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Behavioral Outcomes of the BOSS Teaching Program With Adults With Intellectual Disabilities

Mick Needham
Walden University

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Eric Riedel, Ph.D.

Walden University
2018

Abstract

Behavioral Outcomes of the BOSS Teaching Program With Adults With Intellectual

Disabilities

by

Mick Needham

MS, Johns Hopkins University, 2009

MA, Western Michigan University, 2002

BS, Central Michigan University, 2000

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

February 2018

Abstract

Despite an abundance of research on interventions to improve social skills of young children with intellectual disabilities (ID), there is limited research on interventions aimed at improving social skills of adults with ID. The purpose of this single-subject study was to evaluate the outcomes of the Behavioral Opportunities for Social Skills (BOSS) teaching program for adults with ID. The theoretical framework for this study was Skinner's operant conditioning which incorporates the principles of applied behavior analysis, reinforcement, and operant extinction. After direct support professionals were trained in the BOSS teaching program, research questions were used to determine (a) changes in the frequency of praise statements given by direct support professionals to adults with ID; (b) differences in the frequency of cooperative and polite behaviors of adults with ID; and (c) increases or decreases in the frequency of challenging behaviors exhibited by adults with ID. A multiple-baseline design across participants and settings was used to evaluate the behavioral changes. Prosocial behaviors of 3 adults with ID and 3 direct support professionals' delivery of specific praise statements showed visually discernable increases and large effect sizes (ES ≥ 0.92). The outcomes of this study contribute to positive social change as demonstrated by the positive behavioral changes achieved by the adults with ID who increased their prosocial behaviors and the direct support professionals who increased their delivery of specific praise statements following the implementation of the BOSS teaching program.

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Dedication

This dissertation is dedicated to my wife, Carolina, my son, Sebastian, and my family. To my wife, Carolina, I will never thank you enough for your constant support, patience, encouragement, and love throughout this entire process. You have always stood by my side and believed in me, but you especially supported me at times when I did not believe in myself. Your love, intelligence, and confidence were an inspiration to get me through those long nights spent writing in the loft. To my son, Sebastian, I hope you will see this as an example of hard work and perseverance. Remember, you can accomplish anything you set your mind to. I love you dearly and hope you will find this as source of inspiration to always pursue your dreams. To my mother, Chrystal, thank you for your unconditional love and for teaching me kindness and empathy for others. Thank you for encouraging me to chase my dreams even when they seemed out of reach. To my father, Paul, thank you for setting an example and instilling in me a strong work ethic and dedication to family. Thank you for teaching me the value of higher education and for motivating me to go beyond my comfort zone and to continue reaching farther. To my sister, Sarah, brother-in-law, Chad, and niece, Charli, thank you for your constant love, support, and friendship. To my in-laws, the Reyes-Ramirez family, thank you for your continuous love and support of Carolina, Sebastian, and me. To the memoires of my Grandparents, Charles and Neva Needham and Theodore and Patricia Warfield, I know that this would make you proud.

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Chapter 1: Introduction to the Study

Social skills are dynamic components of human behavior that can have a substantial impact on an individual's daily functioning in many ways (Belva & Matson, 2013; Kearney & Healy, 2011; Matson & Adams, 2014). Individuals diagnosed with intellectual disabilities (ID) commonly have significant deficits in their social skills repertoires (Walton & Ingersoll, 2013). Deficits in social skills for those with ID have been associated with maladaptive behaviors, including aggressive behavior towards others, destructive behaviors, self-injury, and pica (Delgado, Gonzalez-Gordon, Aragón, & Navarro, 2017; Matson & Adams, 2014; Matson, Hattier, & Turygin, 2012). Researchers have also shown that social skills deficits and maladaptive behaviors have been associated with a reduced quality of life due to restricted community participation (Kearney & Healy, 2011; Koegel, Ashbaugh, Koegel, Detar, & Regester, 2013) and difficulties in maintaining employment (Heyman, Stokes, & Siperstein, 2016; Walsh, Lydon, & Healy, 2014). Although there is an abundance of research on interventions to improve social skills of young children with ID, there is a paucity of research on interventions oriented towards improving social skills of adults with ID (Koegel et al., 2013; Walton & Ingersoll, 2013).

The Behavioral Opportunities for Social Skills (BOSS) teaching program is a proactive strategy that incorporates modeling, acknowledging, and positive reinforcement of prosocial behaviors (Ross, 2015). The positive behavioral outcomes associated with evaluating the BOSS teaching program in this study add to the currently limited literature on evidence-based social skills interventions for adults with ID (Koegel et al., 2013).

The expansion of the evidence-based literature on social skills interventions for adults with ID holds the potential for widespread positive social change. The outcomes of this study add to the limited number of established procedures aimed at improving social skills and, thus, encouraging fuller inclusion of countless adults with ID who face challenges with integrating into the general community.

The background of the research problem, problem statement, justification for the research inquiry, research questions guiding the inquiry, and the theoretical foundation of the study are included in Chapter 1. The independent and dependent variables and the meaningful terminology relevant to the study are concisely defined in this chapter. Chapter 1 also includes descriptions of the significance, scope, meaningful assumptions, and limitations of the study. Chapter 2 includes a more detailed description of the theoretical framework of the study, the central study hypotheses, and an exhaustive review of the literature. Chapter 3 includes a more in-depth description of the research methodology, including detailed specifications of the independent and dependent variables and an analysis of potential covariates.

Background

Researchers have determined that approximately 15% to 24% of adults with ID exhibit challenging behaviors (Lyod & Kennedy, 2014). The challenging behaviors experienced by nearly a quarter of the population of adults with ID include a range of severity. Challenging behaviors most often exhibited by individuals with ID include physical aggression, self-injury, property destruction, stereotypy, and inappropriate social behaviors (Lyod & Kennedy, 2014). Researchers have acknowledged that inappropriate

social behavior and deficits in social skills of children with ID do not improve with age and tend to persist into adulthood (Gantman, Kapp, Orenski, & Laugeson, 2012; Hotton & Coles, 2016; Turcotte, Shea, Brusilovskiy, & Nonnemacher, 2016). Additionally, researchers have suggested that social skills deficits may exacerbate or lead to other challenging behavior, including physical aggression, and are unlikely to change without effective strategies for improvement (Matson & Adams, 2014).

There has been extensive research on interventions aimed at improving social skills of children with ID. However, there are fewer studies that evaluate evidence-based practices for improving social skills of adults with ID (Koegel et al., 2013). Walton and Ingersoll (2013) noted that some evidence-based practices initially developed for application with children and adolescents with ID can be successfully generalized to the adult ID population. The BOSS teaching program has been shown to be effective in improving social skills and reducing challenging behavior of students in the school setting (Long, 2016; Ross, 2015). This study contributes to the expansion of evidence-based practices for adults with ID by examining the behavioral outcomes of implementing the BOSS teaching program, which has been shown to be an effective classroom management strategy, with three adults with ID.

Problem Statement

A problem exists for adult individuals with ID as they integrate into the community setting. The problem is that these individuals commonly have deficits in their social skills, which prevents them from successfully functioning in society (Brosnan & Healy, 2011; Hewitt et al., 2012; Laugeson & Ellingsen, 2014). There is a current and

growing need for the development and expansion of evidence-based practices to improve the social skills of adults with ID (Bishop-Fitzpatrick, Minshew, & Eack, 2014; Cox et al., 2014; Gerhardt & Lainer, 2011). Adults with ID continue to transition from living in state-run institutions and similar settings to community-based supports as a part of the deinstitutionalization movement (Lerner & Pollack, 2015). There has also been a substantial increase in the prevalence of autism spectrum disorder diagnoses in the past 20 years (Ratto & Mesibov, 2015). Many individuals who were diagnosed at the onset of the spike in prevalence rates are now young adults and are transitioning from living at home with their families to the regular community.

Friedman, Warfield, and Parish (2013) and Tobin, Drager, and Richardson (2014) have recognized that social skills deficits persist into adulthood and contribute to poor transitions into the regular community setting without systematic interventions for improvement. Despite the large number of adults with ID transitioning into the community, a recent review of social skills interventions for adults with ID by Wong et al. (2015) showed that "a substantial minority of studies included participants above 12 years of age, this number declined as the ages increased" (p. 1956). The current gap in special education research and practice on evidence-based interventions to improve the social skills of adults with ID decreases the likelihood these individuals will experience a successful transition to and participation in the regular community (Gantman et al., 2012; Gerhardt & Lainer, 2011; Ratto & Mesibov, 2015; Shattuck et al., 2012; Wehman et al., 2014).

The gap in research on social skills interventions for adults with ID is likely due, in part, to the challenges associated with delivering intensive interventions in the less structured community environment (Cox, Dube, & Temple, 2014; Gantman et al., 2012; Gerhardt & Lainer, 2011). Although there is limited research in this area, evidence-based interventions designed for school-aged children in the classroom have been successfully generalized to adults living in the regular community (Gantman et al., 2012; Walton & Ingersoll, 2013). The BOSS teaching program has been shown to be effective in increasing teachers' use of specific positive praise statements, increasing positive peer interactions amongst students, and increasing students' on-task behavior (Long, 2016; Ross, 2015). Thus, the BOSS teaching program represents a promising evidence-based social skills intervention to be generalized to the adult ID population.

The systematic evaluation of the BOSS teaching program with adults with ID in this study included training frontline, direct support professionals who worked closely with individuals with ID in the BOSS procedures. The successful training of direct support professionals in the BOSS teaching program contributed to improvements in the social skills of adults with ID, which has been shown to reduce challenging and dysfunctional behaviors (Chowdhury & Benson, 2011; Long, 2016). A reduction in challenging behavior and improvements in socials skills of adults with ID can reduce barriers that impede these individuals' access to the general community and overall quality of life (Tobin et al., 2014).

Purpose of the Study

The purpose of this quantitative study was to evaluate the behavioral outcomes of implementing the BOSS teaching program with adults with ID. The outcomes of the study contribute to the currently limited literature on evidence-based social skills interventions geared towards adults with ID. The BOSS teaching program is an evidence-based, proactive strategy that incorporates modeling, acknowledging, and positive reinforcement of prosocial behaviors (Ross, 2015). The BOSS teaching program has been shown to be effective in improving prosocial behaviors as well as reducing challenging behavior, which are essential outcomes for increasing community integration for adults with ID (Ross, 2015).

Direct support professionals who worked closely with the adults with ID received structured training on the essential components of the BOSS teaching program, including ignoring nuisance behavior, identifying desirable behavior, and positive reinforcement techniques (Ross, 2015). The training of direct support professionals in the BOSS teaching program functioned as the independent variable. The measured changes in observable behavior across phases of the study of the direct support professionals and the supported adults with ID functioned as the dependent variables. The intent of the study was to compare observable changes in the behavior of the direct support professionals and adults with ID when the BOSS teaching program was used by direct support professionals.

Research Questions and Hypotheses

The following research questions guided the inquiry:

1. Research Question (RQ)1: How does the frequency of specific praise statements delivered by direct support professionals change following training in the BOSS teaching program?

2. RQ2: How does the frequency of cooperative and polite behaviors of adults with ID change following the training of direct support professionals in the BOSS teaching program?

3. RQ3: How does the frequency of challenging behaviors exhibited by adults with ID, which are reported by direct support professionals, change following the training of direct support professionals in the BOSS teaching program?

The following hypotheses were tested through the research inquiry:

$H1_0$: There is not a visually discernable difference between graphically displayed behavioral data collected during the baseline condition compared to the intervention phase.

$H1_a$: There is a visually discernable increase in the graphically displayed frequency data of specific praise statements made by direct support professionals during the intervention phase compared to the baseline condition.

$H1_a$: There is a visually discernable increase in the graphically displayed frequency data of cooperative and polite behaviors exhibited by adults with ID during the intervention phase compared to the baseline condition.

$H1_a$: There is a visually discernable decrease in the graphically displayed frequency data of challenging behavior exhibited by adults with ID during the intervention phase compared to the baseline condition.

$H2_0$: There is not a moderate to large effect size (ES ≤ 0.5) between behavioral

data collected during the baseline condition compared to data collected during the

intervention phase.

$H2_a$: There is a moderate to large effect size (ES ≥ 0.5) between behavior data

collected during the baseline condition compared to data collected during the

intervention phase.

Theoretical Foundation

Although this chapter includes an overview of the theoretical foundation for the

study, research approach, and the BOSS teaching program, more detailed information is

provided in Chapter 2. The BOSS teaching program is based upon the theory of operant

conditioning initially developed in the basic animal laboratory by Skinner (1937). As

researchers began to systematically use the principles of operant conditioning to improve

human affairs, the field of applied behavior analysis was developed and later defined in

the seminal article by Baer, Wolf, and Risley (1968). Since the 1960s, interventions

based upon the principles of applied behavior analysis have shown wide-ranging success

in addressing behavioral and instructional needs of individuals with ID (Axelrod,

McElrath, & Wine, 2012).

The BOSS teaching program integrates applied behavior analysis techniques

including positive reinforcement of appropriate social skills, modeling, and the extinction

of inappropriate and nuisance behavior (Ross & Sliger, 2015). Aligned with the

framework of applied behavior analysis, the BOSS teaching program focuses on solving

real-world problems of social significance, namely improving social skills (see Vargas,

2013). In applying the BOSS teaching program with a novel population of adults with ID, this study conformed to the constructs of applied behavior analysis (i.e., applied, behavioral, analytic, technological, conceptual, and generality) as defined by Baer et al. (1968). The research questions in this study were oriented towards evaluating objective, observable, and measurable changes in overt behavior prior to and following the systematic manipulation of an independent variable, which are hallmarks of applied behavior analysis (O'Neill, McDonnell, Billingsley, & Jenson, 2011).

Nature of the Study

Single-subject research designs are commonly used in educational and behavioral research. O'Neill et al. (2011) acknowledged that "the evolution of current experimental single-case research methods has been closely aligned with the development of behavioral principles and procedures for studying both human and nonhuman animal behavior" (p. 3). Those who conduct studies using single-subject designs view the methods as a more objective approach to research as the procedures include direct observation of overt behavior, operationally defined independent and dependent variables, interobserver agreement across observations, and visual analysis of graphically displayed data (Kratochwill et al., 2013; O'Neill et al., 2011). The overt positive behavioral outcomes of implementing the BOSS teaching program with adults with ID in this study were effectively and objectively evaluated using a single-subject research methodology.

The outcomes of implementing the BOSS teaching program with adults with ID were assessed using a single-subject research design. Specifically, a multiple-baseline

design across individuals and settings was used to evaluate the behavioral outcomes of

the BOSS teaching program. The single-subject design was ideal for evaluating the

outcomes of the BOSS teaching program as single-subject designs are highly sensitive to

changes in behavior of each individual participant in relation to exposure to an

intervention (Smith, 2013). The single-subject multiple-baseline design was sufficient

for evaluating outcomes of the BOSS teaching program without the necessity of

introducing a withdrawal phase. The inclusion of a withdrawal phase in which an

intervention is removed can result in ethical concerns for removing a potentially effective

intervention (Byiers, Reichle, & Symons, 2012; Kratochwill et al., 2013; O'Neill et al.,

2011). It was also unlikely that the behavioral performance of the direct support

professionals would be highly reversible due to the learning that was expected to occur

following the structured training in the BOSS teaching program (Byiers et al., 2012;

Kratochwill et al., 2013; O'Neill et al., 2011).

The study was conducted in an independent, community-based agency that

employs direct support professionals and provides residential and day-program supports

for adults with ID. The community-based agency received at least partial funding from

the Tennessee Department of Intellectual and Developmental Disabilities (DIDD) in

order to support the adults with ID. At the time of the study, I was employed by an

external entity and contracted by DIDD to provide behavioral support and technical

assistance for community behavior analysts and individuals with ID. However, I was not

employed by any of the community agencies and, thus, did not have any supervisory

authority over the direct support professionals employed by the community agencies.

