant challenges with implementation; however, benefits far outweigh potential complications encountered. School-based research is critical on multiple levels: (a) decreasing the research-to-practioner gap; (b) directly supporting students with disabilities in making socially significant changes to behavior; and (c) equipping teachers with skills applicable across settings, behaviors, and students.

School-Based Research

The scientific method was designed for research to manipulate one variable in the environment at a time; attempting to control all other variables. Although this is accomplished readily with hard sciences in a sterile lab, and even fairly readily accomplished within the psychology lab's controlled environment; the same principles are difficult to replicate in authentic settings. Oftentimes, scientific study is rooted in contrived settings to manage and control extraneous variables. Applying the scientific method to the classroom or other authentic environments, including work settings, poses significant challenges, but the applied nature of these environment-based settings is necessary to address real-world issues (Martella et al., 2013). Figure 3 demonstrates where this study falls on the continuum of research settings and potential challenges. In the fields of ABA and special education—both, by design, focus on the *individual*—conducting research within the true, authentic environment is how we assess an intervention's potential effect within "real life". In fact, research shows community-based instruction within authentic environments should be the aim of educational and behavioral programs (Agran et al., 1994).

Figure 3

Continuum of Research Settings



In this study, attempts to address threats to internal validity were incorporated, and measures were taken to control for potential extraneous variables. Participants with good attendance records were recruited to avoid gaps in data collection. Behaviors are not always displayed every day in every environment, and therefore the use of confederates elicited target behavior responses from participants. Training was provided to the teacher, job coach, and students on study procedures, intervention format, data collection, and observation. Standardization of direct observation procedures occurred for timing, type of data collection, and settings. Controlling for these confounding variables increases the internal validity of a study (Cooper et al., 2020).

Practitioner Involvement in Research

For classroom-based studies, it is important to directly involve the practioner in the research process (Martella et al., 2013). The special educator can provide insight into the intricacies of the setting, and also the students themselves. Furthermore, involving a practioner in implementation and/or data collection can increase how vested they are, potentially increasing the probability of continuation the intervention after the study is over (Klinger et al., 1999). Furthermore, the practitioner was used as an IOA rater for the direct observations of behaviors. This training for IOA allowed for the teacher to receive practice on best methods for direct observations of behaviors.

Identification of best practices in teaching is a key tenant of special education research, but as researchers we must move beyond identification. Implementation by practitioners is the next step to improving outcomes for students; the final step being sustainability of those practices over time. It then becomes a practice deemed fully integrated into classrooms and instruction. Klinger et al. (1999) noted key considerations for increasing this sustainability of practices in reading interventions and those same considerations can be applied to this study.

Researchers highlighted the important factors in maintaining a practice in multiple ways: (a) supportive network, (b) administrative backing for intervention use, (c) responsiveness of students to the intervention, (d) limited understanding leads to lack of implementation, and (e) external pressures beyond teacher control impeding sustained practice use (Klinger et al., 1999). This study directly addresses several of these considerations. First, students demonstrated high responsiveness and general satisfaction of self-evaluation procedures. Second, a professional relationship between the primary researcher and the instructional staff developed to provide sustained support over time, and beyond the confines of this study. Providing ongoing training and support is ethically best

practice as a researcher. Third, involvement of instructional staff throughout all steps of the study increased understanding of the intervention, identification of target behaviors, and implementation of self-evaluation with students. As researchers, we need to do better for our teacher and student participants to move beyond demonstrating an interventions' effectiveness with them, but rather set up studies in ways that removal of the primary researcher will cause minimal effect on continuation of intervention use.

Student Involvement in Research

Direct student involvement in the process of research is aligned with the promotion of self-determination skills. Individuals in this study were asked for input in multiple ways: (a) assessment completion, (b) target behavior identification, and (c) social validity of the intervention. Generally, students were evaluated by their supervisors (i.e., teacher, job coaches, coworkers), but never asked for their input on their personal performance.

Key component behaviors of self-determination include (a) self-awareness and self-knowledge, (b) goal setting and attainment, and (c) self-management and self-regulation (Wehmeyer et al., 2008). This study contributes to the development of these behaviors in multiple ways.

Self-awareness and self-knowledge are rooted in a clear understanding of one's own personal strengths and weaknesses. Instructing students to practice the skill of self-examination of their personal behaviors daily allowed them to pay attention to themselves in a different way. Being self-reflective is a skill that can be taught, and through self-evaluation, further honed. Having self-knowledge in relation to employable soft skills can support an individual's ability to highlight skills during the job interview process or in resumé creation.

Goal setting and attainment is an additional skill of self-determination highlighted by this intervention. Students were asked for their input on self-assessments and in the goal

selection of employable soft skill behaviors. Involving students in this process increases the personal investment in attainment of the goal, and models how we are personally responsible for our behaviors.

Finally, self-management and self-regulation are self-determination components directly practiced throughout the study by participants. Self-evaluation is a critical behavior under the umbrella of self-management (Cooper et al., 2020); however, it is often underutilized. This study demonstrated how student involvement in self-evaluation may have positive effects on employable soft skill behaviors. Student involvement is promoted throughout transition literature; however, actual classroom practices don't always reflect this practice. This study setting demonstrates this gap between theory and practice. While the students were involved in transition components of their individualized education programs (IEPs); students were not involved in daily evaluations of their performance or skill development. Lack of student involvement across aspects of a student's day is a missed opportunity for teachers to develop skills of self-determination.

Developing skills of self-evaluation directly supports these critical components. Involving students in the development, selection, and evaluation of target employable soft skill behaviors is concurrently promoting and strengthening key behaviors of self-determined individuals. And while students may not formally evaluate themselves daily in future jobs, they most likely will be asked to provide input on their performance—this study provides students with an explicit approach to self-evaluation that may support their future success and performance in future employment.

Research Questions Discussion

Returning back to the research questions for this study, there are notable findings as well as implications for practice and future research.

Research Question 1: After implementation of a self-evaluation assessment tool, is there a change in target employable soft skill behavior?

Findings from this study indicate that all three students increased their target employable soft skill behavior from baseline to intervention. While two students completed both the prompted self-evaluation and non-prompted self-evaluation phases, one student, Sarah, did not, due to COVID-19 school closures. Therefore, a functional relation cannot be determined without at least three demonstrations of effect. One cannot attribute changes to target student behaviors directly to the intervention of self-evaluation; however, there appears to be a correlation here. In attrition, due to COVID-19, maintenance probes were not performed, further weakening the determination of a functional relation.

Results of this study showed self-evaluation is a promising intervention to effectively support employable soft skill behavior change in all participants. Prior research has outlined essential behaviors that directly lead to gaining and maintaining employment (Agran et al., 2016), and lack of said soft skills is a potential reason for termination (Lindsay et al., 2014). Within the field of business, identified barriers to employment included lack of self-determination skills and lack of student involvement (Riesen et al., 2014). Supporting the development of employable soft skill behaviors has the potential to positively impact postsecondary outcomes for these participants with an intellectual or developmental disability.

Research Question 2: Do student self-evaluation scores on target behavior match job coach scores on employable soft skill behavior?

In employment settings, supervisors consistently evaluate employee performance across domains of job-specific hard skills and employable soft skills. An increasing number of employees are asked to conduct a performance review on themselves in various fields as

well. For many individuals there is a disconnect between how they see themselves and their performance and how their supervisor views their work. Skills of self-reflection, critical examination of one's work, and self-evaluation of performance are not explicitly taught to most people. For students with an intellectual or developmental disability, this could be even more detrimental to maintaining employment. Employment outcomes for this population remain some of the poorest (Newman et al., 2011).