At the onset of the study, baseline frequency data were collected on direct support professionals' delivery of specific praise statements. Baseline frequency data were also collected by direct support professionals on positive and negative behavioral outcomes of the adults with ID. Baseline frequency data were collected on the number of challenging behaviors exhibited by adults with ID as well as cooperative and polite behaviors. The frequency data of each dependent variable continued to be collected throughout the intervention phase. The BOSS teaching program was implemented with each of the direct support professionals who worked with different adults with ID in a staggered and sequential manner as stable baseline and intervention data were collected over time.

A minimum of five data points were collected on each of the three dependent variables during the baseline phase in order to establish a reliable trend in behavioral performance (Kratochwill et al., 2013). The baseline conditions lasted a minimum of 2 weeks but varied in duration due to the staggered implementation of the intervention across participants in this multiple-baseline study. The intervention phase lasted 6 weeks, during which direct support professionals received training in the BOSS teaching program. The entire data collection period, which included baseline and intervention phases of the study, lasted 8 weeks. Single-subject design standards established by the What Works Clearinghouse (WWC™) require a minimum of three different opportunities for the independent variable to demonstrate intervention effects on the dependent variable (2014). This single-subject multiple-baseline study included three direct support professionals who worked with three different individuals with ID in order

to satisfy the minimum of three multiple-baseline conditions across participants and settings.

Definitions

Applied behavior analysis (ABA): "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, Heron, & Heward, 2007, p. 20).

Behavioral contingency: Defined as "the occasion for a response, the response, and the outcome of the response" (Malott & Shane, 2015, p. 20).

Direct support professional: Defined by the Tennessee DIDD as "staff who provide direct supports and assistance to the persons using services" (DIDD Provider Manual, 2014, p. 219).

Evidence-based practices (EBP): Programs or practices "supported by multiple, high-quality, experimental or quasi-experimental (often including single-case research) studies demonstrating that the practice has a meaningful impact on consumer (e.g., student) outcomes" (Cook & Odom, 2013, p. 136).

Home and community-based services (HCBS): Waiver is defined by the DIDD Provider Manual (2014) as

> A waiver approved for Tennessee by the Centers for Medicare and Medicaid
> Services to provide services to a specified number of Medicaid eligible
> individuals who have an ID and who meet criteria for Medicaid criteria of
> reimbursement in an Intermediate Care Facility for Individuals with ID. The

HCBS waivers for Individuals with ID in Tennessee are operated by the DIDD

with oversight from TennCare, the state Medicaid agency. (p. 200)

Positive reinforcement: "The response contingent presentation of a reinforcer

resulting in an increased frequency of that response" (Malott & Shane, 2015, p. 17).

Punishment (Positive): "The response contingent presentation of an aversive

condition resulting in a decreased frequency of that response" (Malott & Shane, 2015, p.

60).

Reinforcer: "A stimulus that increases the frequency of a response it follows"

(Malott & Shane, 2015, p. 3).

Response contingent: Means "caused by the response or produced by the

response" (Malott & Shane, 2015, p. 17).

Specific praise statement: The delivery of "clear feedback to students on what

they did well" (Briere, Simonsen, Sugai, & Myers, 2015, p. 51).

Assumptions

It was assumed that the direct support professionals who worked with the adults

with ID accurately and honestly identified, recorded, and reported dependent variable

data. It was also assumed that the direct support professionals were likely to have

received at least minimal training and experience in collecting behavioral data as a part of

their employment with the community agency. As a part of the BOSS teaching program,

direct support professionals received training in behavioral data collection procedures

specific to this study.

Scope and Delimitations

The scope of the study was to evaluate the behavioral outcomes of training three direct support professionals to use the BOSS teaching program with the adults with ID they supported. The adult ID population includes individuals with wide-ranging intellectual and adaptive skill capabilities (Foley, Dyke, Girdler, Bourke, & Leonard, 2012). For the purposes of this study, direct support professionals who met the inclusion criteria were invited to participate in this study. The inclusion criteria limited participation by direct support professionals who did not have prior training in the BOSS teaching program and were based upon demographic information of the adults with ID they supported. The inclusion criteria also limited participation to direct support professionals who supported individuals with IQs less than 70, had minimal communicative abilities, provided informed consent or assent, and were not actively receiving formal applied behavior analysis services. Thus, the adults with ID who participated in this study represented a subset of the adult ID population. Future studies will need to be conducted in order to establish generalizability of the study results.

The direct support professionals who worked with individuals with ID who met the inclusion criteria were identified using purposeful sampling techniques (see Creswell, 2012). The purposeful sampling rather than random sampling techniques were used due to the requirements inherent to the BOSS teaching program for the adults with ID to be capable of emitting cooperative and polite communicative responses. In order to avoid potential confounding variables, direct support professionals were not included if the person they supported was actively receiving formal applied behavior analysis services,

which could have influenced rates of prosocial and challenging behaviors. Additionally, the direct support professionals who voluntarily agreed to participate likely fell into a participant pool of direct support professionals who are highly motivated to learn new techniques to improve their on-the-job skills. Thus, the direct support professionals who participated in the study may not be highly representative of the general population of direct support professionals.

Limitations

Single-subject research designs are effective in measuring and comparing precise changes in one or several individuals' behavioral performance (Smith, 2013). However, there are limitations for using single-subject designs that are relevant to this study. Single-subject designs often have limited generalizability due to the relatively small number of participants who are included in the study. The generalizability of particular research results from one study can be improved through direct and systematic replication studies (Kratochwill et al., 2013). This study included three different direct support professionals who worked with three different adults with ID, each of whom resided in a different supported living residency in the regular community. Although the sample of the adults with ID who participated in the study had diverse intellectual and physical health diagnoses and histories of challenging behavior, the generalizability of the results of this study remain limited due to the small number of participants (Kratochwill et al., 2013).

This study was designed in accordance with the rigorous single-subject research design standards established by the WWC™ (2014). The research design standards for

operationally defined procedures and variables, systematic implementation of the

independent variable, and the demonstration of a treatment effect across three different

variables at three different points in time were met in this study (Kratochwill et al., 2013;

WWC™, 2014). However, it was not feasible to collect interobserver agreement

reliability measures. As described in more detail in Chapter 4, the Walden University

Institutional Review Board (IRB) does not allow assistants to collect research data. Thus,

interobserver agreement measures for data reliability purposes, which require

simultaneous observations to be conducted by two independent and trained observers,

were not feasible in this study.

Significance

Across the United States, individuals with ID continue to be transitioned into the

community as state-run institutions are being closed (Lerner & Pollack, 2015). There are

also a large number of adolescents and adults with ID who are transitioning from living at

home with their families to community residential and day programs (Friedman et al.,

2013; Gerhardt & Lainer, 2011). The adults with ID commonly have deficits in their

social skills that have been associated with challenging behaviors, including physical

aggression towards others, self-injury, and property destruction (Matson & Adams,

2014). Social skills deficits and maladaptive behaviors of adults with ID contribute to

decreases in quality of life measures due to community access restrictions and difficulties

in maintaining employment (Tobin et al., 2014). The social skills deficits of the adults

with ID are unlikely to improve without structured, evidence-based intervention.

However, at the current time, there is a lack of effective social skills interventions for adults with ID (Koegel et al., 2013; Walton & Ingersoll, 2013).

The results of the study hold the potential to contribute to positive social change by expanding the literature of evidence-based social skills interventions for adults with ID. Adults with ID are likely to benefit from the expansion of effective interventions by improving their social skills and, in turn, decreasing challenging behavior. Improvements in social skills and decreases in challenging behavior are likely to foster a reduction in existing barriers to more inclusive participation in the regular community (Lyod & Kennedy, 2014). Increased participation in the regular community is likely to improve opportunities for employment, living circumstances, and interpersonal relationships which, in turn, will improve the quality of life of countless adults with ID (Tobin et al., 2014).

The results of the study hold the potential to benefit direct support professionals working in the state of Tennessee and across the country. The expansion of evidence-based social skills interventions for direct support professionals to learn and apply will likely improve their job satisfaction, feelings of efficacy, and reduce job burnout. Reinke, Herman, and Stormont (2013) demonstrated that teachers who used higher ratios of specific praise statements compared to negative reprimands reported less feelings of emotional exhaustion, which contributes to costly staff turnover. Reinke et al. also determined that teachers' delivery of higher rates of specific praise statements improved their classroom management skills and their feelings of self-efficacy. The BOSS teaching program emphasizes the use of specific praise statements for appropriate social

behaviors. Thus, it is likely that direct support professionals experienced similar feelings of improved self-confidence and efficacy, less emotional exhaustion, and a reduced likelihood of leaving their job by learning to use the BOSS teaching program.

The outcomes of this study are likely to foster social change at local community provider agencies that support adults with ID across the state of Tennessee and across the country. Community agencies are likely to benefit from the results of the study by providing the agencies with a highly structured training curriculum (i.e., the BOSS teaching program) for improving social skills of the adults with ID they support. Improvements in social skills of adults with ID have been associated with reductions in challenging behaviors, which are a source of high stress levels for direct support professionals. The on-the-job stress levels for direct support professionals likely contribute to their high turnover rates, which has been shown to be approximately 50% (Gerhardt & Lainer, 2011; Reinke et al., 2013). The high turnover rates among direct support professionals can be costly for community agencies as they frequently hire and retrain new direct support professionals. Thus, provider agencies are likely to benefit from the study by including additional evidence-based practices in their direct support professional training curricula, which may help decrease costly turnover rates.

Summary

There is currently a gap in the research literature and special education practice of effective interventions for improving social skills of adults with ID (Koegel et al., 2013; Walton & Ingersoll, 2013). The BOSS teaching program is an evidence-based practice, initially developed as classroom management strategy, based upon operant conditioning

theory and the principles of applied behavior analysis (Ross, 2015). This single-subject

study represents a novel evaluation of the behavioral outcomes associated with

implementing the BOSS teaching program with adults with ID. Chapter 1 included an

introduction and background for conducting the study with an overview of the existing

literature on evidence-based social skills interventions for adults with ID. Chapter 1 also

included specifications of the problem, purpose of the study, independent and dependent

variables, and the null and alternative hypotheses. A more detailed review of the existing

literature on social skills deficits, behavioral challenges, and the currently limited

research on social skills interventions for adults with ID is included in Chapter 2.

Chapter 2: Literature Review

Introduction

Adults with ID commonly have deficits in their social skills, which oftentimes prevents them from successfully integrating and functioning in society (Brosnan & Healy, 2011; Delgado et al., 2017; Hewitt et al., 2012; Laugeson & Ellingsen, 2014). Friedman et al. (2013) and Tobin et al. (2014) recognized that social skills deficits tend to persist into adulthood without systematic intervention and present barriers for successful transition into the regular community. Additionally, researchers have suggested that social skills deficits may worsen or lead to other challenging behavior, including physical aggression and self-injury, and are unlikely to change without effective strategies for improvement (Delgado et al., 2017; Matson & Adams, 2014).

The purpose of this quantitative study was to evaluate the behavioral outcomes of implementing the BOSS teaching program with adults with ID (Ross, 2015). The outcomes of the study contribute to the currently limited literature on evidence-based social skills interventions geared towards adults with ID (Ross, 2015). The BOSS teaching program has been shown to be effective in improving prosocial behaviors as well as reducing challenging behavior, which are essential outcomes for increasing community integration for adults with ID (Ross, 2015).

Chapter 1 included the background of the research problem, justification for the research inquiry, the research questions guiding the inquiry, and an overview of the independent and dependent variables of study. Chapter 1 also included a concise review of the theoretical foundation, scope, limitations, and the meaningful terminology relevant

to the study. Chapter 2 includes a description of the literature search strategies and an extensive review of the historical application of and rationale for the theoretical framework of the study. Chapter 2 also includes an exhaustive review of current literature relevant to the research questions, problem statement, and the independent variable (i.e., the BOSS teaching program).

Literature Search Strategy

Although there is no absolute path for conducting an exhaustive literature review, Creswell (2012) identified five interrelated steps for completing the process. These steps were used to conduct the literature search. The steps include the following:

1. Identify the key terms to use in the search for literature.

2. Locate literature about a topic by consulting several types of materials and databases, including those available at an academic library and on the Internet.

3. Critically evaluate and select the literature for the review.

4. Organize the literature selected by abstracting or taking notes on the literature and developing a visual diagram of it.

5. Write a literature review that supports summaries of the literature for inclusion in the research to report. (p. 81)

The comprehensive review of the literature was conducted using the Walden University's online databases, including EBSCO, ERIC, ProQuest, PsycARTICLES, and SAGE Journals. The key terms used in the literature search included *applied behavior analysis, adults with intellectual disabilities, ID, autism, behavioral interventions for adults, behavior management, challenging behavior, classroom management, community*

integration, community employment, community exclusion, evidence-based practices,

physical aggression, positive behavior support, positive reinforcement, differential

reinforcement, problem behavior, self-injury, social skills deficits, social skills

interventions, specific praise statements, supported living, and *vocational skills training.*

I extensively searched for articles pertaining to social skills deficits and

intervention strategies for adults with ID. I also used the bibliographies of articles

published in peer-reviewed journals to search for related articles. I consulted with my

professors to obtain recent dissertations completed by doctoral students, theoretical and

methodological resources, and seminal authors on social skills interventions and behavior

management techniques. My initial search parameters did not include date range

limitations. However, once I identified seminal articles and authors, I limited date ranges

to include more recent articles published in peer-reviewed journals in the past 5 years.

Theoretical Foundation

Skinner developed the theory and coined the term *operant conditioning* from his

work in the basic animal laboratory. In his seminal article, Skinner (1937) distinguished

operant responses and operant conditioning from reflexive responses and respondent or

classical conditioning. Reflexive behavior refers to responses inherent to the physiology

of the organism, while operant behavior pertains to the interactions between the organism

and the environment (Skinner, 1937, 1953). Skinner (1953) further explained that the

term operant "emphasizes the fact that the behavior operates upon the environment to

generate the consequences" (p. 65).

Skinner incorporated language such as the term *reinforcement* from Pavlovian experiments but, again, differentiated operant conditioning from respondent conditioning. Under respondent conditioning, a neutral stimulus is paired with another stimulus (e.g., a reinforcer) to produce a response, whereas in operant conditioning a stimulus (e.g., a reinforcer) immediately follows or is contingent upon a response (Skinner, 1938). Operant conditioning theory postulates that overt behaviors are strengthened or weakened (i.e., increased or decreased in future probability of occurrence) as a result of the consequence that immediately follows the behavior. Skinner conducted extensive laboratory experiments to develop the principles of behavior (e.g., reinforcement, punishment, and extinction) and evaluated how the systematic manipulation of reinforcement schedules affected the rates of responding by the organism. Skinner hypothesized the utility of operant conditioning theory for addressing human affairs in some of his earliest publications (1938, 1948).

Several years after Skinner published his initial writings on operant conditioning, researchers began applying the principles of behavior to human problems. The application of the principles of operant conditioning to socially significant problems has become known as the science and field of applied behavior analysis (Baer et al., 1968). One of the first documented applications of the principles of behavior to real-world problems occurred in the institutional setting with patients with mental illnesses (Ayllon & Michael, 1959). Following the initial successful application of operant conditioning with humans outside of the animal laboratory, many subsequent applications were documented.

In 1959, Ayllon and Michael demonstrated that positive reinforcement via the delivery of social attention by nursing staff to patients in a mental institution was effective in increasing desirable behavior and reducing challenging behaviors. More specifically, the researchers trained nursing staff to deliver social attention to patients on a fixed-interval schedule during observation periods of 1 to 3 minutes (Ayllon & Michael, 1959). At times in which the patient was engaged in desirable behavior (e.g., sensible talk) during the scheduled observations, the nurse delivered positive social reinforcement. However, in the circumstance the patient displayed undesirable behavior (e.g., psychotic talk), the nurse did not deliver the positive social reinforcement, thus placing the undesirable behavior on extinction.

The results of Ayllon and Michael's (1959) successful application of the principles of behavior outside the basic science laboratory were published in the *Journal of the Experimental Analysis of Behavior*. Ayllon's work at the mental institution resulted in the publication of seven more articles between 1959 and 1964 (Morris, Altus, & Smith, 2013). Other researchers also began applying the principles of behavior to real-world problems throughout the mid to late 1960s and early 1970s. These applications included Staats's development of a reading program based upon operant principles at Arizona State University between 1962 through 1970 (Morris et al., 2013). In 1962, Wolf developed two programs based on operant procedures at the University of Washington. One program was developed to address challenging behavior of a young boy with autism (e.g., tantrum behavior, aggression, self-injury, and refusal), which resulted in two publications (Wolf, Risley, Johnston, Harris, & Allen, 1967; Wolf, Risley,

& Mees, 1963). Wolf also developed a program to train preschool teachers to implement

differential reinforcement procedures aimed at improving students' social skills and

motor abilities, which resulted in six publications (Morris et al., 2013). The seminal

work by these and other researchers contributed to the establishment of a new peer-

reviewed journal aimed at publishing articles that include the application of operant

principles titled the *Journal of Applied Behavior Analysis* in 1968.

In their seminal article, which was published in the first volume and issue of the

Journal of Applied Behavior Analysis, Baer et al. (1968) defined the essential

characteristics of applied behavior analysis. The BOSS teaching program is based upon

the principles of applied behavior analysis that were developed from operant conditioning

theory. The application of the BOSS teaching program with adults with ID in this study

adhered to the following constructs of applied behavior analysis established by Baer et al.

(1968):

1. Applied: In behavioral application, the behavior, stimuli, and/or organism under

   study are chosen because of their importance to man and society, rather than their

   importance to theory.

2. Behavioral: Behaviorism and pragmatism seem often to go hand in hand. Applied

   research is eminently pragmatic; it asks how it is possible to get an individual to

   do something effectively. Thus, it usually studies what subjects can be brought to

   do rather than what they can be brought to say; unless, of course, a verbal

   response is the behavior of interest.

3. Analytic: The analysis of a behavior, as the term is used here, requires a believable demonstration of the events that can be responsible for the occurrence or nonoccurrence of that behavior. An experimenter has achieved an analysis of a behavior when he can exercise control over it.

4. Technological: Techniques making up a particular behavioral application are completely identified and described.

5. Conceptual Systems: The field of applied behavior analysis will probably advance best if the published descriptions of its procedures are not only precisely technological but also strive for relevance to principle.

6. Effective: If the application of behavioral techniques does not produce large enough effects for practical value, then application has failed. Its practical importance, specifically its power in altering behavior enough to be socially important, is the essential criterion.

7. Generality: A behavioral change may be said to have generality if it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors. (p. 92-96)

The BOSS teaching program and the application of the BOSS teaching program in this study were aligned with the criteria established by Baer et al. (1968) to be considered applied behavior analysis. The BOSS teaching program meets the applied criterion as it is aimed towards improving prosocial behaviors and reducing challenging behaviors of humans in society. In this study, I focused on the implementation of the BOSS teaching program with adults with ID in the regular community. I also focused on

improving social behavior of adults with ID, which are important skills for fuller

inclusion and participation the regular community. The BOSS teaching program is

inherently behavioral focusing on overt and objectively observable social behaviors. In

this study, I focused specifically on answering research questions pertaining to how, if at

all, frequencies of overt behavior would change following the implementation of the

BOSS teaching program. More specifically, I evaluated changes in frequencies of

appropriate social behavior and challenging behavior of adults with ID as well as changes

in direct support professionals' delivery of specific praise statements.

The BOSS teaching program meets the analytic criterion as prior researchers have

demonstrated functional relationships between the intervention and behavior change

(Long, 2016). This study was conducted using a multiple-baseline design and adhered to

single-subject research design standards for demonstrating a discernable intervention

effect (see Kratochwill et al., 2013). The BOSS teaching program includes clear step-by-

step procedures for implementing operationally defined variables, which meets the

technological criterion. I focused on training direct support professionals how to use the

step-by-step procedures of the BOSS teaching program with the adults with ID they

supported. The training of direct support professionals in the BOSS teaching program

included teaching operationally defined techniques for using differential reinforcement

and delivering specific praise statements. The BOSS teaching program includes obvious

behavioral principles of reinforcement and extinction, which satisfies the conceptual

criterion. The application of the BOSS teaching program with adults with ID in this

study also included the clear applied behavior analysis principles of positive reinforcement and extinction.

The BOSS teaching program has been shown to be effective in increasing prosocial behaviors and decreasing challenging behaviors under rigorous evaluation, thus meeting the effective criterion (Long, 2016; Ross, 2015). I followed rigorous single-subject research design standards in order to evaluate the effectiveness of the BOSS teaching program in changing the frequency of overt behaviors. More specifically, I evaluated the effectiveness of the BOSS teaching program for increasing direct support professionals' use of specific praise statements as well as increasing prosocial behaviors and decreasing challenging behavior of adults with ID. Finally, the BOSS teaching program has demonstrated generality through applications across a wide range of circumstances and individuals, including teachers who are resistant to change (Long, 2016). Over the past 16 years, there have been more than 800 teachers of all grades ranging from pre-kindergarten through 12th grade trained in the BOSS teaching program (Ross, 2015). The positive outcomes of this study expand the generality of the BOSS teaching program with the successful application of the program with a novel population of adults with ID. Also, by adhering to the constructs of applied behavior analysis, this study provides future researchers with operationally defined independent and dependent variables and step-by-step procedures to conduct additional direct or systematic replication studies (see Sidman, 1960).

The BOSS teaching program integrates applied behavior analysis techniques including positive reinforcement (i.e., differential reinforcement) of appropriate social

skills, modeling, and the extinction of inappropriate and nuisance behavior (Ross & Sliger, 2015). Positive reinforcement strategies have been shown to be effective in increasing desirable behaviors and reducing challenging behaviors of individuals with ID (Chowdhury & Benson, 2011; Matson, Neal, & Kozlowski, 2012). In particular, differential reinforcement procedures as standalone interventions and as components of treatment packages have been effective in reducing challenging behaviors in adults and children with wide-ranging disabilities (Lyod & Kennedy, 2014; Matson et al., 2012).

Differential reinforcement procedures include the delivery of a reinforcer contingent upon the occurrence of desirable behavior or following the passage of time without the occurrence of undesirable behaviors. Differential reinforcement of alternative behavior (DRA) consists of delivering a reinforcer contingent upon the occurrence of a more desirable behavior as a replacement for the less desirable or inappropriate behavior (Malott & Shane, 2015). Differential reinforcement of incompatible behavior (DRI) includes delivering a reinforcer for desirable behavior that cannot be simultaneously emitted in conjunction with undesirable behavior. Differential reinforcement of other behavior (DRO) includes the delivery of a reinforcer following the passage of an established period of time without the occurrence of the undesirable target behavior (Nuernberger, Vargo, & Ringdahl, 2013).

Differential reinforcement procedures are often used in conjunction with an extinction procedure for undesirable behavior. Operant extinction includes withholding reinforcement for a previously reinforced response, which results in a weakening or decreased frequency of that response (Todd, Vurbic, & Bouton, 2014). In many

differential reinforcement procedures, the extinction component includes withholding reinforcement when an undesirable behavior occurs and delivering the reinforcer contingent upon occurrence of an alternative or incompatible response. Although extinction alone, similarly to punishment procedures, can be effective in reducing undesirable behaviors, exclusively implementing extinction procedures does not provide an opportunity to teach or improve more desirable behaviors.

The BOSS teaching program does not include any punishment-based techniques which can promote undesirable side effects. Unwanted side effects include a loss of respect for the mediator of the punishment, reduced self-esteem on the behalf of the punishment recipient, and inadvertent reinforcement rather than extinction of undesirable behavior (Ross & Sliger, 2015). In addition to the adverse side effects, punishment-based techniques provide little motivation, incentive, or model for improving or changing the undesirable behavior (Ross & Sliger, 2015). The guidelines for least restrictive alternatives to treatment additionally support the use of positive reinforcement-based interventions prior to the use of more invasive punishment-oriented strategies (Chowdhury & Benson, 2011; Lyod & Kennedy, 2014). Aligned with evidence-based practice and least restrictive treatment guidelines, the BOSS teaching program is a proactive strategy that utilizes principles founded in applied behavior analysis to increase prosocial behaviors (Ross, 2015; Slocum et al., 2014).

Operant conditioning theory and the principles of applied behavior analysis are engrained in the research questions, intervention, data collection and analysis procedures, and the research design of this study. The research questions are behaviorally oriented

with emphasis on collecting and analyzing objective, observable, and measurable changes in overt behavior prior to and following the systematic implementation of the BOSS teaching program (Baer et al., 1968; Leaf et al., 2016; O'Neill et al., 2011). In applying the BOSS teaching program with a novel population of adults with ID, I conformed to the constructs of applied behavior analysis (i.e., applied, behavioral, analytic, technological, conceptual, and generality) as defined by Baer et al. (1968). In this study, I applied the principles of behavior analysis (i.e., positive reinforcement, extinction, and modeling) inherent in the BOSS teaching program to socially significant problems facing adults with ID as they integrate in the community.

In addition to implementing a behavior analytic intervention, the study procedures and the research design are engrained in operant conditioning and applied behavior analysis. The independent variable (i.e., the BOSS teaching program) and the dependent variables are operationally defined to increase replicability and generality of the study results (see Dallery & Raiff, 2014; Sidman, 1960). The single-subject multiple-baseline design includes the systematic implementation of the intervention across participants and settings in order to evaluate changes in overt behavior across different conditions. Data analysis procedures include visual analysis of graphically displayed data, rather than tests of statistical significance, that are likely to show discernable and believable changes in socially significant behavior across study conditions (Dallery & Raiff, 2014).

Literature Review Related to Key Concepts and Variables

Deinstitutionalization and Transition Into the Community

Since the late 1960s cultural shifts, legal mandates, and financial concerns have led to the transition of individuals with ID from living in state-run institutions to community-based supports (Lerner & Pollack, 2015). The passage of the Americans with Disabilities Act of 1990 further supported the deinstitutionalization movement and encouraged fuller inclusion of individuals with ID in the regular community setting (ADA, 1990). The mandates also specified that individuals with ID should receive services in the most integrated setting which most appropriately meets their needs and provides interactions with nondisabled individuals to the highest degree possible (Lerner & Pollack, 2015). In order to support the deinstitutionalization shift, the United States federal government provided additional funding to states in order support individuals with ID living in the community under the HCBS waiver (2015).

The HCBS waiver programs were developed as an alternative to institutional service settings (DIDD, n.d.). Under the HCBS waiver, individuals are eligible for residential, day program, health, and behavioral services. In the HCBS waiver, the states are responsible for ensuring that individuals who meet ID and developmental disability criteria receive needs-based quality health and ancillary services through a network of local community providers.

The state of Tennessee is currently experiencing this transition process as adults with ID continue to move from the institutional setting into the regular community. Tennessee closed one of the last remaining state-run institutions in June, 2016 (DIDD,

n.d.). The Tennessee DIDD provides oversight and community provider support for agencies delivering health, residential, behavioral, and day program services to adults in the waiver program (DIDD, n.d.). In Tennessee, as with other areas of the country, individuals receiving services through the waiver system oftentimes experience behavioral challenges in the community due to poor social skills and challenging behaviors (Delgado et al., 2017; Matson & Adams, 2014; Brosnan & Healy, 2011; Hewitt et al., 2012; Laugeson & Ellingsen, 2014). These deficits in social skills experienced by adults with ID are not automatically resolved by transitioning from the institution to the community-based setting (Bigby, 2012).

In addition to the continuing trend of deinstitutionalization, there has been a significant increase in the prevalence of autism spectrum disorders diagnoses. Rates of autism have "increased nine fold over the past 30 years, rising from approximately 1 in 1000 affected individuals in the 1980s, to 1 in 110 children" (Ratto & Mesibov, 2015, p. 1010). Many of these individuals on the cusp of the significant increase in prevalence rates are now, or will be in the near future, coming of age and transitioning from living at home with their families to the regular community. The large number of individuals with autism spectrum disorders who are transitioning into the community will continue to need effective supports and evidence-based practices in order to increase the likelihood of their successful transition to and participation in the community (Bishop-Fitzpatrick et al., 2014; Gantman et al., 2012; Gerhardt & Lainer, 2011; Ratto & Mesibov, 2015; Shattuck, et al., 2012; Wehman et al., 2014).

Defining Intellectual and Developmental Disabilities and Social Skills

According to the Centers for Disease Control and Prevention, approximately 1 in 6 or 15% of children between the ages of 3 and 17 have a diagnosis of one or more developmental disabilities (CDC, 2015). An *intellectual disability* is a form of developmental disability defined by the American Association on Intellectual and Developmental Disability as "a disability characterized by significant limitations both in intellectual functioning (reasoning, learning, problem solving) and in adaptive behavior, which covers a range of everyday social and practical skills. This disability originates before the age of 18" (2017, p. 1). Developmental disabilities encompass a variety of diagnoses, including autism spectrum disorders, Downs Syndrome, fetal alcohol syndrome, and attention deficit with hyperactivity disorder (CDC, 2015). However, an important distinction between ID and the more broad category of developmental disability lies in the requirement of an individual having an IQ score of 70-75 or less to meet the definition of ID.

As the definition of ID specifies, deficits in adaptive behavior include a wide range of daily living skills including social skills. Also alluded to in the ID definition, deficits in social skills are common for individuals diagnosed with ID and developmental disabilities (Belva & Matson, 2013; Hewitt et al., 2012; Walton & Ingersoll, 2013). The term social skills is a broad categorical label encompassing many behaviors that can have profound positive and negative influences on an individual's functioning in daily life (Laugeson, Gantman, Kapp, Orenski, & Ellingsen, 2015). As such, differentiating social skills into two discrete categories of positive social behaviors and negative social

behaviors has been helpful for researchers to identify and evaluate social behavior and social skills interventions (Walton & Ingersoll, 2013).

Walton and Ingersoll (2013) defined positive social behaviors as "verbal and nonverbal social or communicative behaviors that indicate social interest or provide appropriate social initiations or responses in specific situations (e.g., showing an interest in others, smiling or looking at other people, playing simple games)" (p. 596). Oppositely, Walton and Ingersoll define challenging social behaviors as "verbal and nonverbal behaviors that are disruptive, isolative, or otherwise interfere with the ability of an individual to engage in positive and appropriate social interactions with others" (p. 596). Challenging behaviors can include "repetitive or stereotypic behaviors, destructive or oppositional behaviors, and aggressive or self-injurious behaviors" (Walton & Ingersoll, 2013, p. 596). Although the two categories of positive versus challenging social behaviors are rather broad, researchers have been able to develop more fine-grained definitions as needed based upon the research questions or goals of social skills interventions.

Impact of Social Skills Deficiencies

Laugeson et al. (2015) noted that deficits in social skills can be one of the most detrimental challenges for adults with ID. Social skills deficits oftentimes inhibit the development of meaningful relationships and may exacerbate or contribute to the development of additional challenging behavior (Laugeson et al., 2015; Matson & Adams, 2014). The presence of challenging behavior is one of the most significant factors contributing to a reduction in quality of life measures for adults with ID (Garcia-

Villamisar, Dattilo, & Matson, 2013). Quality of life measures are likely reduced as challenging behaviors are associated with restricted access to the regular community, including residential placements, gainful employment, and leisure activities (Bigby, 2012).