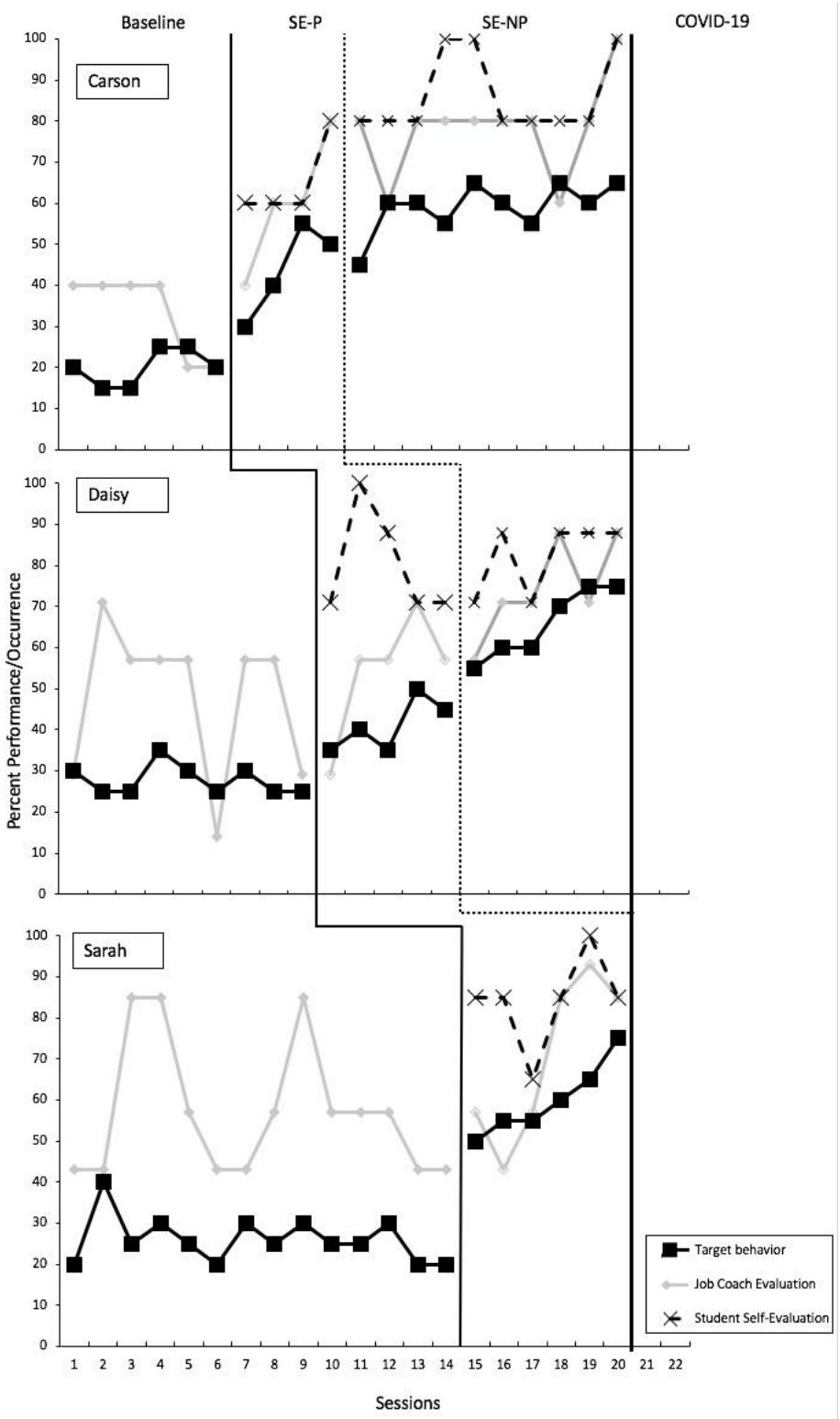
This study showed that, over time, the gap between student self-evaluation scores and job coach scores began to shrink. Self-evaluation scores matching closer to the job coach scores suggests students were becoming constructive critics of their behavior—moving from more subjective self-assessment to more objective self-reflection. This skill is important to future employment because a more reflective employee who is realistic about performance potentially demonstrates higher skills of self-awareness—a critical component of self-determination. Self-awareness is a foundation of self-determined behaviors (Field et al., 1997). Using self-evaluation pushes individuals to have both self-knowledge and self-awareness and beyond, into the ability to reflect and adjust for areas of weakness later in the future. This is demonstrated through data showing that as students began to match job coach scores their target employable soft skill behaviors increased as well. Overlaying all data into one visual display is shown in Figure 3.

An interesting analysis of all data presented in one display is the discrepancy between job coach evaluations of student performance and direct observations of student performance. As the study went on, target employable soft skill behaviors increased, and job coach evaluations of student performance began to trend closer as well. The integration of self-evaluation not only had a positive effect on increasing student behavior, it also had a positive

effect on how the job coach perceived student performance of the specific employable soft skill behavior.

Figure 4

Student Self-Evaluation Scores, Job Coach Evaluation Scores, and Target Employable Soft Skills



Note. SE-P = Self-Evaluation with Prompting; SE-NP = Self-Evaluation with No Prompting.

Reactivity Effect

Both Research Questions 1 and 2 prompt a discussion about the reactivity effect. Reactivity is often assigned to interobserver agreement. This results from observers being aware their observations will be checked and are therefore higher in agreement and accuracy (Martella et al., 2013). Reactivity can be applied to behavioral assessment as well. The person under observation is aware of the presence and purpose of being observed (Cooper et al., 2020). Behavior analysts and educators work to mitigate these effects by being as unobtrusive as possible. This is accomplished by becoming a familiar figure in the environment so as to lessen the reactive effects.

It can be argued, and has been shown previously, that this reactive effect is *not* always a bad thing (Watson & Tharp, 2002). The reactive effects of self-recording have been previously noted (Bornstein et al., 1986). Furthermore, self-recording is effective at increasing desired behaviors and decreasing undesired ones (Watson & Tharp, 2002).

The same logic can be applied to self-evaluation, a cousin to self-recording. For the purposes of this study, self-evaluation capitalizes on the reactivity effect. Extending the application of this theory from self-recording into the realm of self-evaluation in this study demonstrates how reactivity is not a limitation, but a potential strength. During baseline, student target behaviors remained relatively low. When self-evaluation was introduced, students were explicitly provided instruction regarding the process of self-evaluation and the topography of the target behavior. This introduction produced the initial reactive effect on direct observations of behavior, which continued throughout the study. If the mere presence of the primary data collector, the researcher, were to have a reactive effect target behaviors would have increased during baseline, and while there was variability in baseline, overall baseline data were lower than intervention data. This suggests the reactive effect present in

this study was from the self-awareness and knowledge that came after the instruction on intervention procedures. As the study continued and students were prompted during the self-evaluation process via probing questions about their target behaviors, said target behaviors continued to upwardly trend. So much so, that after prompting was faded for Carson and Daisy, target behaviors continued to increase. Based on Sarah's data positively trending at the termination of the study, her behaviors would likely continue to increase and improve.

If maintenance data had been collected, the hypothesis posited by prior research that the reactive effect "goes away" over time, even with self-recorded behaviors (Holman & Baer, 1979), could be further examined. It could be speculated that self-evaluation is a higher-order behavior over self-recording, and therefore, may maintain after an intervention is withdrawn.

Research Questions 3 & 4: Do scores of self-determination change after a self-evaluation intervention? Do scores of employer-identified traits for employees change after a self-evaluation intervention?

Students did not participate in post-assessments of the *AIR* or the *EITA* due to school closure. Prior to the study, students' self-perceptions of their levels of self-determination based on self-scores on the *AIR* would be considered average. It would have been interesting to compare post-assessment scores after participating in a self-evaluation intervention. Same for the *EITA*, comparing pre- and post-assessment scores may have provided insight into how self-evaluation may influence perceptions of performance in critical domains deemed essential by employers.

Research Question 5: What is the social validity of self-evaluation practices according to key stakeholders: (a) students, (b) teacher, (c) job coach, and (d) work-site coworkers?

As stated in Chapter 4, some participants opted out of social validity interviews several weeks after the close of the study. The primary instructor, the job coach, and a coworker participated in social validity interviews.

Information gleaned from the social validity interviews of three primary stakeholders showed self-evaluation is perceived as a valued and important skill for students with disabilities to learn, especially in a work environment. Both the teacher and job coach discussed the importance of recognizing not only personal strengths, but limitations as well. The process of self-evaluation and reflection requires one to critically think and examine their own behavior. Skills of self-awareness and self-knowledge are a natural consequence of self-evaluation procedures. Students with an intellectual or developmental disability are often the most vulnerable populations as adults for a variety of reasons (Agran et al., 1994). Increasing an individual's ability to know boundaries of ability through self-evaluation could have lasting impact in many areas of life.

A common theme highlighted by the primary educator in her interview was that of lack of explicit instruction in self-determined behaviors, such as self-management or self-evaluation. She saw this study and the self-evaluation intervention, in particular, as an easy way to incorporate more explicit instruction within the work environment.

Research Question 6: What is the feasibility of incorporating self-evaluation into an already existing observational evaluation process?