It is estimated that approximately 20% of individuals diagnosed with an ID also engage in challenging social behaviors (Scheifes et al., 2016). The challenging behaviors most often exhibited by adults with ID include aggression toward others (e.g., hitting, kicking spitting, biting, etc.), self-injury (e.g., self-biting, head-banging, face-slapping, eye-gouging, etc.), and disrupting and destroying personal property (Lyod & Kennedy, 2014; Walton & Ingersoll, 2013). Other less severe forms of challenging behavior include frequent and repetitive movements typically labeled stereotypy and inappropriate social behaviors (e.g., making loud vocalizations, insulting others, making odd or offensive gestures, etc.). The simple descriptions and labels of the challenging behaviors can provide most laypersons with an understanding of how significantly these behaviors can impair an individual's daily function in society.

There has been extensive research on procedures for assessing and reducing challenging behavior (Beavers, Iwata, & Lerman, 2013; Bigby, 2012; Campbell, 2003). Over 400 articles have been published explicitly on behavior assessment methods for evaluating challenging behaviors since 1968 (Beavers et al., 2013). Although there is general consensus among researchers that one of the most effective ways to reduce challenging behavior is to teach more appropriate alternative or incompatible replacement behaviors, there is a paucity of research focused specifically on improving social skills

with adults with ID (Koegel et al., 2013; Ross, 2015; Walton & Ingersoll, 2013). Thus,

for the scope of the literature review and the purpose of this study, I focused specifically

on interventions aimed at improving social skills rather than assessing and treating

challenging behavior.

Social Skills Interventions for Children

There has been extensive research on social skills training programs for children

with ID, particularly with children with autism spectrum disorders. Literature reviews

and meta-analyses of the research have been conducted across intervention types,

research methodologies, and disability category or severity (Chang & Locke, 2016;

Hutchins, Burke, Hatton, & Bowman-Perrott, 2016; Magg, 2006; Watkins et al., 2015;

Reichow & Volkmar, 2010). Social skills interventions that have been extensively

researched and evaluated with children include Social Stories™, peer-mediated

interventions, video-modeling, and naturalistic learning interventions such as Pivotal

Response Treatment© (Cadogan & McCrimmon, 2015; Chang & Locke, 2016; Haydon

et al., 2016; Karkhaneh et al., 2010). Evaluations of these social skills programs with

children have shown that the interventions are effective in increasing appropriate social

behaviors and decreasing challenging behaviors. Researchers have also noted that a

majority of the most promising social skills interventions for children include behavioral

components such as positive reinforcement, modeling, prompting, and extinction

(Axelrod et al., 2012; Matson et al., 2012; Wong et al., 2015).

Social Skills Interventions for Adults

There is significantly less research on interventions geared towards improving the social skills of adults with ID than with children with ID (Matson, Cervantes, & Peters, 2016). A recent review of studies, which included the implementation of evidence-based social skills interventions with individuals with autism, showed that a significant portion of studies included participants who were 12 years of age or younger (Wong et al., 2015). The review by Wong et al. also reported that the number of published studies decreased as the age categories of the participants increased. Although there are significantly less studies on social skills interventions with adults with ID, the literature base on social skills interventions with children has been beneficial for the generalization of the interventions across age groups (Walton & Ingersoll, 2013).

The University of California Los Angeles (UCLA) Program for the Education and Enrichment of Relational Skills (PEERS) is an example of an evidence-based practice that has been successfully generalized from adolescents to adults with autism spectrum disorders (Gantman et al., 2012; Laugeson & Ellingsen, 2014; Laugeson et al., 2015). The UCLA PEERS is a manualized social skills training program which aims to address a variety of social skills. Social skills training sessions include small group instruction and typically include caretaker or parent participation (Hotton & Coles, 2016; Laugeson, Frankel, Mogil, & Dillon, 2009). Training sessions typically consist of 90-minute small group instruction that include "didactic instruction, role-playing, modeling, and behavioral rehearsal, coaching with performance feedback, and weekly socialization assignments with consistent homework review" (Laugeson et al., 2009, p. 597). The

training sessions typically occur once per week across 13-16 weeks. Components of applied behavior analysis are apparent in the UCLA PEERS, including modeling, clear feedback, and behavioral rehearsal.

In a randomized controlled trial, Laugeson et al. (2015) demonstrated that the UCLA PEERS was effective in improving overall social skills (according to the Social Skills Rating System) and increasing the frequency of peer engagement (according to the Quality of Socialization Questionnaire) of adults with autism spectrum disorders between the ages of 18 to 23. The researchers also showed that the UCLA PEERS was effective in increasing participants' knowledge of social skills (according to the Test of Young Adult Social Skills Knowledge) and in reducing autism related symptoms pertaining to socialization (according to the Social Responsiveness Scale). Despite the overall positive results, the study did have several limitations. The study did not include direct behavioral measures of the target behaviors or independent observations of social skills. The study also included a relative small sample size ($N = 22$) and a limited age range, which focused on young adults between the ages of 18 to 23 (Laugeson et al., 2015).

The results and limitations of the Laugeson et al. (2015) study are important and relevant to this study for several reasons. The authors were successful in applying a social skills intervention developed with adolescents to adults with autism spectrum disorders with minimal adaptions. In this current study, the behavioral outcomes of applying the BOSS teaching program were evaluated with a novel population of adults with ID. The BOSS teaching program and the UCLA PEERS include highly structured, step-by-step procedures for implementation. The UCLA PEERS, similarly to the BOSS

teaching program, incorporates evidence-based components of applied behavior analysis and caretaker or teacher support as the backbone of the social skills intervention. However, the study by Laugeson et al. (2015) did not include direct observation and behavioral measures, which is the primary focus of this study and an important measure for evaluating the effectiveness of an intervention. Finally, the study adds to the current and highly limited literature of evidence-based social skills interventions for adults with ID (Laugeson et al., 2015).

Social Skills and Classroom Management

Classroom management, student problem behavior, and student discipline have been among the most frequently noted public school concerns and topics for teacher professional development (Briere et al., 2015; Maag, 2001; Maag, 2012; Ross, 2015). Effective classroom management techniques have become increasingly important as general education classrooms are becoming more diverse with cultural shifts and mandates for inclusion under IDEA (Ross, 2015). Ironically, although teachers may be aware of the importance of effective classroom management, teachers "may not have the training, background or skills to develop positive learning environments" (Briere et al., 2015, p. 50). Thus, even teachers with the best intentions oftentimes resort to using ineffective classroom and behavior management techniques (Gable, Tonelson, Sheth, Wilson, & Park, 2012).

Ineffective classroom management techniques include the use of unstructured, reactive, and punishment-oriented approaches to decrease and thwart challenging or disruptive behaviors (Ross & Sliger, 2015). The reactive, punishment-oriented strategies

may result in a trivial or temporary decrease inappropriate behavior. The temporary decrease in the challenging behavior may also function as negative reinforcement for the teacher. Even a temporary or negligible decrease in challenging behavior can function as a negative reinforcer in the form of a much needed break in disruptions for the teacher who is desperately attempting effectively manage the behavior of the students. However, without the use of effective strategies for increasing appropriate social behaviors, the well-intentioned teacher will be stuck in the repetitive cycle of delivering reprimands or "critical authoritarian remarks" (CARs) and providing unwanted attention to challenging behavior (Ross, 2015, p. 89).

In addition to being an ineffective approach to decreasing challenging behavior, punishment-oriented strategies may inadvertently increase challenging behavior and produce unwanted side effects. In the classroom setting, teacher attention in the form of repeated reprimands and CARs contingent upon challenging behavior may function as a positive reinforcer for students. The frequent and contingent delivery of teacher attention for challenging behavior will likely result in an increase in the challenging behavior, thus functioning opposite to intended purpose of the punishment (Macmillan, Forness, & Trumbull, 1973; Ross & Sliger, 2015). In addition to increasing problem behavior, other undesirable side effects of punishment previously mentioned can include decreased self-esteem on the behalf of the punishment recipient and a loss of respect for the teacher (Ross, 2015).

In the early 1950s, Skinner acknowledged the importance of social attention as a reinforcer (Skinner, 1953). Social attention is a powerful reinforcer because it is

delivered by a person who is likely a mediator of other types of reinforcement. More specifically, "the attention of someone who is particularly likely to supply reinforcement—a parent, a teacher, or a loved one—is an especially good generalized reinforcer and sets up especially strong attention-getting behavior" (Skinner, 1953, p. 78). Thus, teachers must be careful in their delivery of attention as a tool for effective classroom management and increasing desirable social behaviors.

Researchers have empirically demonstrated that Skinner's (1953) descriptions of providing attention in the form of approval statements can also be an effective mode of classroom management. The use of specific praise statements has been shown to be an effective strategy for increasing academic and prosocial behaviors of students in the classroom (Allday, 2012; Jenkins, Floress, & Reinke, 2015; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Specific praise statements have been defined as "providing clear feedback to students on what they did well" (Briere et al., 2015). Using a school consultation model, Briere et al. (2015) successful trained new teachers to substantially increase their delivery rate of specific praise statements during a 5-week intervention period. In a similar study, Simonsen et al. (2016) were also successful in training teachers to increase their rates of delivering specific praise statements to students using a more efficient, targeted professional development approach.

The BOSS teaching program provides teachers with a template to avoid the common pitfalls associated with traditional classroom management techniques. The BOSS teaching program incorporates evidence-based social skills training rooted in applied behavior analysis (i.e., positive reinforcement via specific praise statements,

extinction of nuisance behavior, modeling, etc.) into a highly-structured, step-by-step curriculum for teachers to follow. The BOSS teaching program encourages teachers to abandon traditional approaches and to learn new behaviors themselves, including "resisting the reaction of punishment, to which we all have been conditioned" (Ross, 2015, p. 103). The BOSS teaching program also encourages teachers to adopt the credo for increasing positive behaviors, "if you want to get it, you must teach it" (Ross, 2015, p. 114). The structured steps for implementing the BOSS teaching program are specified by Ross (2015) to include

1. Teachers state that they will be watching for "cooperative and polite behaviors" (CPBs) (teachers spend time helping students define and demonstrate both "cooperation and politeness") and frequently compliment students during the day when they demonstrate cooperative and polite behavior. At the same time, teachers ignore nuisance behaviors. If the teacher needs to redirect a student, she either points out those students who are displaying CPBs, or politely asks the student in question to "show me some CPBs."

2. Step 1 continues. After a few days, teachers ask for student volunteers at the end of the day to state how they were cooperative or polite. Teachers ask for students to acknowledge this prosocial behavior.

3. Steps 1 and 2 continue. After a few days, teachers ask an additional question from the students: teachers ask students to name another student other than himself or herself who has demonstrated cooperative or polite behavior during

the day. Teacher asks for students to acknowledge this prosocial behavior as well as thanking students for volunteering others.

4. Steps 1, 2, and 3 continue. After a few days, teachers state to the students that they should complement one another during the course of the day when CPBs are shown toward one another rather than waiting till the end of the day. The teacher infuses this culture of positive communication and acknowledgement each and every day, and throughout each school day (p. 115).

Akin to other applied behavior analysis interventions, the BOSS teaching program includes a "structured yet flexible process" (Leaf et al., 2016, p.721) which can be adjusted based upon environmental circumstances. Over 800 teachers from pre-kindergarten through 12th grade have been trained in the BOSS teaching program. The comprehensive set of four steps is most conveniently implemented in elementary classrooms where students remain in one classroom with the same teacher for a majority of the day. In secondary classrooms, teachers focus on consistent implementation of Step 1 of the BOSS teaching program (Ross & Sliger, 2015). Similarly, for the purpose of this study, direct support professionals were trained to focus on implementing Step 1 of the BOSS teaching program with adults with ID in the regular community. The BOSS teaching program has been shown to be effective in improving prosocial behaviors as well as reducing challenging behavior, which are essential outcomes for increasing community integration for adults with ID (Ross, 2015).

Summary and Conclusions

There is a paucity of research on evidence-based social skills interventions for adults with ID in comparison to the extensive literature base of social skills interventions for children with ID (Laugeson et al., 2015; Matson et al., 2016; Wong et al., 2015). Based upon the review of the literature of social skills interventions for children with ID, researchers have shown that the most effective interventions include components of applied behavior analysis (Axelrod et al., 2012; Matson et al., 2012). Researchers have also successfully used behavioral social skills interventions in the school system as an effective form of classroom management (Jenkins, Floress, & Reinke, 2015; Ross, 2015). Despite the overall lack of research on social skills interventions for adults with ID, more recently researchers have demonstrated that evidence-based practices developed with children and adolescents with ID can be successfully implemented with adults with ID with minimal adaptions (Laugeson et al., 2015). However, the limited and preliminary generalization of social skills interventions for children with ID to the adult ID population has included evaluations using structured questionnaires rather than behavioral measures. The results of the current study bridge existing gaps in research on behavioral outcomes of implementing an evidence-based social skills intervention, which has been shown to be an effective mode of classroom management, with adults with ID (Ross, 2015). The results of this study expand the currently limited knowledge base for generalizing effective practices for improving the social skills of children with ID to adults with ID.

The extensive review of existing literature revealed several major themes, including evidence-based social skills interventions for children with ID and the lack of research on evidence-based social skills interventions for adults with ID. The comprehensive literature review highlighted essential components (i.e., principles of applied behavior analysis) of effective social skills interventions and classroom management strategies. The literature review also highlighted the importance of generalizing evidence-based practices developed for children with ID and as classroom management techniques to the adult ID population. Chapter 3 includes a detailed description of the research methodology used to evaluate the behavioral outcomes of implementing the BOSS teaching program, which was initially developed as a classroom management strategy, with adults with ID. The ethical procedures for protecting the human research participants and the threats to the internal and external validity of the study are also included in Chapter 3.

Chapter 3: Research Method

Introduction

The purpose of this single-subject study was to evaluate the behavioral outcomes of applying the BOSS teaching program with adults with ID (Ross, 2015). The outcomes of the study contribute to the currently limited literature on evidence-based social skills interventions implemented with adults with ID. The BOSS teaching program has been shown to be effective in improving prosocial behaviors as well as reducing challenging behaviors, which are important outcomes for increasing community integration for adults with ID.

Chapter 1 included the background of the research problem, justification for the research inquiry, the research questions guiding the inquiry, and an overview of the independent and dependent variables of this study. Chapter 1 also included a concise review of the theoretical foundation as well as meaningful terminology relevant to the study, scope, and limitations of the study. Chapter 2 included a description of the literature search strategies, the rationale for and historical application of the theoretical framework for the study, and an exhaustive review of literature pertaining to the research questions, problem, constructs, and variables. Chapter 3 includes operational definitions of the independent and dependent variables and the rationale for selecting the single-subject multiple-baseline research design. Chapter 3 also includes the methodological details of the study, including the target population, sampling procedures, data collection and analysis procedures, threats to internal and external validity, and ethical concerns pertaining to the inclusion of human subjects in the study.

Research Design and Rationale

Direct support professionals who worked closely with adults with ID received structured training on the essential components of the BOSS teaching program. The training of direct support professionals in the BOSS teaching program functioned as the independent variable. Specifically, Step 1 of the BOSS teaching program included training direct support professionals how to ignore nuisance behavior, identify desirable behavior, and deliver positive reinforcement contingent upon appropriate social behavior (see Ross, 2015). The measured changes in observable behavior across phases of the study of the direct support professionals and the supported adults with ID functioned as the dependent variables. The intent of the study was to compare observable changes in behavior of the direct support professionals and adults with ID when the BOSS teaching program was used by trained direct support professionals.

The dependent variables included data collected by direct support professionals on positive and negative behaviors of the adults with ID. More specifically, frequency data were collected on the number of challenging behaviors exhibited by adults with ID as well as the frequency of prosocial behaviors. The direct support professionals also collected data on the frequency in which they delivered specific praise statements to the adults with ID they supported. The dependent variable measures were collected during the baseline condition and continued throughout the implementation phase of the BOSS teaching program.