Both the teacher and job coach felt the integration of self-evaluation into observations would not be a difficult task. In fact, they viewed it as an important consideration moving forward. Currently, the program relies on traditional methods of job coach/instructor evaluations without input from the students. By not including students in the process, they are missing out on a critical opportunity to provide instruction on multiple component

behaviors of self-determination, but also on developing skills of personal responsibility. Ms. S. alluded to this population of students having "most things done for them" either by parents, teachers, or job coaches. She worried students with an intellectual or developmental disability were at a disadvantage going into adulthood where much of the onus falls on one's own shoulders. Incorporating skills of self-evaluation brings the involvement of students to the forefront of skill development, enhancement, and improvement. Thinking back to the ultimate goal of education—preparation for life—it is not preparation for someone else to lead your life—but yourself. Students with an intellectual or developmental disability are no different, and they must be given opportunities to develop these skills of self-determination during their educational career to better set them up for more positive postsecondary outcomes in their "real" career.

Limitations

Every study is subject to limitations. The primary limitation of this study was time. School-based research comes with parameters set forth by districts. This study required an additional IRB approval process from the local school district. It took a month and a half to get final approval. Once approval was obtained, further limitations on time occurred due to classroom-level factors. As researchers we must be flexible and adapt to accommodate our study participants. With school-based research this can be considerably complicated as a result. Although IRB and approvals were started in September, data collection did not begin until late February due to various school-based limitations.

The largest time-based limitation of this study was COVID-19. Originally, six students agreed and consented to participate; however, only three were able to participate, with only two going through all phases of intervention. Data collection ending prematurely

hindered the capability for determining a functional relation across three demonstrations of effect, and obstructed the ability to examine the maintenance effects of self-evaluation.

A second limitation of this study is the dynamic and changing nature of the work environment. Utilizing a real-world authentic setting meant there was considerable variability in daily work tasks. For example, working in banquets could include a Monday full of preparation for a large lunch buffet, and Tuesday no events occurring and therefore working on inventory. While each day requires significantly different hard skill sets, target employable soft skills should translate across tasks. This was not always the case, and thus a confederate had to be employed to elicit the specific behavioral responses for direct observation.

Third, this study focused on application of self-evaluation to employable soft skill behaviors; however, did not provide explicit instruction on ways to improve behaviors. Had the intervention involved an instructional component in the employable soft skill behavior, perhaps results of this study would be different. More research must be done to examine the instruction in employable soft skill behaviors and the relation to self-evaluation.

As explained previously, self-evaluation by students was not done during baseline. The rationale behind this was sound—implementation of self-evaluation during baseline would have required more instruction that would have negated "business-as-usual". This does pose some limitation to this study, though, because in typical intervention research the intervention should be present across all study conditions.

Implications for Practice and Areas for Future Research

This intervention study was rooted in principles of behavior analysis and critical components in the field of special education transition. Unfortunately, these fields are too often siloed off from one another in ways that are counter-productive. This study adds to both

fields in a way that demonstrates the connected nature of ABA and transition. What is important to note is practitioners in both fields 'don't know what they don't know'; nor can they be expected to implement tools and strategies they have limited to no knowledge of.

The separation of these two fields is rooted in preparation programs. Many course sequences in ABA are housed within university departments outside of special education. Principles of ABA, particularly those listed within the professional standards set forth by the Behavior Analysis Credentialing Board (BACB), do not place an emphasis on applications of ABA within school settings. Searching the 4th edition task list for Board Certified Behavior Analysts (BCBAs), there is zero reference or use of the words "school", "special education" or "education". Unfortunately, many ABA programs focus on preparation for the credentialing exam, and consequently, do not focus on applications of ABA within school or community work settings. For those BCBAs working within school settings, typically, the application of ABA is in relation to severe, challenging behaviors, students with significant support needs, or (due to insurance regulations) only students with a diagnosis of autism. On the special education side, many future teachers are not well-versed in behavior-change principles of ABA. Many teachers do not take any courses in ABA, but rather a survey course in classroom management. Even in those preparation programs that provide an introduction to ABA, teachers may not have the prerequisite skills to design and implement interventions rooted in the science of behavior analysis. Both fields of ABA and special education must do better in preparation programs to incorporate tenets of each discipline. For those ABA and special education practitioners well-versed in both; they are able to expand their scope of competency and practice. Results of this is directly beneficial to students—more comprehensive interventions, more students served, and with systematic, scientific methods.

For special education teachers, this study demonstrates how principles and strategies of ABA can be effectively applied to employable soft skill behaviors within work-based settings. For ABA practitioners working with older students, this study demonstrates the importance of keeping the end in mind—what will the transition to adulthood look like, and are we best preparing our learners for this world in meaningful ways? While transition is often viewed as a special education focus area, I would argue that anyone who works with learners of any age must begin to consider transition outcomes—where will our learners live, work, and learn post-high school? An area for future research should be the application of behavior skills training (BST) specific to employable soft skills infused with self-evaluation. This study did not provide instruction in the target behavior, just called attention to it. Perhaps had both self-evaluation procedures and BST for the target behaviors occurred, even more positive increases would have been noted.

Practitioners should incorporate ways to increase self-determined behaviors within authentic settings. For community-based learning or work-based instructional programs, integrating self-evaluation skills is a wise decision. Student involvement in the field of special education is an area flush with research, but it has primarily focused on the areas of IEP development and meeting involvement. Student involvement is necessary, and required by federal law, to programmatic planning, but student involvement is also critical in learning and skill development. The more you are vested in an activity, the more you care; this often creates the behavioral momentum to continue to improve and grow as a learner. Becoming directly involved in the process is one way to further exploit that momentum (Watson & Tharp, 2002).

Future research should include maintenance data to further examine the effects longer term, and generalizability of skills. Furthermore, self-evaluation should continue to be

explored as applied to employable soft skills. These behaviors remain difficult to operationally define, but also remain critically important to the future success of those with an intellectual or developmental disability.

This study specifically looked at a self-evaluation tool implemented via technology, and personal technology at that. The privilege afforded by districts offering technology one-to-one programs or families who can afford a smart device for their student is great. Further examination of self-evaluation should involve a comparison of high-tech self-evaluation, like this study, and low-tech self-evaluation completed without internet or device access.

Other knowledge for practitioners to garner from this study is that of capitalizing on reactivity. This byproduct of self-evaluation procedures is a no-cost benefit to students and instructors. This study showed as these participants utilized self-evaluation, target employable soft skills behaviors improved and increased. Prior research had noted as time goes on reactivity decreases as well; this warrants further research as it is applied to self-managed behaviors (as opposed to the reactivity of an outside observer).

Finally, this study demonstrates the continued importance of student involvement in all aspects of an educational program—not just the federally required bits. Through student involvement, skills of self-determination can continue to be fostered and developed under the guidance of educators. Increasing skills of self-determination remains a predictor for future positive postsecondary outcomes.

In Summary

The root of ABA is to promote socially significant behavior change for our learners (Baer et al., 1968, 1987). To that end, this study accomplished the goal. Being able to manage one's own behavior is often seen as sign of a "well-adjusted" and "successful" adult. A critical component to managing one's behavior is the ability to self-evaluate. For students

with an intellectual or developmental disability, this can be an area of weakness. Equipping this population with increased self-determined behaviors may help them gain employment, maintain that employment, and increase their postsecondary outcomes. As employment statistics highlight, this population of individuals is particularly vulnerable to lack of employment or under-employment. Self-evaluation of employable soft skills has the potential to help alleviate these dire job projections.

REFERENCES

Agran, M., Hughes, C., Thoma, C. A., & Scott, L. A. (2016). Employment social skills: What skills are really valued? *Career Development and Transition for Exceptional Individuals, 39*(2), 111-120. https://doi.org/10.1177/2165143414546741

Agran, M., Marchand-Martella, N. E., & Martella, R. C. (1994). *Promoting health and safety: Skills for independent living.* Paul H. Brookes Publishing Company.