Rheingold and Hay (1980) defined prosocial behaviors as "those that promote and maintain harmonious and satisfying interactions" (p. 93). The authors additionally

defined and categorized prosocial behaviors as "sharing, caregiving, taking turns, friendliness and affection, empathy and sympathy, helping and cooperating, and obedience and conscience" (Rheingold & Hay, 1980, p. 93-94). In a separate study on the BOSS teaching program, Long (2016) developed operational definitions of prosocial behavior with slight modifications to the definitions provided by Rheingold and Hay (1980) and Eisenberg et al. (1992). Long operationally defined prosocial behavior as

1. Proximity: Being near a peer appropriately.

2. Cooperating: Verbally or nonverbally.

3. Friendliness and affection: Amiable words and actions.

4. Humor: Laughing, playing, or joking appropriately.

5. Comments: Positive or affirming.

6. Talking: Engaged in appropriate conversation.

7. Helping: Assisting a peer with a task verbally or nonverbally.

8. Sharing: Sharing materials or ideas.

9. Turn taking: Waiting for turn.

10. Empathy/Sympathy/Caregiving: Expressing or showing concern verbally or nonverbally. (p. 193)

For the purpose of this study, operational definitions of prosocial behavior were adapted from the Long study with slight modifications in order to align more appropriately with adults living in the community setting.

In order to comprehensively evaluate behavioral outcomes of the BOSS teaching program with adults with ID, dependent variables measures included frequency data on

challenging behavior. The data on challenging behavior were collected by direct support professionals as mandated by the Tennessee DIDD and the community provider agency where the staff member was employed. The Tennessee DIDD categorizes specific types of challenging behaviors as reportable behavioral-psychiatric incidents and requires timely submission of these reports to DIDD. The frequency of reportable behavioral-psychiatric incidents functioned as one measure of challenging behavior for the purpose of this study. According to the DIDD Provider Manual (2014), reportable behavioral-psychiatric incidents can include

1. Sexual aggression;

2. Missing person longer than 15 minutes;

3. Criminal conduct;

4. Property destruction greater than $100;

5. Serious injury to person supported;

6. Serious injury to another person as a result of a behavioral incident by a person supported;

7. Psychiatric/Medical hospitalization – any hospital admission whether planned or unplanned. Routine, age related testing is not considered reportable;

8. Manual or mechanical restraints – these include all behavior related restraints, regardless of length of time used, type or approved by a plan (all take-downs and prone restraints are prohibited). Restraints used in the course of medical treatment, positioning or in the prevention of an accident are not considered

behavior related and not considered reportable unless another intervention is utilized;

9. Protective equipment – application of a device to a person's body part to prevent injury/harm as related to a behavioral incident. To include helmets, mitts, etc;

10. Mental Health Mobile Crisis Team – response by an independent mental health agency team to assess behavioral/psychiatric crises;

11. Emergency Psychotropic Medication Administration – psychotropic medication administration in response to a specific behavioral event that is not part of a routine medical order and not prescribed for a specific medical procedure. This requirement includes pro re nata (PRN) medications administered in response to a behavioral event;

12. Police – in person response by law enforcement personnel; and

13. Incarceration – includes being jailed after an arrest or conviction of a crime (p. 99-102).

Independent community provider agencies also collect data on challenging behavior that does not meet reportable incident requirements of DIDD. An additional dependent variable measure of challenging behavior was categorized as nonreportable behavioral incidents. The agency's nonreportable incidents included instances of physical aggression that did not result in serious injury, destruction of property valuing less than $100, and other inappropriate social behavior that did not meet the criteria of a reportable incident. Although there may be some overlap and similarity amongst

community providers, definitions of nonreportable incidents are agency specific. For the purpose of this study, data on nonreportable challenging behavior incidents were collected in accordance with the partnering provider agency recording policies.

The direct support professionals who voluntarily participated in the study had variations in their educational backgrounds and work histories. The independent community providers determine their own minimum job requirements for direct support professionals to work at the particular agency. Although the Tennessee DIDD does require that agencies provide person specific training for direct support professionals, DIDD does not mandate that agencies include minimum educational backgrounds or work experience to qualify for direct support professional positions. Thus, the educational and employment histories of the direct support professionals are covariates that may have influenced the direct support professionals' performance in acquiring the necessary skills and implementing the procedures of the BOSS teaching program.

The behavioral outcomes of implementing the BOSS teaching program with adults with ID was effectively and objectively evaluated using a single-subject research design. Single-subject designs include objective and rigorous approaches to research investigations as the procedures include the direct observation of overt behavior. Single-subject designs can be used as a means to detect even slight changes in behavior of each individual participant and are ideal for evaluating behavioral and educational interventions (Horner et al., 2005; Smith, 2013). As detailed earlier in this section, single-subject designs also require researchers to clearly and operationally define the independent and dependent variables (Kratochwill et al., 2013; O'Neill et al., 2011).

More specifically, a single-subject multiple-baseline design across individuals and settings was used evaluate the behavioral outcomes of the BOSS teaching program. The multiple-baseline design can be used to evaluate changes in behavior without including a withdrawal or reversal phase and is ideal for evaluating the learning of new behaviors (O'Neill et al., 2011). The multiple-baseline design is also an effective method for evaluating intervention effects across a variety of conditions (O'Neill et al.). Although there are several advantages for using the multiple-baseline design, researchers must consider time constraints and data collection resources related to the design. Multiple-baseline designs include simultaneous and ongoing data collection across the phases of the study that can include prolonged baseline conditions (O'Neill et al.).

Single-subject research designs have been extensively used to evaluate educational and behavioral practices. Single-subject designs have been instrumental in the evidence-based practice movement and are essential for advancing the "scientific knowledge base on educational practices" (Kratochwill et al., 2013, p. 27). As such, single-subject research design standards were established by the WWC™ in 2010 (Kratochwill et al., 2013). The WWC™ conducts independent reviews of research studies, including evaluations of design rigor and the strength or demonstration (i.e., strong evidence, moderate evidence, or no evidence) of an intervention effect (WWC™, 2014). In order for researchers to meet the single-subject design standards established by the WWC™, the design must include the following:

- The independent variable (i.e., the intervention) must be systematically manipulated, with the researcher determining when and how the independent variable conditions change.

- For each case, the outcome variable must be measured systematically over time by more than one assessor. The design needs to collect interassessor agreement in each phase and at least 20% of the data points in each condition (e.g., baseline, intervention) and the interassessor agreement must meet minimal thresholds.

- The study must include at least three attempts to demonstrate an intervention effect at three different points in time.

- Phases must meet criteria involving the number of data points to qualify as an attempt to demonstrate an effect.

  o Multiple-baseline and multiple probe. Must have a minimum of six phases with at least five data points per phase to Meet WWC™ Pilot Single-Case Design Standards without Reservations. Must have a minimum of six phases with at least three data points per phase to Meet Pilot Single-Case Design Standards with Reservations. Any phases based on fewer than three data points cannot be used to demonstrate the existence or lack of an effect. Both designs implicitly require some degree of concurrence in the timing of their implementation across cases when the intervention is being introduced. Otherwise, these designs cannot be distinguished from a series of separate AB designs (WWC™, 2014, p. E.2-E.4).

This study was conducted in accordance with the WWC™ single-subject design standards in order to increase the likelihood that the results would contribute to the expansion of evidence-based social skills interventions for adults with ID. The BOSS teaching program has been shown to be an effective strategy for increasing prosocial behaviors as well as decreasing challenging behaviors of students in the classroom, which are important outcomes for improving community integration of adults with ID (Ross, 2015).

Methodology

Population

The study was conducted at a service provider agency that participates in the Tennessee DIDD network of programs for adults with ID. The network includes independent, community-based agencies that typically employ direct support professionals and provide residential and day-program supports for adults with ID. The services delivered to the adults with ID by the community agencies are intended to maintain the health, safety, and quality of life of the individuals who have chosen to reside in the regular community (DIDD, n.d.). The community-based agency who partnered with me on this study received partial funding from the Tennessee DIDD in order to provide community supports, including staffing, health care, behavioral supports, and other needs-based services for the adults with ID.

The adult ID population includes individuals with wide-ranging intellectual and adaptive skill abilities (Foley et al., 2012). The target population for this study included adult individuals over the age of 18 years old who have been diagnosed with one or more

ID in Tennessee. There are approximately 1,139,570 adults living in the East Tennessee Region (East Tennessee Economic Development Agency, 2016). Based upon prevalence rates from the Centers for Disease Control and Prevention, approximately 15% of the population or an estimated 170,935 individuals in the East Tennessee Region have been diagnosed with an ID or developmental disability (CDC, 2015). For the purpose of this study, the target population was limited to adults with ID who are currently receiving services through one of the Tennessee DIDD waiver funded programs.

Sampling Procedures

Sample of the adult ID population. Adults with ID were identified and invited to participate in this study using purposeful sampling techniques with specific inclusion and exclusion criteria (see Creswell, 2012). I used purposeful sampling, rather than random sampling techniques, due to the requirements inherent to the BOSS teaching program for individuals to be capable of emitting cooperative and polite communicative responses. I used archival data and demographic information in the Tennessee DIDD databases during the selection process in order to identify potentially eligible study participants.

At the time of the study, I was employed by an external entity and contracted by DIDD, which authorized me to access the demographic information and archival data of individuals supported in the DIDD system. My access to archival data and demographic information was in accordance with confidentiality and the Health Insurance Portability and Accountability Act (HIPAA) regulations. The demographic and archival information of the adults with ID is included in Individual Support Plans (ISP's) and databases stored

on secure DIDD servers. In order to meet the inclusion and exclusion criteria for this study, each adult with ID:

1. Received funding from the Tennessee DIDD.

2. Had a diagnosis of one or more ID with an IQ score of less than 70, which may have included an autism spectrum disorder diagnosis.

3. Had communicative abilities and were capable of emitting verbal and nonverbal cooperative and polite behaviors.

4. Had documented instances of nonreportable and reportable behavioral incidents.

5. Provided informed consent or assent (informed consent via conservator).

6. Was not actively receiving formal applied behavior analysis services.

Selection of direct support professionals. Much like the teachers who participated in prior applications of the BOSS teaching program in the school setting, direct support professionals were the primary implementers of the intervention in this study (see Long, 2016; Ross, 2015). The direct support professionals received structured training, described in more detail in the Chapter 3 intervention section, on how to implement the relevant components of the BOSS teaching program with the adults with ID. In the role of implementer, direct support professionals also collected behavioral data on their use of the BOSS teaching program and the behavior of the adults with ID they supported. The direct support professionals collected behavioral outcome data on the number of specific praise statements they delivered to the adults with ID, cooperative and polite behaviors displayed by adults with ID, and challenging behaviors of the adults with

ID. Direct support professionals were invited to participate in the study based upon the

demographic and archival data of the adults with ID they supported and their own work

experience. In order to be invited to participate in this study direct support professionals:

1. Were employed by a community residential or day program agency that
   supports individuals receiving funding from the Tennessee DIDD.

2. Supported an adult with ID with an IQ score of less than 70, which may have
   included an autism spectrum disorder diagnosis.

3. Supported an adult with ID who had communicative abilities and could emit
   verbal and nonverbal cooperative and polite behaviors.

4. Supported an adult with ID who had documented nonreportable and reportable
   behavioral incidents.

7. Supported an adult with ID who had provided informed consent or assent
   (informed consent via conservator).

5. Supported an adult with ID who was not actively receiving formal applied
   behavior analysis services.

6. Did not have prior training or experience in the BOSS teaching program.

Sample size. In order to meet the WWC™ single-subject design standards a

"multiple-baseline design must include a minimum of six phases (i.e., at least three A

phases and three B phases) with at least five data points per phase" (Kratochwill et al.,

2013, p. 29). The inclusion of three different direct support professionals who supported

three different adults with ID in this study satisfied WWC™ sample size standards. I

also systematically implemented the BOSS teaching program across each direct support

professional in different settings in accordance with the WWC™ multiple-baseline

design standards, which included three baseline and three intervention phases. .

Procedures for Recruitment, Participation, and Data Collection

I identified the community agency where the study took place, selected

participants, and conducted the data collection procedures. The study was initially

designed to incorporate the help of a research assistant to contribute to data collection,

particularly for reliability (i.e., interobserver agreement). As described in Chapter 4, the

Walden University IRB does not allow assistants to collect research data. Thus,

interobserver agreement measures for data reliability purposes, which require

simultaneous observations to be conducted by two independent and trained observers,

were not feasible.

During the recruitment process, I met with the administrative personnel of the

community-based service provider, described the BOSS teaching program, and explained

expected training commitments for the direct support professionals. I also described the

potential benefits of training the direct support professionals in the BOSS teaching

program and the potential risks for study participants. The participant recruitment and

selection began after the administrative personnel agreed to allow the study to take place

at the partnering agency and IRB approval was obtained (Walden IRB approval no. 05-

26-17-0409390).

After the adults with ID were identified as potential participants, I adhered to

appropriate procedures for obtaining informed consent and assent (see Appendix A). I

also obtained informed consent from the direct support professionals who implemented

the BOSS teaching program and collected behavioral data in the study. The informed

consent procedures were completed in accordance with Walden University's IRB, which

included prior approval of the study and the informed consent forms. O'Neill et al.

(2011) summarized the essential information that must be included in an informed

consent form as the following:

1. A statement that the study involves research, an explanation of the purposes of the

   research and the expected duration of the participant's participation, a description

   of the procedures to be followed and identification of any procedures which are

   experimental;

2. A description of any reasonably foreseeable risks or discomforts to the

   participant;

3. A description of any benefits to the participant or to others which may reasonably

   be expected form the research;

4. A disclosure of appropriate alternative procedures or courses of treatment, if any,

   that might be advantageous to the participant;

5. A statement describing the extent, if any, to which confidentiality of records will

   be maintained;

6. An explanation of whom to contact for answers to pertinent questions about the

   research and research participants' rights, and whom to contact in the event of a

   research-related injury to the participant; and

7. A statement that participation is voluntary, refusal to participate will involve no

   penalty or loss of benefits to which the participant is otherwise entitled and the

participant may discontinue participation at any time without penalty or loss of benefits to which the participant is otherwise entitled (p. 74).

In addition to receiving approval from Walden University's IRB, I also obtained approval to conduct the study from the Tennessee Regional Human Rights Committee. The Regional Human Rights Committee reviewed the risks and benefits of conducting the study with a sample of DIDD service recipients, the informed consent process and forms, and the study intervention and design. The approval document from the Regional Human Rights Committee is included in Appendix B.

At the close of the study, I personally meet with each of the research participants as a part of the debriefing procedures. I shared the results of the study, including the direct support professionals' performance in implementing the BOSS teaching program as well as the behavioral outcomes collected throughout the study as a mode of full disclosure with the research participants (see Rumrill, Cook, & Wiley, 2011). Although no additional follow-up data were collected for the purposes of this study, I offered opportunities for additional training sessions in the BOSS teaching program to the partnering agency for direct support professionals who did not participate in the study.

Intervention

Over the past 16 years, the BOSS teaching program has been extensively applied in schools with more than 800 teachers of all grades being successfully trained in the program (Ross, 2015). Direct support professionals who worked closely with adults with ID received structured training on the essential components of the BOSS teaching program immediately following the establishment of stable baseline conditions. The

training of direct support professionals in the BOSS teaching program functioned as the independent variable and study intervention. I provided training in the step-by-step procedures of the BOSS teaching program during structured training sessions. Specifically, Step 1 of the BOSS teaching program included training direct support professionals how to ignore nuisance behavior, identify desirable behavior, and deliver positive reinforcement contingent upon appropriate social behavior (Ross, 2015). Step 1 of the BOSS teaching program is defined by Ross (2015) as:

> Teachers state that they will be watching for "cooperative and polite behaviors" (CPBs) (teachers spend time helping students define and demonstrate both "cooperation and politeness") and frequently compliment students during the day when they demonstrate cooperative and polite behavior. At the same time, teachers ignore nuisance behaviors. If the teacher needs to redirect a student, she either points out those students who are displaying CPBs, or politely asks the student in question to "show me some CPBs" (p. 115).