Algozzine, B., Browder, D., Karvonen, M., Test, D. W., & Wood, W. M. (2001). Effects of interventions to promote self-determination for individuals with disabilities. *Review of Educational Research, 71*(2), 219-277. https://doi.org/10.3102/00346543071002219

Aljadeff-Abergel, E., Schenk, Y., Walmsley, C., Peterson, S. M., Frieder, J. E., & Acker, N. (2015). The effectiveness of self-management interventions for children with autism—A literature review. *Research in Autism Spectrum Disorders, 18*, 34-50. https://doi.org/10.1016/j.rasd.2015.07.001

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*(1), 91-97. https://doi.org/10.1901/jaba.1968.1-91

Baer, D. M., Wolf, M. M., & Risley, T. R. (1987). Some still current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 20*(4), 313-327. https://doi.org/1.1901/jaba.1987.20-313

Bahri, L., Mirnasab, M. M., Noorazar, S. G., Fathi-Azar, E., & Asadi, S. (2016). The effect of self-management strategies on improving task performance in students with learning disabilities. *Journal of Analytic Research in Clinical Medicine, 4*(1), 53-65. https://doi.org/10.15171/jarcm.2016.009

Barlow, D. H., Nock, M. K., & Hersen, M. (2009). *Single case experimental designs: Strategies for studying behavior change* (3rd ed.). Pearson.

Behavior Analyst Certification Board. (2019). *Professional and ethical compliance code for behavior analysts.* https://www.bacb.com/ethics/

Blackorby, J., & Wagner, M. (1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the National Longitudinal Transition Study. *Exceptional Children, 62*(5), 399-413. https://doi.org/10.1177/001440299606200502

Bouck, E. C., Savage, M., Meyer, N. K., Taber-Doughty, T., & Hunley, M. (2014). High-tech or low-tech? Comparing self-monitoring systems to increase task independence for students with autism. *Focus on Autism and Other Developmental Disabilities, 29*(3), 156-167. https://doi.org/10.1177/1088357614528797

Bornstein, P. H., Hamilton, S. B., & Bornstein, M. T. (1986). Self-monitoring procedures. In A. R. Ciminero, K. S. Calhoun & H. E. Adams (Eds.). *Handbook of behavioral assessment* (2nd ed., pp. 176-222). Wiley.

Briesch, A. M., & Briesch, J. M. (2016). Meta-analysis of behavioral self-management interventions in single-case research. *School Psychology Review, 45*(1), 3-18. https://doi.org/10.17105/SPR45-1.3-18

Briesch, A. M., & Chafouleas, S. M. (2009). Review and analysis of literature on self-management interventions to promote appropriate classroom behaviors (1988-2008). *School Psychology Quarterly, 24*(2), 106-118. https://doi.org/10.1037/a0016159

Briesch, A. M., Daniels, B., & Beneville, M. (2019). Unpacking the term "self-management": Understanding intervention applications within the school-based literature. *Journal of behavioral education, 28*, 54-77. https://doi.org/10.1007/s10864-018-9303-1

Browder, D. M., & Shapiro, E. S. (1985). Application of self-management to individuals with severe handicaps: A review. *The Journal of the Association for Persons with Severe Handicaps, 10*(4), 200-208. https://doi.org/10.1177/154079698501000403

Bruhn, A. L., McDaniel, S. C., Fernando, J., & Troughton, L. (2016). Goal-setting interventions for students with behavior problems: A systematic review. *Behavioral Disorders, 41*(2), 107-121. https://doi.org/10.17988/0198-7429-41.2.107

Bruhn, A., McDaniel, S., & Kreigh, C. (2015). Self-monitoring interventions for students with behavior problems: A systematic review of current research. *Behavioral Disorders, 40*(2), 102-121. https://doi.org/10.17988/BD-13-45.1

Carr, M. A., Moore, D. W., & Anderson, A. (2014). Self-management interventions on students with autism: A meta-analysis of single-subject research. *Exceptional Children, 81*(1), 28-44. https://doi.org/10.1177/0014402914532235

Cheng Chia, G. L., Anderson, A., & McLean, L. A. (2018). Use of technology to support self-management in individuals with autism: A systematic review. *Review Journal of Autism and Developmental Disabilities, 5*, 142-155. https://doi.org/10.1007/s40489-018-0129-5

Clark, K. A., Test, D. W., & Konrad, M. (2019). Teaching soft skills to students with disabilities with UPGRADE your performance. *Education and Training in Autism and Developmental Disabilities, 54*(1), 41-56.

Cook, B. G., Buysse, V., Klinger, J., Landrum, T. J., McWilliam, R. A., Tankersley, M., & Test, D. W. (2015). CEC's standards for classifying the evidence base of practices in special education. *Remedial and Special Education, 36*(4), 220-234. https://doi.org/10.1177/0741932514557271

Cooper, J. O., Heron, T. E., & Heward, W. L. (2020). *Applied behavior analysis* (3rd ed.). Pearson.

Council for Exceptional Children. (2014). *Council for exceptional children standards for evidence-based practices in special education*. https://www.cec.sped.org/Standards/Evidence-Based-Practice-Resources-Original

Dalton, T., Martella, R. C., & Marchand-Martella, N. E. (1999). The effects of a self-management program in reducing off-task behaviors. *Journal of Behavioral Education, 9*, 157-176. https://doi.org/10.1023/A:1022183430622

Education for All Handicapped Children Act of 1975, P.L. 94-142, 20 U.S.C. § 1401 *et seq.*

Elksnin, N., & Elksnin, L. K. (2001). Adolescents with disabilities: The need for occupational social skills training. *Exceptionality*, *9*(1-2), 91-105. https://doi.org/10.1080/09362835.2001.9666993

Etscheidt, S. (2006). Issues in transition planning: Legal decisions. *Career Development for Exceptional Individuals, 29*(1), 28-47. https://doi.org/10.1177/08857288060290010201

Fast, A. (2016). *It's the mission, not the mandates: Defining the purpose of public education.* Lanham, MD: Rowman & Littlefield.

Field, S., Hoffman, A., & Posch, M. (1997). Self-determination in adolescence: A developmental perspective. *Remedial and Special Education, 18*(5), 285-293. https://doi.org/10.1177/074193259701800504

Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children, 71*(2), 149-164. https://doi.org/10/1177/001440290507100202

Grossi T. A., & Heward, W. L. (1998). Using self-evaluation to improve work productivity of trainees in a community-based restaurant training program. *Education and Training in Mental Retardation and Developmental Disabilities, 33*(3), 248-263. https://www.jstor.org/stable/23879095

Harchik, A. E., Sherman, J. A., & Sheldon, J. B. (1992). The use of self-management procedures by people with developmental disabilities: A brief review. *Research in Developmental Disabilities, 13*(3), 211-227. https://doi.org/10.1016/0891-422(92)90026-3

Hiersteiner, D., Butterworth, J., Bershadsky, J., & Bonardi, A. (2016). *Working in the community: The status and outcomes of people with intellectual and developmental disabilities in integrated employment—Update 2.* NCI Data Brief, May 2016. Human Services Research Institute.

Hitchcock, J. H., Horner, R. H., Kratochwill, T. R., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2014). The what works clearinghouse single-case design pilot standards: Who will guard the guards? *Remedial and Special Education, 35*(3), 145-152. https://doi.org/10.1177/0741932513518979

Holman, J., & Baer, D. M. (1979). Facilitating generalization of on-task behavior through self-monitoring of academic tasks. *Journal of Autism and Developmental Disorders, 9*, 429-446. https://doi.org/10.1007/BF01531449

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. https://doi.org/10.1177/001440290507100203

Individuals with Disabilities Education Act of 1990, P.L. 101-476, 20 U.S.C. § 1401 *et seq.*

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446, 20 U. S. C. § 1400 et seq.

Ju, S., Zhang, D., & Pacha, J. (2012). Employability skills valued by employers as important for entry-level employees with and without disabilities. *Career Development and Transition for Exceptional Individuals, 35*(1), 29-38. https://doi.org.10.1177/0885728811419167

Keller, C. L., Brady, M. P., & Taylor, R. L. (2005). Using self-evaluation to improve student teacher interns' use of specific praise. *Education and Training in Developmental Disabilities, 40*(40), 368-376. https://jstor.org/stable/23879954

Klinger, J. K., Vaughn, S., Hughes, M. T., & Arguelles, M. E. (1999). Sustaining research-based practices in reading. *Remedial and Special Education, 20*(5), 263-274, 287. https://doi.org/10.1177/074193259902000502

Lee, S. H., Simpson, R. L., & Shogren, K. A. (2007). Effects and implications of self-management for students with autism: A meta-analysis. *Focus on Autism and Other Developmental Disabilities, 22*(1), 2-13. https://doi.org/10.1177/10883576070220010101

Lindsay, S., Adams, T., Sanford, R., McDougall, C., Kingsnorth, S., & Menna-Dack, D. (2014). Employers' and employment counselors' perceptions of desirable skills for entry-level positions for adolescents: How does it differ for youth with disabilities? *Disability and Society, 29*(6), 953-967. https://doi.org/10.1080/90687599.2013.874330

Mabe, P. A., & West, S. G. (1982). Validity of self-evaluation of ability: A review and meta-analysis. *Journal of Applied Psychology, 67*(3), 280-296. https://doi.org/10.1037/0021-9010.67.3.280

Maggin, D. M., Briesch, A. M., & Chafouleas, S. M. (2013). An application of What Works Clearinghouse standards for evaluation single-subject research: Synthesis of the self-management literature base. *Remedial and Special Education, 34*(1), 44-58. https://doi.org/10.1177/0741932511435176

Martella, R. C., Nelson, J. R., Morgan, R. L., & Marchand-Martella, N. E. (2013). *Understanding and interpreting educational research*. The Guilford Press.

Matorell, A., Gutierrez-Recacha, P., Pereda, A., & Ayuso-Mateos, J. L. (2008). Identification of personal factors that determine work outcome for adults with intellectual disability. *Journal of Intellectual Disability Research, 52*(12), 1019-1101. https://doi.org/10.1111/j.1365-2788.2008.01098.x

Mayer, G. R., Sulzer-Azaroff, B., & Wallace, M. (2014). *Behavior analysis for lasting change* (3rd ed.). Sloan Publishing.

Mazzotti, V. L., Rowe, D. A., Sinclair, J., Poppen, M., Woods, W. E., & Shearer, M. L. (2016). Predictors of post-school success: A systematic review of NLTS2 secondary analyses. *Career Development and Transition for Exceptional Individuals, 39*(4), 196-215. https://doi.org/10.1177/2165143415588047

McDougall, D., Heine, R. C., Wiley, L. A., Sheehey, M. D., Sakanashi, K. K., Cook, B. G., & Cook, L. (2016). Meta-analysis of behavioral self-management techniques used by students with disabilities in inclusive settings. *Behavioral Interventions, 32*(4), 399-417. https://doi.org/10.1002/bin.1491

McFarland, J., Hussar, B., Wang, X., Zhang, J., Wang, K., Rathbun, A., Barmer, A., Forrest Cataldi, E., Bullock Mann, F. (2018). *The condition of education 2018* (NCES 2018-144). National Center for Education Statistics. https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2018144

National Technical Assistance Center on Transition. (2016). *Evidence-based practices and predictors in secondary transition: What we know and what we still need to know*.

Nelson, J. R., Smith, D. J., Young, R. K., & Dodd, J. M. (1991). A review of self-management outcome research conducted with students who exhibit behavioral disorders. *Behavioral Disorders, 16*(3), 169-179. https://doi.org/10.1177/019874299101600308

Newman, B., Reinecke, D. R., & Meinberg, D. L. (2000). Self-management of varied responding in three students with autism. *Behavioral Interventions, 15*(2), 145-151. https://doi.org/10.1002/(SICI)1099-078X(200004/06)15:2<145::AID-BIN50>3.0.CO;2-3

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 from the National Longitudinal Transition Study-2 (NLTS2)* (NCSER 2011-3005). SRI International.

Pierce, K. L., & Schreibman, L. (1994). Teaching daily living skills to children with autism in unsupervised settings through pictorial self-management. *Journal of Applied Behavior Analysis, 27*(3), 471-481. https://doi.org/10.1901/jaba.1994.27-471

Riesen, T., Morgan, R., Schultz, J., & Kupferman, S. (2014). School-to-work barriers as identified by special educators, vocational rehabilitation counselors, and community rehabilitation professionals. *Journal of Rehabilitation, 80*(1), 33-44.

Robles, M. M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly, 75*(4), 453-465. https://doi.org/10.1177/1080569912460400

Rowe, D. A., Alverson, C. Y., Unruh, D. K., Fowler, C. H., Kellems, R., & Test, D. W. A Delphi study to operationalize evidence-based predictors in secondary transition. *Career Development and Transition for Exceptional Individuals, 38*(2), 113-126. https://doi.org/10.1177/2165143414526429

Rusch, F. R., & Dattilo, J. (2012). Employment and self-management: A meta-evaluation of seven literature reviews. *Intellectual and Developmental Disabilities, 50*(1), 69-75. https://do.org/10.1352/1934-9556-50.1.69

Rutkowski, S., Datson, M., Van Kuiken, D., & Riehle, E. (2006). Project SEARCH: A demand-side model of high school transition. *Journal of Vocational Rehabilitation, 25*(2), 85-96.

Shafer, M. S. (1987). Supported competitive employment: The use of self-management programming in the follow-along process. *Journal of Rehabilitation, 53*(1), 31-44.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Rifenbark, G. G., & Little, T. D. (2015). Relationships between self-determination and postschool outcomes for youth with disabilities. *The Journal of Special Education, 48*(4), 256-267. https://doi.org/10.1177/0022466913489733

Sidman, M. (1988). *Tactics of scientific research: Evaluating experimental data in psychology*. Authors Cooperative, Inc.

Simões, C., & Santos, S. (2016). Comparing the quality of life of adults with and without intellectual disability. *Journal of Intellectual Disability Research, 60*(4), 378-388. https://doi.org/10.1111/jir.12256

Simpson, R. L., LaCava, P. G., & Sampson Graner, P. (2004). The No Child Left Behind Act: Challenges and implications for educators. *Intervention in School and Clinic, 40*(2), 67-75. https://doi.org/10.1177/10534512040400020101

Slavin, R. E. (2017). Evidence-based reform in education. *Journal of Education for Students Placed at Risk, 22*(3), 178-184. https://doi.org/10.1080/10824669.2017.1334560

Slocum, T. A., Detrich, R., Wilczynski, S. M., Spencer, T. D., Lewis, T., & Wolfe, K. (2014). The evidence-based practice of applied behavior analysis. *The Behavior Analyst, 37*, 41-56. https://doi.org/10.1007/s40614-014-0005-2

Smith, A. (2003). Scientifically based research and evidence-based education: A federal policy context. *Research and Practice for Persons with Severe Disabilities, 28*(3), 126-132.

Spates, C. R., & Kanfer, F. H. (1977). Self-monitoring, self-evaluation, and self-reinforcement in children's learning: A test of a multistage self-regulation model. *Behavior Therapy, 8*(1), 9-16. https://doi.org/10/1016/S0005-7894(77)80115-9

Storey, K. (2007). Review of research on self-management interventions in supported employment settings for employees with disabilities. *Career Development for Exceptional Individuals, 30*(1), 27-34. https://doi.org/10.1177/08855288070300010301

Sweeney, W. J., Salva, E., Cooper, J. O., & Talbert-Johnson, C. (1993). Using self-evaluation to improve difficult-to-read handwriting of secondary students. *Journal of Behavioral Education, 3*, 427-443. https://doi.org/10.1007/BF00961545

Test, D. W., Fowler, C. H., Richter, S. M., White, J., Mazzotti, V., Walker, A. R., Kohler, P., & Kortering, L. (2009). Evidence-based practices in secondary transition. *Career Development for Exceptional Individuals, 32*(2), 115-128. https://doi.org/10.1177/0885728809336859

Watson, D. L., & Tharp, R. G. (2002). *Self-directed behavior: Self-modification for personal adjustment* (8th ed.). Wadsworth Group.

Wehman, P., Schall, C., McDonough, J., Molinelli, A., Riehl, 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, 15*(3), 144-155. https://doi.org/10.1177/1098300712459760

Wehmeyer, M. L. (2015). Framing the future: Self-determination. *Remedial and Special Education, 36*(1), 20-23. https://doi.org/10.1177/0741932514551281

Wehmeyer, M. L., Agran, M., & Hughes, C. (2000). A national survey of teachers' promotion of self-determination and student-directed learning. *The Journal of Special Education, 34*(2), 58-68. https://doi.org/10.1177/002246690003400201

Wehmeyer, M. L., Martin, J. E., & Sands, D. J. (2008). Self-determination and students with developmental disabilities. In H. P. Parette & G. R. Peterson-Karlan (Eds.), *Research-based practices in developmental disabilities* (pp. 99-122). Pro-Ed.

Wehmeyer, M., L., & Palmer, S. (2003). Adult outcomes for students with cognitive disabilities three-years after high school: The impact of self-determination. *Education and Training in Developmental Disabilities, 38*(2), 131-144. https://www.jstor.org/stable/23879591

What Works Clearinghouse. (2017). *Procedures and standards handbook* (Version 4.0). https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_standards_handbook_v4.pdf

Wittenburg, D. C., & Maag, E. (2002). School to where? A literature review on economic outcomes of youth with disabilities. *Journal of Vocational Rehabilitation, 17*(4), 265-280.