For the purposes of this study, the BOSS teaching program terms of "teacher" and "student" were replaced with "direct support professional" and "individual" or "adult with ID". I directly observed direct support professionals implement the components of the BOSS teaching program and collected data on implementation fidelity. The specific instructions for implementing the BOSS teaching program were reviewed during each training session. Ross (2015) delineated the following instructions for implementing the BOSS teaching program:

1. Regularly ignore nuisance behavior;

2. Resist being reactive to inappropriate behavior;

3. Point out the behaviors you want [what Partin et al (2010) refer to as "opportunities to respond." It is very important that teachers take opportunities to point out desirable behaviors as often as possible. This will help insure that #5 below is maintained.];

4. Punctuate [i.e., make a "big deal" or celebrate] especially desirable behaviors when they occur;

5. Make sure that the BOSS language is 25% of your overall communication with students [i.e., you must continue to talk about desirable behavior, reinforce desirable behavior, and model desirable behavior throughout the day].

6. Embrace the credo: "If you want to get it, you must teach it!" (p. 114).

I provided training in the components of the BOSS teaching program during sessions that occurred one time per week and lasted approximately 30 to 45 minutes each. During the initial training session, I provided classroom-style instruction using a PowerPoint presentation (see Appendix C) to individual direct support professionals on the concepts of the BOSS teaching program, including relevant principles of applied behavior analysis. I also modeled the response-contingent delivery specific praise statements and the ignoring of nuisance behavior during role-playing examples as part of the training sessions (Ross, 2015). The training sessions also included structured opportunities for the direct support professionals to role-play and practice using the BOSS teaching program procedures. I observed direct support professionals during

training sessions and provided specific praise statements and corrective feedback on their use of the BOSS teaching program procedures. I also collected implementation fidelity data using a checklist (see Appendix D) on direct support professionals' application of the BOSS teaching program.

Archival Data

I used archival data for recruitment purposes as well as for establishing stable baseline data prior to implementing the BOSS teaching program. I collected archival data needed to identify adults with ID who met the inclusion and exclusion criteria of the study and the direct support professionals who supported them. At the time of the study, I was employed by an external entity and contracted by DIDD, which allowed me to access the demographic information and archival behavior data of individuals supported in the DIDD system. As a part of my contracted employment with DIDD, I completed training and signed agreements to adhere to standards of patient confidentiality and the regulations of HIPAA. The archival data of the adults with ID is written into intake and transitional documents, ISP's, and reportable behavioral-psychiatric incidents. The information that was used as archival data of the adults with ID is stored in secure DIDD servers.

The archival data on reportable and nonreportable behavioral-psychiatric incidents were used for participant selection, to establish baseline frequencies, and as a comparison measure during the intervention phase. In order to be selected for the study, adults with ID needed to have documented reportable and nonreportable behavioral-psychiatric incidents. The frequency of challenging behavior incidents also functioned as

a dependent variable measure. The frequencies of challenging behavior incidents during the baseline condition, prior to the implementation of the BOSS teaching program, were compared to the frequencies of reportable and nonreportable behavioral-psychiatric incidents during the intervention phase. The DIDD requires that reportable behavioral-psychiatric incidents are sent to DIDD within specified timeframes depending on the category or severity of the incident. However, nonreportable incidents are not directly sent to DIDD as a standard practice. I obtained the data on nonreportable behavioral incidents directly from the partnering community agency.

Instrumentation and Operationalization of Constructs

The frequency data of each dependent variable was collected during the baseline condition, in the absence of the BOSS teaching program, and continued to be collected throughout the intervention phase. Frequency is a measure of "how often a behavior occurs in a specified time period" (O'Neill et al., 2011, p. 17). Frequency as the primary unit of measure was ideal for evaluating the outcomes of the BOSS teaching program, as the focus of the research questions were to examine increases and decreases in observable behavior (see O'Neill et al., 2011). Direct support professionals collected continuous measures of the dependent variables using event recording datasheets (see Appendix E and Appendix F). The direct support professionals used the event recording datasheets to document the exact number of specific praise statements they delivered to adults with ID, and the prosocial and challenging behaviors emitted by the adults with ID as operationally defined.

In order to reduce the likelihood of procedural drift, I collected treatment fidelity data during a minimum of 25% of the BOSS teaching program intervention sessions (see O'Neill et al., 2011). During treatment fidelity checks, I observed direct support professionals' interactions with the adults with ID. While using a slightly modified treatment fidelity checklist used by Long (2016), I recorded occurrences of the specific steps for implementing the BOSS teaching program operationalized in preceding sections.

As a measure of social validity, the questionnaire used by Ross (2008) was slightly modified to align with direct support professionals working with adults with ID. The modifications included the use of language that is socially acceptable and relevant to direct support professionals and adults with ID, rather that teachers and students. The social validity questionnaire was developed to evaluate "whether the intervention outcomes were considered socially important and whether they made a difference in the lives of the individuals receiving the intervention" (O'Neill et al., 2011, p. 35). The purpose for conducting measures of social validity is to assess the perspectives of the study participants on the "importance, acceptability, and sustainability of the intervention" (O'Neill et al., 2011, p. 36). Direct support professionals completed the social validity questionnaire at the end of the study, as a part of the debriefing process.

Data Analysis Plan

Restatement of the research questions and hypotheses from Chapter 1:

1. RQ1: How does the frequency of specific praise statements delivered by direct support professionals change following training in the BOSS teaching program?

2. RQ2: How does the frequency of cooperative and polite behaviors of adults with ID change following the training of direct support professionals in the BOSS teaching program?

3. RQ3: How does the frequency of challenging behaviors exhibited by adults with ID, which are reported by direct support professionals, change following the training of direct support professionals in the BOSS teaching program?

The following hypotheses were tested through the research inquiry:

$H1_0$: There is not a visually discernable difference between graphically displayed behavioral data collected during the baseline condition compared to the intervention phase.

$H1_a$: There is a visually discernable increase in the graphically displayed frequency data of specific praise statements made by direct support professionals during the intervention phase compared to the baseline condition.

$H1_a$: There is a visually discernable increase in the graphically displayed frequency data of cooperative and polite behaviors exhibited by adults with ID during the intervention phase compared to the baseline condition.

$H1_a$: There is a visually discernable decrease in the graphically displayed frequency data of challenging behavior exhibited by adults with ID during the intervention phase compared to the baseline condition.

$H2_0$: There is not a moderate to large effect size (ES ≤ 0.5) between behavioral data collected during the baseline condition compared to data collected during the intervention phase.

*H*2$_{a:}$ There is a moderate to large effect size (ES ≥ 0.5) between behavior data

collected during the baseline condition compared to data collected during the

intervention phase.

The behavioral data were analyzed through visual analysis of graphically

displayed data and the Percentage of Data Points Exceeding the Median (PEM) effect

size calculation (Lenz, 2012). Visual analysis of graphic data is a hallmark of single-

subject research designs and typically includes behavioral data graphed across all

conditions of a study (Lane & Gast, 2014). Single-subject researchers have used visual

analysis procedures to determine "(a) whether evidence of a relation between an

independent variable and an outcome variable exists and (b) the strength or magnitude of

that relation" (Kratochwill et al., 2013, p. 30). The frequency measures of prosocial and

challenging behaviors of the adults with ID were plotted onto line graphs. The frequency

data on direct support professionals' delivery of specific praise statements to the adults

with ID were also plotted onto the line graphs. The line graphs included data across all

baseline and interventions conditions that are clearly labeled for ease of visual analysis

and interpretation. Kratochwill et al. (2013) established the following four steps for

examining graphs and conducting visual analyses that I followed in this study:

1. Step 1 is documentation of a predictable and stable baseline pattern of data (e.g.,

   the student is consistently reading with many errors; the student is consistently

   engaging in high rates of disruption).

2. If a convincing baseline pattern is documented, then Step 2 consists of examining

   the data within each phase of the study to assess the within-phase pattern(s). The

key issue here is to assess whether there is a sufficient amount of data with sufficient consistency to demonstrate a predictable pattern of responding (i.e., level or trend).

3. Step 3 in the visual-analysis process is to compare the data from each phase with the data in the adjacent (or a similar) phase to assess whether manipulation of the independent variable can be plausibly tied to an "effect." An effect is demonstrated if manipulation of the independent variable is associated with predicted change in the pattern of the dependent variable (with temporal proximity between the two taken into account as well).

4. The fourth step in visual analysis is to integrate the information from all phases of the study to determine whether there are at least three demonstrations of an effect at different points in time (p. 31).

Figure 1 provides an example of a single-subject multiple-baseline design meeting the criteria established in the four steps for conducting visual analyses. The data in Figure 1 clearly show a predictable and stable baseline data pattern for each participant prior to the implementation of the intervention, obvious increases in the dependent variable at the onset of the intervention, and the demonstration of an effect across four different participants at different points in time (Kratochwill et al., 2013).
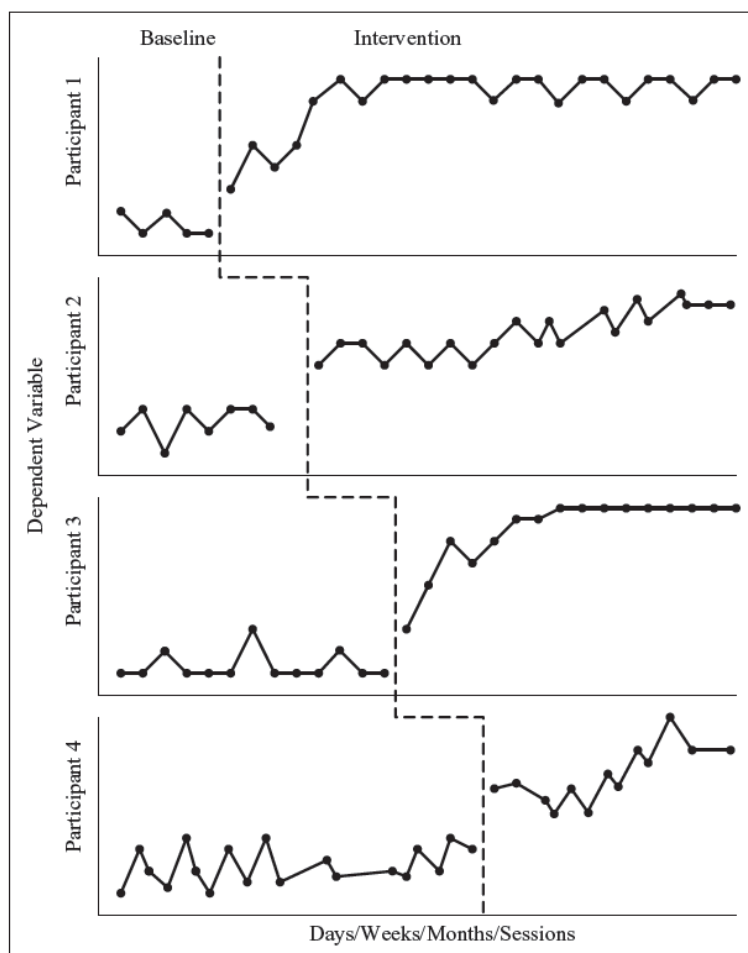
Figure 1. Example visual display of multiple-baseline design data. An example of the

single-subject multiple-baseline research design. Adapted from "Single-case intervention

research design standards," by T. R. Kratochwill, J. H. Hitchcock, R. H. Horner, J. R.

Levin, S. L. Odom, D. M. Rindskopf, and W. R. Shadish, 2013, *Remedial and Special*

Education, *34*(1), p. 29. Copyright 2013 by the Hammill Institute on Disabilities.

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In addition to the visual analyses of the graphically displayed data, I conducted

effect size analyses on the frequency data collected on prosocial behaviors of the adults

with ID and the delivery of specific praise statements by direct support professionals.

Vannest and Ninci (2015) define effect size as "a quantitative index of practical

significance that estimates the meaningfulness of change associated with an intervention"

(p. 403). When combined with visual analyses, effect size analyses provide supplemental

and standardized measures to improve the credibly of research results (Vannest & Nici,

2015). The inclusion of effect size analyses has several advantages over the use of visual

analyses alone, including "(a) an objective measure of treatment effect, (b) increased

precision of measurement, (c) allowance for cross-case comparisons and meta-analyses,

(d) improved interrater reliability for calculating SCRD results, and (e) enhanced

efficiency for documentation purposes" (Lenz, 2012, p. 66).

There are varieties of effect size analyses that are applicable to single-subject

research data. Of the available effect size calculations, the Percentage of Nonoverlapping

Data (PND) and variations of the nonoverlap calculation are among the most commonly

used methods for single-subject data in the past decade (Parker, Vannest, & Davis, 2011;

Scruggs & Mastropieri, 2013). The nonoverlap methods are calculated by examining the

"proportion of treatment phase data that exceed baseline observations" (Scruggs &

Mastropieri, 2013, p.11). The nonoverlap methods are easy to calculate, easy to interpret,

and provide a strong indicator of the effectiveness of an intervention (Scruggs &

Mastropieri, 2013). Although the WWC™ (2014) has not established clear standards for

assessing effect sizes in single-subject research designs, general guidelines for evaluating

effect size magnitudes are typically specified as "0.0-0.20 as a small effect size, 0.20-0.50

as a medium effect size, and 0.80 and above as a large effect size" (O'Neill et al., 2011, p. 63).

The PEM is a variation of the nonoverlap effect size method that was used to conduct supplemental analyses in this study. The PEM effect size analysis was selected in this study because it is appropriate for small sample sizes and is less vulnerable to outliers increasing the likelihood of a Type 2 error than the PND calculation (Lenz, 2012). However, similar to the PND analysis, the PEM is relatively easy to calculate and can provide confirmatory support to the visual analysis (Lenz, 2012). The PEM was calculated by identifying the median for each dependent variable during the baseline condition and calculating the proportion of data points exceeding the median values during the intervention phase (Vannest & Ninci, 2015). The proportion values were then multiplied by 100 in order to obtain the percentage of data points exceeding the median for each variable. The baseline median values were also plotted as horizontal lines onto the frequency graphs and clearly labeled for visual analysis and ease of calculating the PEM.

The social validity data were summarized in tabular format and include narrative statements from the direct support professionals regarding their experiences in using the BOSS teaching program with the adults with ID they supported. O'Neill et al. (2011) recommended that researchers include discussions of how "social validity data impact the interpretation of the primary findings; the effect on the generalization of the findings to other individuals, behaviors, and settings; and the implications for practice" (p. 36). The results of the social validity questionnaire were analyzed in accordance with the

guidelines provided by O'Neill et al. and in relation to the research questions and objective findings of the overall study.

Threats to Validity

The behavioral outcomes of the BOSS teaching program were evaluated using a single-subject multiple-baseline research design which includes inherent controls for reducing threats to internal validity as well as deign specific weaknesses. History effects, as an uncontrolled influence on research participants' behavioral performance unrelated to the BOSS teaching program, posed a possible threat to the internal validity of the study (O'Neill et al., 2011). Although the observation period of study was relatively short (i.e., 8-weeks), it is possible that uncontrollable variables such as changes in medication, living arrangement transitions, changes in roommates, and other variables could have contributed to increases in prosocial behaviors of the adults with ID.

Participant attrition effects were also a potential threat to the internal validity of this study. It was possible that the direct support professionals and the adults with ID could have chosen to discontinue their participation in the study despite the minimal risks and potential benefits of their participation. Also, employment turnover rates amongst direct support professionals who work with adults with ID has been shown to be rather high at approximately 50% (Gerhardt & Lainer, 2011). Although the threats to the internal validity of this study due to participant attrition was a concern, attrition effects are not unique to this study and can affect both single-subject and group designs (see O'Neill et al., 2011).