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11*(2), 203-214. https://doi.org/10.1901/jaba.1978.11-203

World Bank. (2018). Life expectancy at birth, total (years). https://data.worldbank.org/indicator/SP.DYN.LE00.IN

Wolman, J., Campeau, P., Dubois, P., Mithaug, D., & Stolarski, V. (1994). *AIR Self-Determination Scale and user guide*. American Institute for Research.

Yell, M. L. (2016). *The law and special education* (4th ed.). Pearson.

Yell, M. L., Katsiyannis, A., & Bradley, M. R. (2017). The individuals with disabilities education act: The evolution of special education law. In J. M. Kauffmann, D. P. Hallahan, & P. Cullen Pullen (Eds.), *Handbook of special education* (2nd ed., pp. 55-70). Routledge.

APPENDIX A

AIR Self-Determination Scale©
EDUCATOR FORM

Student's Name _____Date _____

Date of Birth (or age)_____ Grade_____ ☐ Female ☐ Male

Educator's Name _____

School Name _____

HOW TO FILL OUT THIS FORM

Each page of this form lists characteristics and behaviors that indicate the degree to which your student demonstrates traits of self-determination and the degree to which the people influencing your student provides opportunities that foster self-determination. For each item, select the appropriate rating code based on what you have observed about your student. An example is provided to illustrate each characteristic. Feel free to write in a different example that supports your rating for your student.

Here is an example of how you should mark your answers.

EXAMPLE QUESTION:

Student checks for errors after completing a project.

EXAMPLE ANSWER:

Check the box of the rating code which tells what your student is most like:
(Check **ONLY ONE** box per question).

1 Never……student **never** checks for errors.

2 Almost Never……student **almost never** checks for errors.

3 Sometimes……student **sometimes** checks for errors.

4 Almost Always……..student **almost always** checks for errors.

5 Always……student **always** checks for errors.

KNOWLEDGE of Self-Determination Behaviors

1. Student knows own abilities and limitations. *Example:* James can identify his personal strengths and talents, such as his musical ability as well as areas in which he needs improvement, like his below average math problem-solving skills.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
2. Student knows how to set expectations and goals that satisfy own interests and needs. *Example:* Lee wants to attend college and knows that to get good grades, she needs to work hard on her assignments and complete them on time.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Knowledge Total: Items 1+2	
3. Student knows how to make choices, decisions, and plans to meet own goals and expectations. *Example:* When making plans to meet her goals, Lynn knows how to identify various strategies, weigh the pros and cons, and follow through.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
4. Student knows how to take actions to complete own plans successfully. *Example:* Kenneth knows how to follow through on a scheduled plan to complete his work accurately and on time.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Knowledge Total: Items 3+4	
5. Student knows how to evaluate results of actions to determine what was effective. *Example:* Germaine knows what questions to ask to find out how well she is doing.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
6. Student knows how to change actions or plans to meet goals and satisfy needs and wants. *Example:* Jose understands that to get an A in math, he may need to study one hour every night; if that doesn't work he may have to work two hours every night; and if that doesn't work he may have to learn to study more effectively.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Knowledge Total: Items 5+6	

Please go on to the next page⇒

ABILITY to Perform Self-Determination Behaviors

1. Student expresses own interests, needs, and abilities. *Example:* Sarah communicates her athletic interest and talent in conversations, written journals, or participation in sports activities.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
2. Student sets expectations and goals that will satisfy own interests needs, and wants. *Example:* Loving to spend time drawing and doing art, Daniel sets the goal of finding art classes that he can take after school once a week.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Ability Total: Items 1+2	
3. Student knows how to make choices, decisions, and plans to meet own goals and expectations. *Example:* Anna weighed the pros and cons of doing three types of history projects, chose to write a research report, outlined the report, and made a schedule for completing the report on time.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
4. Student initiates actions on own choices and plans. *Example:* Ming begins work right away each time he gets an assignment or is asked by someone to help with a project.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Ability Total: Items 3+4	
5. Student gathers information on results of actions. *Example:* After completing her work, Theresa checks it for errors and asks others to look it over and make suggestions.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
6. Student changes own actions or plans to satisfy expectations and goals, if necessary. *Example:* Ricardo tries different approaches to solve problems and to complete tasks that are difficult for him.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Ability Total: Items 5+6	

Please go on to the next page⇒

PERCEPTION of Knowledge and Ability to Perform Self-Determination Behaviors

1. Student feels free to express own needs, interests, and abilities, even when facing opposition from others. *Example:* Fran defends her needs and interests to anyone who questions them.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
2. Student feels free to set own goals and expectations, even if they are different from the expectations others have for the student. ***Example:*** Trevor does not feel constrained by others' opinions in setting goals and expectations for himself.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Perception Total: Items 1+2	
3. Student feels free to make own choices, decisions, and plans to meet own goals and expectations. *Example:* Corine often considers her parents' suggestions when making choices and plans, but the final plans taken to meet her goals are her own.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
4. Student feels confident about being able to successfully complete own plans. *Example:* When Nicholas schedules his own activities, he is confident he can complete them accurately and on time.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Perception Total: Items 3+4	
5. Student is confident about using feedback to evaluate results of own work. *Example:* Amanda is confident that she will be able to benefit from the feedback she receives from her parents, teachers, and peers.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
6. Student changes plans again and again to meet a goal without getting discouraged. *Example:* Levar is motivated to work on a project as long as it takes, using whatever approaches are necessary, to get it right.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Perception Total: Items 5+6	

Please go on to the next page⇒

OPPORTUNITY To Perform Self-Determination Behaviors AT SCHOOL

1. Student has opportunities at school to explore, express, and feel good about own needs, interests, and abilities. *Example:* Christine's teachers encourage her to talk about her athletic interests and abilities and about what sports activities she wants to do.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
2. Student has opportunities at school to identify goals and expectations that will meet his or her needs, interests, and abilities; to set these goals; and to feel good about them. *Example:* Troy's teachers let him know that he is responsible for setting his own goals to get his needs and wants met.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Opportunity at School Total: Items 1+2	
3. Student has opportunities at school to learn about making choices and plans, to make them, and to feel good about them. *Example:* Shebra's teachers allow her to make her own choices and plans for school assignments, family chores, and leisure activities.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
4. Student has opportunities at school to initiate actions to meet expectations and goals. *Example:* Manuel's teachers tell him that he is responsible for scheduling study time and for handing in assignments on time.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Opportunity at School Total: Items 3+4	
5. Student has opportunities at school to get results of actions taken to meet own plans. *Example:* Michelle's teachers are available to give feedback on projects whenever she needs it.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
6. Student has opportunities at school to change actions and plans to satisfy own expectations. *Example:* Laurent's teacher encouraged him to take his time and to revise his work as often as necessary to satisfy his own expectations.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Opportunity at School Total: Items 5+6	

Please go on to the next page⇒

OPPORTUNITY To Perform Self-Determination Behaviors AT HOME

1. Student has opportunities at home to explore, express, and feel good about own needs, interests, and abilities. *Example:* Maria's parents encourage her to talk about her athletic interests and abilities and about what sports activities she wants to do.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
2. Student has opportunities at home to identify goals and expectations that will meet his or her needs, interests, and abilities; to set these goals; and to feel good about them. *Example:* Roberto's parents let him know that he is responsible for setting his own goals to get his needs and wants met.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Opportunity at Home Total: Items 1+2	
3. Student has opportunities at home to learn about making choices and plans, to make them, and to feel good about them. *Example:* Kelly's parents allow her to make her own choices and plans for school assignments, family chores, and leisure activities.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
4. Student has opportunities at home to initiate actions to meet expectations and goals. *Example:* Anthony's parents tell him that he is responsible for scheduling study time and for handing in assignments on time.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Opportunity at Home Total: Items 3+4	
5. Student has opportunities at home to get results of actions taken to meet own plans. *Example:* Thuy's parents are available to give feedback on projects whenever she needs it.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
6. Student has opportunities at home to change actions and plans to satisfy own expectations. *Example:* Stacy's parents encourage him to take his time and to revise his work as often as necessary to satisfy his own expectations.	Never ☐ **1**	Almost Never ☐ **2**	Sometimes ☐ **3**	Almost Always ☐ **4**	Always ☐ **5**
				Opportunity at Home Total: Items 5+6	

Please go on to the next page⇒

PLEASE WRITE YOUR ANSWERS TO THE FOLLOWING QUESTIONS IN THE SPACES BELOW.

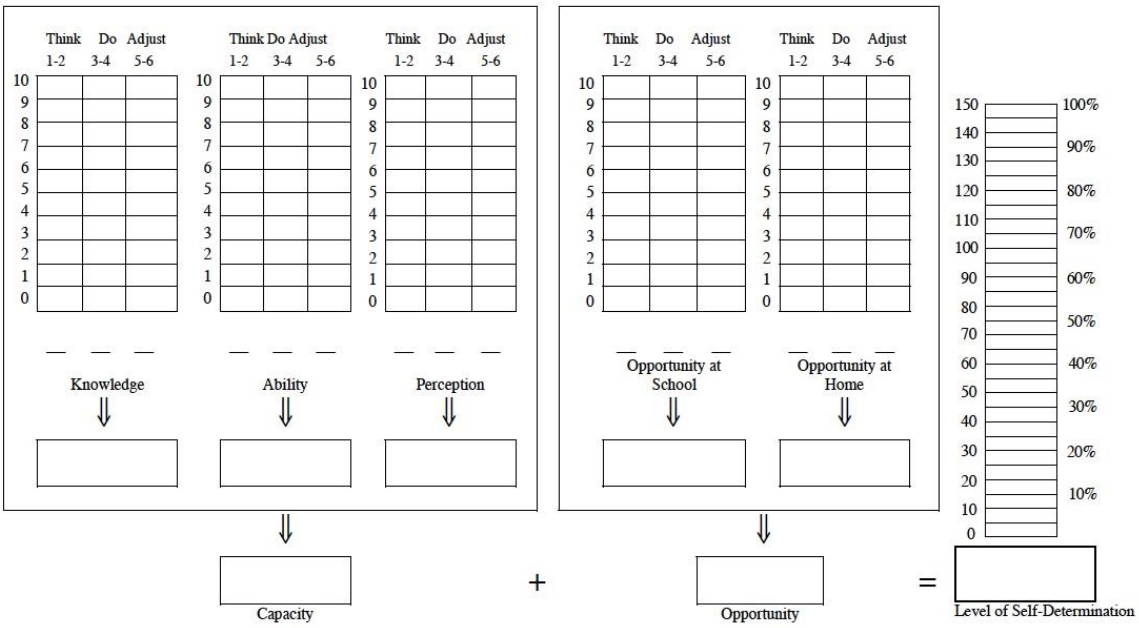
Give an example of a goal the student is working on.

What is the student doing to reach this goal?

How is the student doing in reaching this goal?

Thank you.

The AIR Self-Determination Profile
Educator Form



(Write sum in box and mark in column)

Student Name_____ Date_____

APPENDIX B

Professional Version

Employer-Identified Trait Assessment

Name of Person Completing Form _____ **Date Administered** _____

General Instructions
The list below includes employability skills identified as valuable by 168 employers for entry-level employees. For each statement, think about the individual's behaviors *over the last year*. Rate on a scale of 1 to 5 how well you think each statement best describes the individual.

1 = trait or skill rarely observed within the past year
2 = trait or skill observed a few times or did not do well when performing the skill
3 = trait or skill observed several times or did a fair job of performing this skill
4 = trait or skill observed many times or did a good job of performing this skill
5 = trait or skill observed often or was successful at performing this skill

Basic Skills

	Rarely				Often
1. The individual is able to read with understanding.	1	2	3	4	5
2. The individual is able to listen actively.	1	2	3	4	5
3. The individual is able to speak so others can understand.	1	2	3	4	5
4. The individual is able to convey ideas in writing.	1	2	3	4	5

Higher Order Thinking Skills

	Rarely				Often
5. The individual is able to recognize mistakes.	1	2	3	4	5
6. The individual is able to correct mistakes.	1	2	3	4	5
7. This individual is able to use critical thinking.	1	2	3	4	5

8. The individual is able to apply basic math.	1 2 3 4 5
9. The individual is able to solve problems.	1 2 3 4 5
10. The individual is able to negotiate and resolve conflict.	1 2 3 4 5
11. The individual is able to apply basic computer/technology skills.	1 2 3 4 5
12. The individual is able to make plans and work toward goals.	1 2 3 4 5
13. The individual is able to advocate for self.	1 2 3 4 5
14. The individual is able to use creative thinking.	1 2 3 4 5

Basic Work Skills

	Rarely				**Often**
15. The individual is able to be on time.	1	2	3	4	5
16. The individual is able to seek help when needed.	1	2	3	4	5
17. The individual is able to follow schedules.	1	2	3	4	5
18. The individual is able to cooperate with others and be a good team player.	1	2	3	4	5
19. The individual is able to stay with a task until finished.	1	2	3	4	5
20. The individual is able to work well with people from diverse backgrounds.	1	2	3	4	5
21. The individual is able to monitor quality of work.	1	2	3	4	5

Social Skills

	Rarely				Often
22. The individual is able to show respect for others.	1	2	3	4	5
23. The individual is able to use socially acceptable language.	1	2	3	4	5
24. The individual is able to accept authority.	1	2	3	4	5
25. The individual is able to maintain appropriate personal appearance (e.g., grooming, hygiene, and clothing)	1	2	3	4	5
26. The individual is able to accept criticism.	1	2	3	4	5
27. The individual is able to control self and work without direct supervision.	1	2	3	4	5

Personal Traits

	Rarely				Often
28. The individual demonstrates personal integrity/honesty in work.	1	2	3	4	5
29. The individual demonstrates responsibility in work.	1	2	3	4	5
30. The individual demonstrates the ability to adapt to change.	1	2	3	4	5
31. The individual demonstrates motivation toward work.	1	2	3	4	5
32. The individual demonstrates personal interest in work.	1	2	3	4	5

APPENDIX C

Social Validity Interview Questions

Teacher Interview Questions

- What self-determination skills do you think are most important? Why?
- What role do you see skills of self-management playing for students with disabilities? In school? At work?
- Is self-evaluation important for students with disabilities? How so?
- Do you see any challenges with using self-evaluation?
- Do you see any benefits with using self-evaluation?
- Do you think self-evaluation is important for the general population? How so?
- What role do you think self-evaluation plays in work environments?
- What is the role of self-determination skills in the workplace?
- What soft skills are necessary after high school?
- How well-prepared do you think students with disabilities for after high school?
- Was the self-evaluation intervention easy to implement? In what ways?
- Were there challenges to implementing the self-evaluation intervention?
- Was the self-evaluation intervention important? How so?
- Would you consider using self-evaluation in the future with students at Project SEARCH?

Job Coach Interview Questions

- Is self-evaluation important for students with disabilities? How so?
- Do you see any challenges with using self-evaluation?
- Do you see any benefits with using self-evaluation?
- Do you think self-evaluation is important for the general population? How so?
- What role do you think self-evaluation plays in work environments?

- What soft skills are necessary after high school?
- How well-prepared do you think students with disabilities for after high school?
- Was the self-evaluation intervention easy to implement? In what ways?
- Were there challenges to implementing the self-evaluation intervention?
- Was the self-evaluation intervention important? How so?
- Would you consider using self-evaluation in the future with students at Project SEARCH?