Maturation and testing effects were well controlled for and were unlikely threats to the internal validity of the study. The research participants included groups of adults whose behavior is unlikely to change as a result of the developmental process during the relatively short intervention duration (see O'Neill et al., 2011). It was also hypothesized that the direct support professionals would improve their performance during the intervention phase in applying the BOSS teaching program with the individuals they supported. The application of the BOSS teaching program with adults with ID in the dynamic conditions of the regular community did not constitute repeated evaluations under contrived or consistent conditions (see O'Neill et al.).

Instrumentation or measurement threats to validity were addressed through treatment fidelity procedures. I completed repeated measures of treatment fidelity during the study in order to help ensure the direct support professionals were carrying out the BOSS teaching program in a consistent manner. The measurement processes (i.e., instrumentation procedures) for the collection of baseline, intervention, and treatment fidelity data were not modified during the study, which further reduced threats to internal validity due to instrumentation effects (see O'Neill et al., 2011).

Threats to internal validity due to multiple treatment interference or diffusion of treatment effects were well controlled for by the use of the multiple-baseline design. The research participants were exposed to only one intervention (i.e., the BOSS teaching program) during the study. The multiple-baseline design also included replications across settings and participants that controlled for threats to internal validity due to multiple treatment interference and diffusion of treatment (see O'Neill et al., 2011).

Although some research participants may have received training in positive

reinforcement techniques as a part of their employment, direct support professionals who

had prior experience in applying the BOSS teaching program were not included in the

study. The training of direct support professionals in the BOSS teaching program across

settings (i.e., different residential environments) and participants (i.e., different adults

with ID) additionally reduced the likelihood of inadvertent exposure to the intervention.

The threats to internal validity due to selection bias are typically not relevant for

single-subject research designs, which usually do not include group comparisons. In

group comparison designs, differences in behavioral performance may be due to "the

initial selection and assignment of participants to groups" (O'Neill et al., 2011, p. 41)

rather than the introduction of the independent variable. In this study, as is common in

single-subject research, each individual participant "served as his or her own control"

(Dallery & Raiff, 2014, p. 291) and comparisons in behavioral performance were made

across phases of the study.

The direct support professionals who worked with adults with ID meeting the

established inclusion and exclusion criteria were identified using purposeful sampling

techniques (see Creswell, 2012). The purposeful sampling techniques were not intended

to target direct support professionals who worked with adult individuals with extreme

levels of challenging behavior or exceptionally poor prosocial skills. Thus, threats to

internal validity due to regression towards the mean were unlikely to have an influence

on the results of the study. Also, the repeated measures taken across participants and

settings further reduced threats to internal validity due to regression towards the mean (see O'Neill et al., 2011).

The concept of construct validity typically applies to standardized instruments and the measurement of an unobservable traits or characteristics (Lodico, Spaulding, & Voegtle, 2010). Creswell (2012) defines construct validity as the "determination of the significance, meaning, purpose, and use of scores from an instrument" (p. 618). Lodico et al. (2010) further explain that construct validity "involves a search for evidence that an instrument is accurately measuring an abstract trait or ability" (p. 99). The purpose of this study was to evaluate the objectively observable, behavioral outcomes of the BOSS teaching program applied with a sample of the adult ID population. Although this study did not include measures of an unobservable traits derived from standardized assessment procedures, it was noted earlier in this section that the instrumentation remained consistent throughout the study. Also, the independent and dependent variables were clearly operationalized in order to ensure consistent data collection.

According to the results of the literature review, this study represents a novel application of the BOSS teaching program with adults with ID in the regular community. As is typical with single-subject research designs, the relatively small number of research participants in this study represents a threat to the external validity or generalizability of the results (see O'Neill et al., 2011). Although the BOSS teaching program has been widely implemented across all grade levels and a significant number of teachers, the generalizability of the results of this study are limited to the demographics of the selected research participants.

The inclusion criteria were established in order to evaluate the outcomes of implementing the BOSS teaching program with a sample of adults with ID who were minimally capable of emitting verbal and nonverbal communicative responses. The inclusion criteria also specified the requirement for the adults with ID to have documented incidents of challenging behaviors, which are common in approximately 15 to 24% of the adult ID population (Lyod & Kennedy, 2014). In order to expand the generalizability of the study results, additional direct and systematic replication studies would need to be conducted (see Sidman, 1960). Replication studies could include adult individuals with higher or lower IQ ranges, different communication capabilities or modes, and different topographies of challenging behaviors.

Ethical Procedures

The study was approved by the Walden University's IRB prior to conducting any research participant recruitment or data collection procedures. At the time of the study, I was not employed by a local community agency and had no supervisory responsibilities over any of the direct support professionals who participated in the study. As a part of the informed consent process, the direct support professionals were clearly informed of the voluntary nature of their participation and the opportunity to withdraw from the study at any time. The direct support professionals were also informed that their participation and performance in the study would have no negative effects upon their employment status at the community agency. The direct support professionals and adults with ID were clearly informed of the potential, minimal risks and benefits of participating in the study as a part of the informed consent process.

In addition to receiving approval from Walden University's IRB, I also obtained approval to conduct the study and of the consent forms from the Tennessee Regional Human Rights Committee. As a part of my contracted employment with DIDD, I completed training and signed agreements to adhere to standards of participant treatment, confidentiality, and HIPPA regulations. The research data of the adults with ID were obtained from intake and transitional documents, ISP's, and reportable behavioral-psychiatric incidents. The information that was used as archival data and performance data during baseline and intervention conditions was stored in secure DIDD servers, in locked storage locations, and will be maintained for a minimum of seven years. The data collected during this study included only de-identified information for the purpose of this manuscript as well as any distribution of the results of the study to stakeholders or for publication purposes.

The multiple-baseline design was adequate for evaluating the outcomes of the BOSS teaching program without including a withdrawal or reversal phase for several reasons. It was unlikely that the behavioral performance of direct support professionals would be highly reversible due to the learning that was expected to occur following structured training in the BOSS teaching program (see Byiers et al., 2012; Kratochwill et al., 2013; O'Neill et al., 2011). The inclusion of a withdrawal or reversal phase can result in additional ethical concerns for research participants. Withdrawal phases in single-subject designs require the researcher to temporarily remove an intervention in order to observe behavior under conditions similar to the baseline conditions. The abrupt removal of an intervention that includes positive reinforcement of appropriate behavior will result

in the previously reinforced behavior to be placed on extinction, which when used alone can have unwanted side effects. Also, the abrupt removal of a potentially effective intervention will likely contribute to target behaviors returning to baseline rates, which can include the resurgence of challenging behavior (Byiers et al., 2012; Kratochwill et al., 2013; O'Neill et al., 2011). Thus, the exclusion of a withdrawal phase in this study further reduced the minimal risks associated with participation in this study.

The direct support professionals and adults with ID who participated in the study received small incentives, including snacks during training sessions and a t-shirt for completing the BOSS teaching program. The allocation of pay for direct support professionals during the training sessions was at the discretion of the community provider agency. The incentives used in the study (i.e., snacks and a BOSS teaching program t-shirt) were typical of the types of incentives commonly included at professional development workshops or conferences, and were not used for coercive purposes.

Summary

The purpose of this single-subject multiple-baseline study was to evaluate the behavioral outcomes of applying the BOSS teaching program with adults with ID. The study was conducted in a community agency that employed direct support professionals who worked with adults with ID in the regular community. The procedures for identifying and selecting research participants, operational definitions of the independent and dependent variables, and the procedures for collecting and analyzing data were included in Chapter 3. The threats to the internal, construct, and external validity of the multiple-baseline research design were assessed and discussed. The ethical

considerations for protecting human subjects in research and participant confidentiality were also included in Chapter 3. The results of the study, including graphically displayed data, effect size analyses, and the social validity measures following the implementation of the BOSS teaching program with adults with ID are included in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this single-subject study was to evaluate the behavioral outcomes of applying the BOSS teaching program with adults with ID. The BOSS teaching program has been shown to be effective in improving prosocial behaviors as well as reducing challenging behaviors, which are important outcomes for increasing community integration for adults with ID (Ross, 2015). The outcomes of the study contribute to the currently limited literature on evidence-based social skills interventions implemented with adults with ID.

The following research questions guided the inquiry:

4. RQ1: How does the frequency of specific praise statements delivered by direct support professionals change following training in the BOSS teaching program?

5. RQ2: How does the frequency of cooperative and polite behaviors of adults with ID change following the training of direct support professionals in the BOSS teaching program?

6. RQ3: How does the frequency of challenging behaviors exhibited by adults with ID, which are reported by direct support professionals, change following the training of direct support professionals in the BOSS teaching program?

The following hypotheses were tested through the research inquiry:

$H1_0$: There is not a visually discernable difference between graphically displayed behavioral data collected during the baseline condition compared to the intervention phase.

*H*1$_{a:}$ There is a visually discernable increase in the graphically displayed

frequency data of specific praise statements made by direct support professionals

during the intervention phase compared to the baseline condition.

*H*1$_{a:}$ There is a visually discernable increase in the graphically displayed

frequency data of cooperative and polite behaviors exhibited by adults with ID

during the intervention phase compared to the baseline condition.

*H*1$_{a:}$ There is a visually discernable decrease in the graphically displayed

frequency data of challenging behavior exhibited by adults with ID during the

intervention phase compared to the baseline condition.

*H*2$_{0:}$ There is not a moderate to large effect size (ES $\leq$ 0.5) between behavioral

data collected during the baseline condition compared to data collected during the

intervention phase.

*H*2$_{a:}$ There is a moderate to large effect size (ES $\geq$ 0.5) between behavior data

collected during the baseline condition compared to data collected during the

intervention phase.

The data collection process, implementation fidelity of the BOSS teaching

program, and the behavioral outcomes of implementing the BOSS teaching program with

adults with ID are described in Chapter 4. The frequency data on prosocial and

challenging behavior of adults with ID and the delivery of specific praise statements by

direct support professionals are summarized graphically with comparisons across

baseline and intervention phases. Effect sizes, derived from the frequency data, are

reported using the PEM calculation. Social validity data were collected using a social

validity survey and are summarized in tabular format. The narrative descriptions of the

challenging behavior incidents for each adult with ID are also included in tabular format.

Data Collection

I collaborated with a service provider agency that receives partial funding through

the Tennessee DIDD and participates in the Tennessee network of community programs

for adults with ID. The agency provides community-based supported living and day-

program supports for adults with ID services. The provider agency employs hundreds of

direct support professionals across Tennessee. The direct support professionals are

responsible for delivering frontline supports on a daily basis that are intended to maintain

the health, safety, and quality of life of the of the adults with ID who are living in the

regular community (DIDD, n.d.). In addition to supported living and community-based

day programing, the partnering agency also provides health care, behavioral services, and

other needs-based services for the adults with ID.

During the data collection process, I collaborated with the agency's administrative

personnel to screen and recruit participants, collect baseline data, and train direct support

professionals in the BOSS teaching program intervention. I obtained archival data to

identify eligible research participants from the Tennessee DIDD, who functioned as the

supervising organization of the study. I used purposeful sampling techniques to identify

the adults with ID and direct support professionals who met the eligibility criteria for the

study, as specified in Chapter 3. Once I obtained informed consent from each of the

adults with ID, I met with each person's staff in order to recruit the direct support

professionals for the study. In total, three adults with ID and three direct support professionals, one staff member for each person with ID, participated in the study.

The three adults with ID had IQ scores less than 70 as required for qualification for services in the Tennessee DIDD, but also had a variety of other mental and physical health diagnoses. Person supported 1 (PS1) was a 27-year-old male diagnosed with fetal alcohol syndrome, bipolar disorder, depression, attention deficit with hyperactivity disorder, psychotic schizophrenia, pyromania, insomnia, and skeletal dysplasia. Person supported 2 (PS2) was a 27-year-old female diagnosed with ID, mood disorder, anxiety disorder, and seizure disorder. Person supported 3 (PS3) was a 21-year-old male diagnosed with ID, obsessive compulsive disorder, anxiety disorder, and hypothyroidism. All three adults with ID had histories of significant behavioral challenges, and each person had received formal applied behavior analysis services in the past. However, none of the adults with ID actively received formal applied behavior analysis services during their participation in the study in order to avoid potential confounding variables.

The three direct support professionals, each of whom worked with a different adult with ID, all held a high school diploma or equivalent. One of the direct support professionals (DSP3) was a senior undergraduate student but had not graduated. Two of the direct support professionals were female (DSP2 and DSP3), and one was male (DSP1). The direct support professionals ranged in age from 22 to 45 years old and did not have prior experience with the BOSS teaching program.

During the baseline condition, direct support professionals collected data on the number of specific praise statements they delivered to the adults with ID, cooperative and

polite behaviors displayed by adults with ID, and challenging behaviors of the adults with

ID. In Chapter 3, I initially included procedures for interobserver agreement data to be

collected during baseline and intervention phases, as well as during treatment fidelity

checks via contributions of a research assistant. However, the Walden University IRB

does not allow assistants to collect research data. Thus, interobserver agreement

measures, which require simultaneous observations to be conducted by two independent

and trained observers, were not feasible. I maintained the planned evaluations of

treatment fidelity during the intervention phase, but the fidelity checks were conducted

independently without reliability measures that necessitate a second trained observer.

Treatment Fidelity

During the initial training session with each direct support professional, I

provided classroom-style instruction using a PowerPoint presentation on the essential

concepts of the BOSS teaching program. The presentation included relevant principles

and concepts of applied behavior analysis and realistic examples and nonexamples on

how to follow the procedures of the BOSS teaching program. The initial training sessions

lasted approximately 45 to 60 minutes, depending upon the number of questions the

direct support professionals had about the program. As detailed in Chapter 3, I also met

with the direct support professionals on a weekly basis during their regular work-shifts to

provide follow-up training and conduct treatment fidelity checks.

During treatment fidelity checks, I observed the direct support professionals'

interactions with the adults with ID and their implementation of the components of the

BOSS teaching program. I recorded occurrences of the specific steps for implementing

the BOSS teaching program on the treatment fidelity checklist. The treatment fidelity sessions also included structured opportunities for the direct support professionals to role-play, practice using the BOSS teaching procedures, and discuss their experiences with the program during the previous week. I modeled the response-contingent delivery specific praise statements and the ignoring of nuisance behavior during role-playing and in-vivo examples (see Ross, 2015). I also modeled the BOSS teaching program by delivering specific praise statements to the direct support professionals on their correct use of the BOSS teaching program procedures.

Although the treatment fidelity checks were conducted on a weekly basis during the intervention phase of the study, it was not feasible to collect interobserver agreement data during the treatment fidelity sessions. As noted earlier in the data collection section of this chapter, the Walden University IRB does not allow assistants to collect research data. Thus, interobserver agreement measures on treatment fidelity, which require simultaneous observations to be conducted by two independent and trained observers, were not feasible. However, during independent fidelity observations, the direct support professionals were observed to be following the components of the BOSS teaching program with 100% accuracy. As described in Chapter 3 as a procedure for ensuring treatment fidelity, each direct support professional was trained to complete a treatment fidelity checklist at the end of every work-shift. Each of the direct support professionals completed 100% of their treatment fidelity checklists and reported having implemented the BOSS teaching program consistently and accurately as indicated by ratings of 100% fidelity on all checklists.