Student Interview Questions

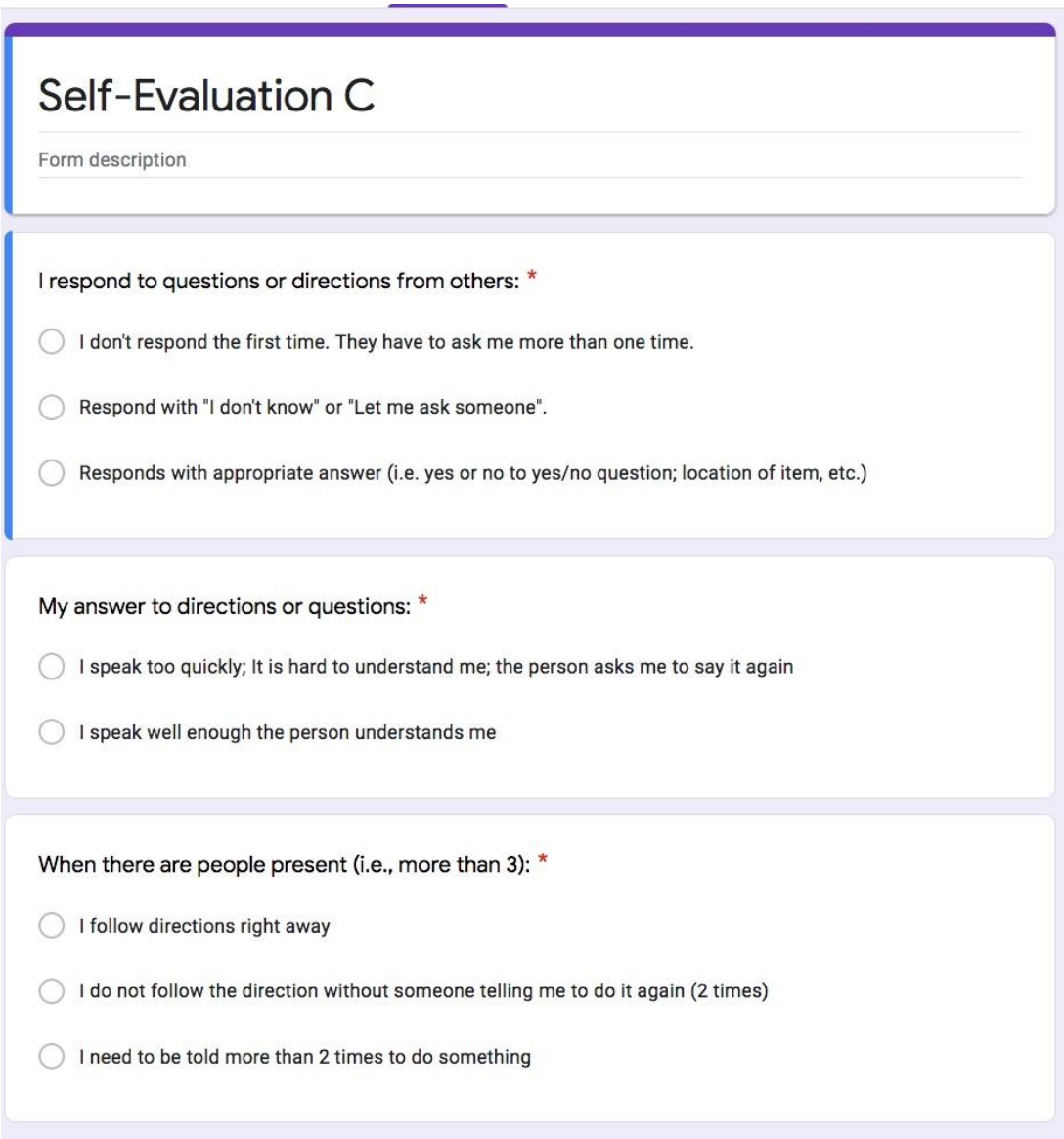
- Do you think it is important to know about your strengths and weaknesses? Why?
- What skills do you think are important in a future job? Why?
- Was doing self-evaluation important to you? Helpful? How so?
- Was doing self-evaluation easy?
- Was anything a challenge about doing self-evaluation?
- Do you think doing self-evaluation at Project SEARCH might help you in a future job? How so?

Coworker Interview Questions

- Do you see skills of self-management as important for work success?
- What skills are important for students with disabilities to learn in a work experience program?
- What specific soft skills have you seen as problematic in the work environment, even leading to termination?
- How do you see the performance of Project SEARCH interns compared to employees?
- Do you think it is important for employees to have skills to self-evaluation their work performance? Why?
- Do you think individuals with disabilities are adequately prepared for the work force? How so?

APPENDIX D

Example Student Self-Evaluation Form



Self-Evaluation C

Form description

I respond to questions or directions from others: *

- I don't respond the first time. They have to ask me more than one time.
- Respond with "I don't know" or "Let me ask someone".
- Responds with appropriate answer (i.e. yes or no to yes/no question; location of item, etc.)

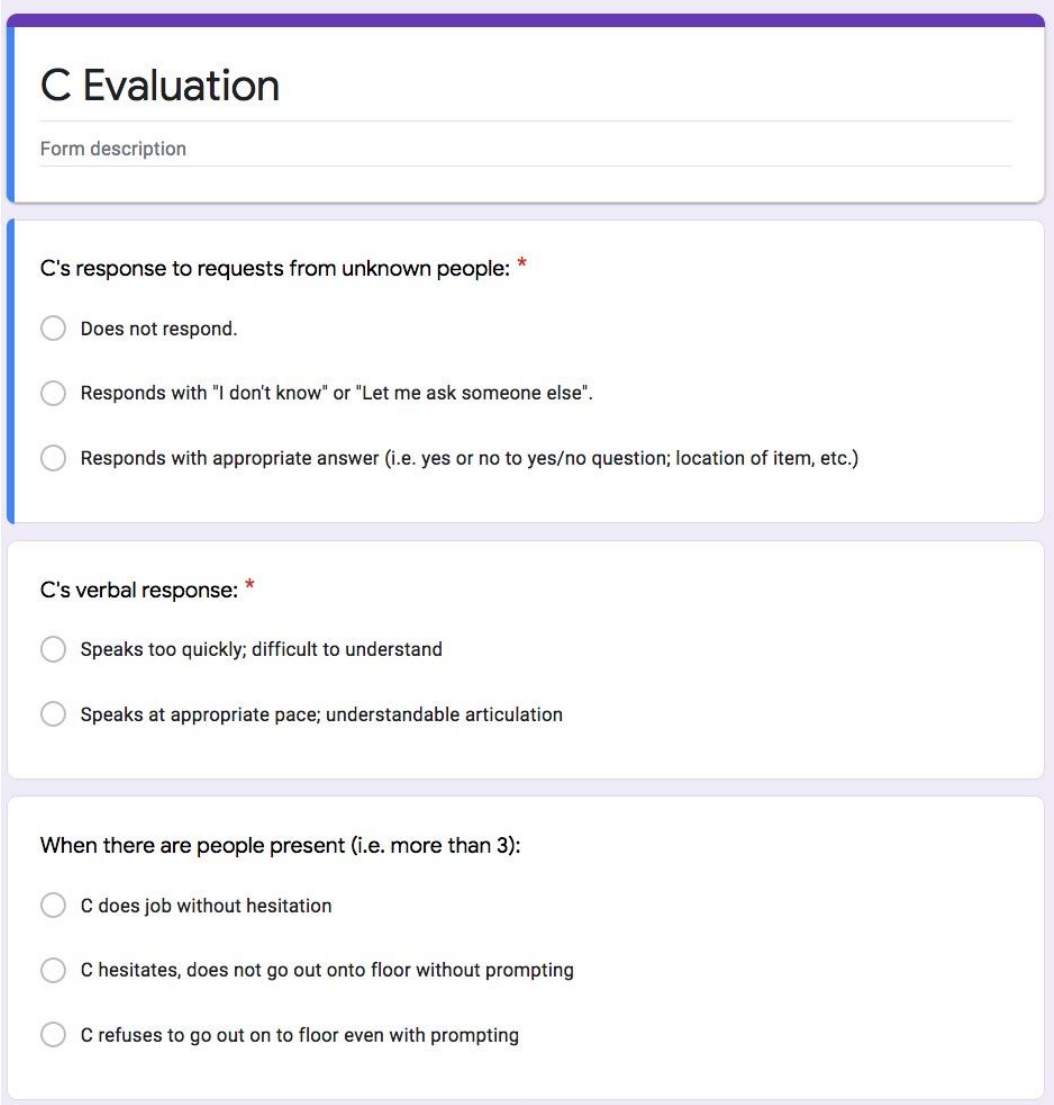
My answer to directions or questions: *

- I speak too quickly; It is hard to understand me; the person asks me to say it again
- I speak well enough the person understands me

When there are people present (i.e., more than 3): *

- I follow directions right away
- I do not follow the direction without someone telling me to do it again (2 times)
- I need to be told more than 2 times to do something

Example Job Coach Evaluation



C Evaluation

Form description

C's response to requests from unknown people: *

- ○ Does not respond.
- ○ Responds with "I don't know" or "Let me ask someone else".
- ○ Responds with appropriate answer (i.e. yes or no to yes/no question; location of item, etc.)

C's verbal response: *

- ○ Speaks too quickly; difficult to understand
- ○ Speaks at appropriate pace; understandable articulation

When there are people present (i.e. more than 3):

- ○ C does job without hesitation
- ○ C hesitates, does not go out onto floor without prompting
- ○ C refuses to go out on to floor even with prompting