Results

The BOSS teaching program was implemented at staggered time points across three direct support professionals, each of whom supported a different adult with ID. Each of the adults with ID lived in separate homes, and one of the adults with ID lived in a completely different city and county approximately 30 miles from the other participants. Figures 2-5 depict baseline and intervention frequencies of cooperative and polite (i.e., prosocial) behaviors of the adults with ID, the direct support professionals' delivery of specific praise statements, and the challenging behavior incidents of the adults with ID. I conducted visual analyses of graphically displayed data, which showed discernable and believable changes in socially significant behaviors across study conditions (see Dallery & Raiff, 2014). Visual analyses of the graphs clearly demonstrate a discernable increase in specific praise statements delivered by direct support professionals and prosocial behavior of the adults with ID at the time in which the BOSS teaching program was implemented. The figures also include a horizontal line indicating the baseline median of specific praise statements and prosocial behaviors relevant to the PEM effect size analyses.

The baseline rates of prosocial behavior of PS1 and the delivery of specific praise statements by DSP1 show a relatively stable trend in Figure 2. Immediately following the initial training on the BOSS teaching program (indicated by the vertical intervention line in Figure 2), there was an increase in DSP1's delivery of specific praise statements and an increase in PS1's prosocial behavior. The frequencies of specific praise statements and prosocial behavior showed a steadily increasing trend throughout the

intervention phase. At the end of the intervention phase, specific praise statements

reached 99 instances and prosocial behaviors reached 98 instances per work-shift

(typically 8 hours), which more than doubled the baseline median for each variable. The

intervention phase for DSP1 was terminated earlier than planned because DSP1 was

transferred to work with another person supported within the agency.
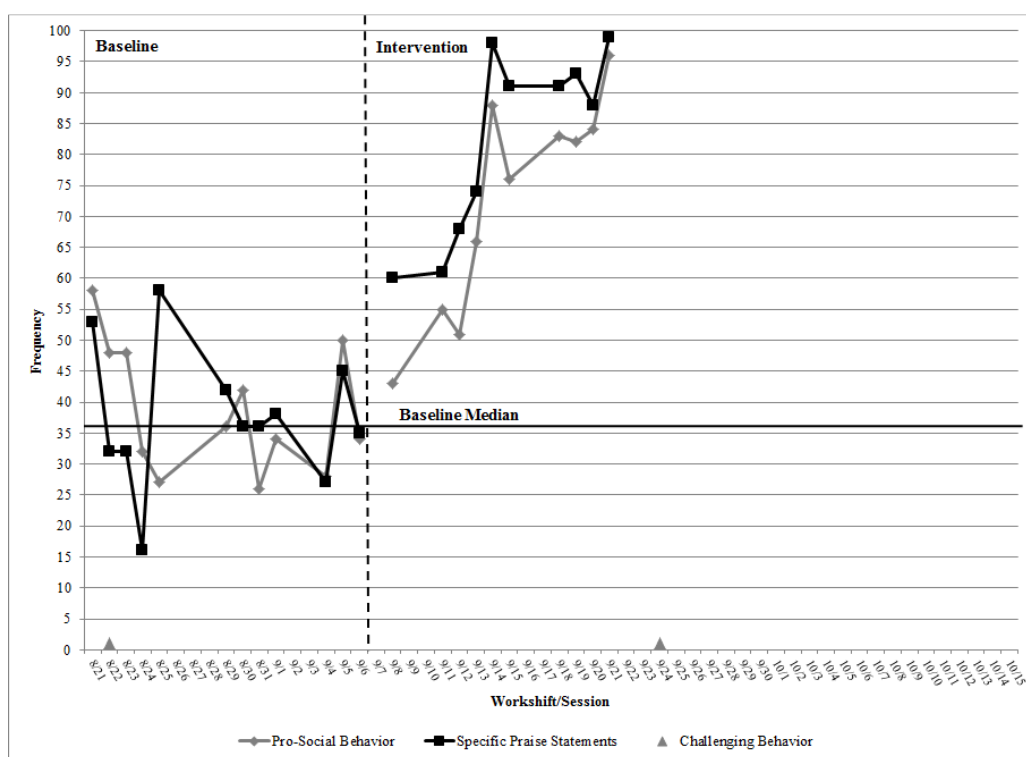
Figure 2. PS1 and DSP1 frequency data. Frequency of prosocial and challenging

behavior of PS1 and specific praise statements delivered by DSP1 per work-shift.

The baseline rates of prosocial behavior of PS2 and the delivery of specific praise

statements by DSP2 show a relatively stable trend in Figure 3. Immediately following

the initial training on the BOSS teaching program (indicated by the vertical intervention

line in Figure 3), there was a discernable increase in DSP2's delivery of specific praise

statements and an increase in PS2's prosocial behavior. The frequencies of specific
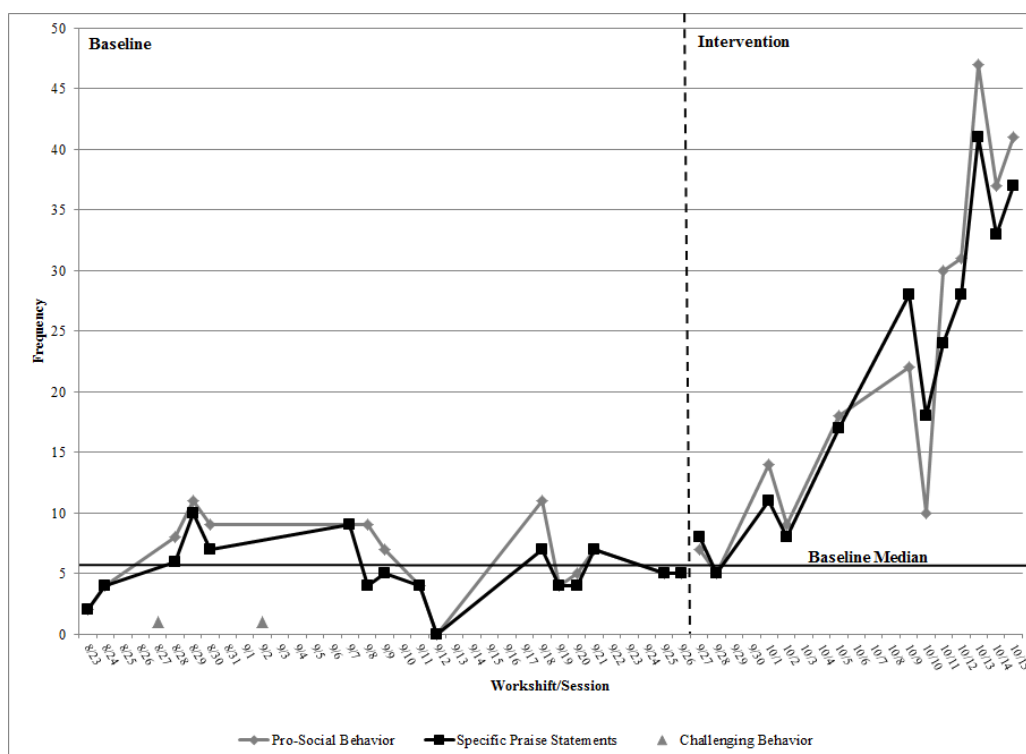
praise statements and prosocial behavior were maintained at the higher rates with moderate variability. Although the performance data show moderate variability, visual analysis of Figure 3 clearly shows a discernable increase in the dependent variables at the onset of the intervention with maintenance of the treatment effect throughout the intervention phase.
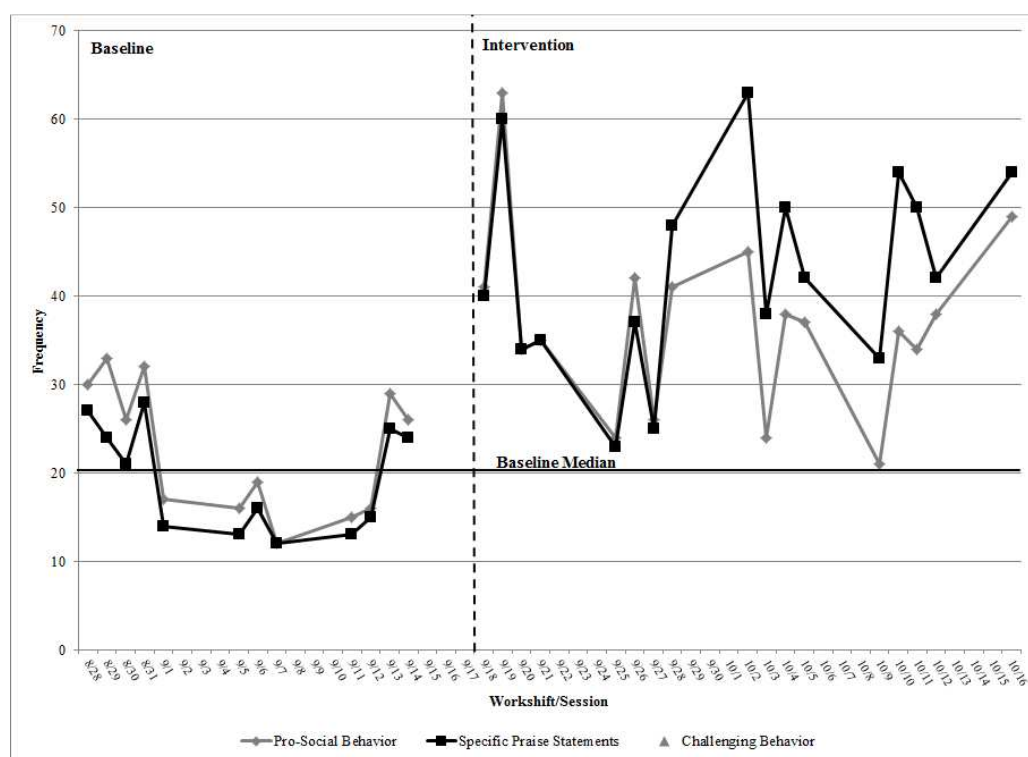
Figure 3. PS2 and DSP2 frequency data. Frequency of prosocial and challenging behavior of PS2 and specific praise statements delivered by DSP2 per work-shift.

The baseline rates of prosocial behavior of PS3 and the delivery of specific praise statements by DSP3 show a relatively stable trend at low frequencies in Figure 4. Immediately following the initial training on the BOSS teaching program (indicated by the vertical intervention line in Figure 4), there was a moderate increase in DSP3's delivery of specific praise statements and a moderate increase in PS3's prosocial

behavior. Although the initial increase in prosocial behavior and the delivery of specific

praise statements showed only a moderate increase at the onset of the intervention, the

data show a discernable increasing trend in both variables throughout the intervention

phase. Visual analysis of Figure 4 indicates a clear treatment effect on the delivery of

specific praise statements by DSP3 and the prosocial behavior of PS3 as shown by the

steep increasing trend in performance, which maintained throughout the intervention

phase.

Figure 4. PS3 and DSP3 frequency data. Frequency of prosocial and challenging

behavior of PS3 and specific praise statements delivered by DSP3 per work-shift.

Figure 5 shows a typical visual representation of the multiple-baseline design for

the data in this study. The figure shows relatively predictable and stable baseline data

patterns for each participant during the baseline condition and obvious increases in the

primary dependent variables (i.e., specific praise statements delivered by direct support

professionals and prosocial behavior of adults with ID) at the onset of the intervention.

The figure highlights the demonstration of a treatment effect across three different

participants, who also lived in different settings, at three different points in time.
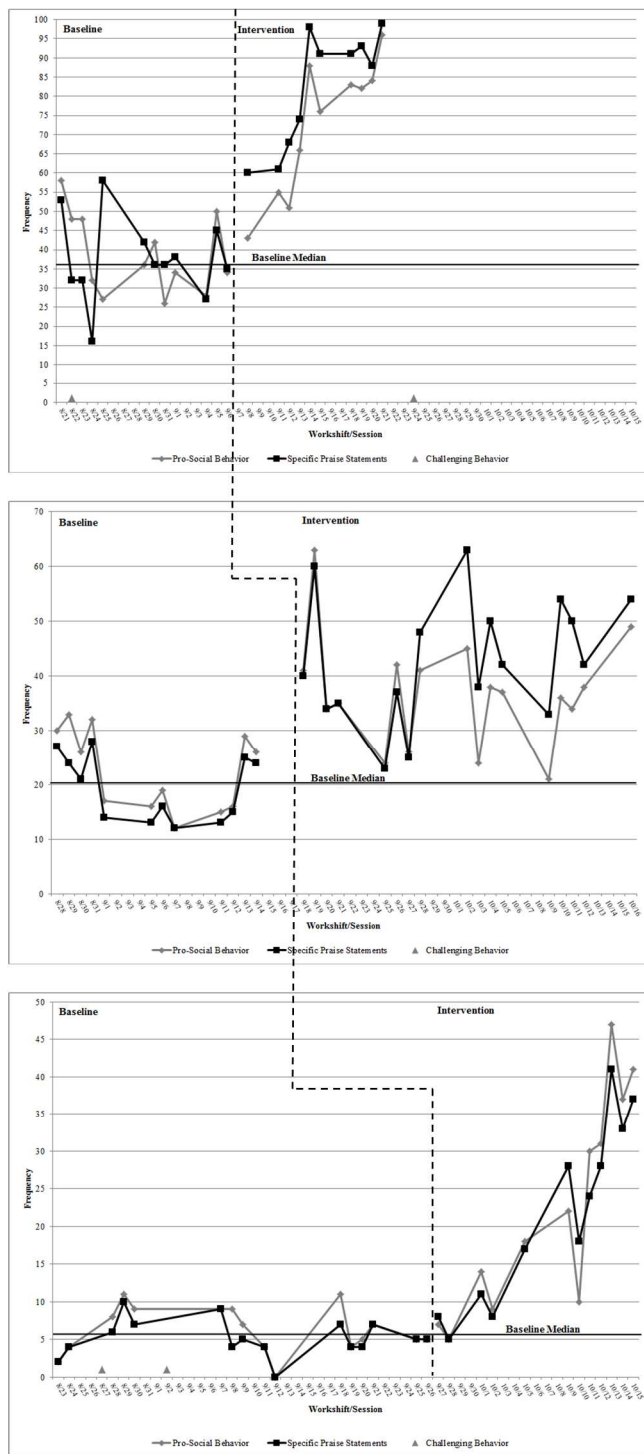
Figure 5. Characteristic visual display of the multiple-baseline design for this study.

In addition to the visual analyses, I conducted effect size analyses (i.e., PEM) of the prosocial behavior of adults with ID and the delivery of specific praise statements by the direct support professionals. The percentage of prosocial behavior data points exceeding the baseline median for PS1 was 100% (ES = 1.00). Similarly, the percentage of specific praise statements exceeding the baseline median for DSP 1 was also 100% (ES = 1.00). Thus, the effect size magnitude of the increases in prosocial behavior of PS1 and the delivery of specific praise statements by DSP1 are considered to be large effect sizes (see Lenz, 2012).

The large effect sizes were identical for the PS2 and DSP2 with the percentage of data points exceeding the median for prosocial behavior and delivery of specific praise statements at 100% (ES = 1.0) for each variable. The percentage of prosocial behavior data points exceeding the baseline median for PS3 was 92% (ES = .92). The percentage of specific praise statement data points exceeding the baseline median for DSP3 was also 92% (ES = .92) indicating a large effect size. Thus, large effect sizes were obtained through the PEM analyses of the prosocial behavior of all three adults with ID as well as the delivery of specific praise statements by all three direct support professionals.

Although there was a substantial increase in the frequency of prosocial behavior of the adults with ID and the delivery of specific praise statements by direct support professionals, there was not a visually discernable decrease in challenging behaviors of the adults with ID. As shown in Figures 2-4, PS1 had one challenging behavior incident during the baseline condition and one during the intervention phase. PS2 did not have any documented challenging behavior incidents during the baseline or intervention

conditions. PS3 had two challenging behavior incidents during the baseline condition but did not have any challenging behavior incidents during the intervention phase. Each person supported in the study had a documented history of engaging in challenging behavior. However, the low frequencies of challenging behavior incidents that occurred during the baseline and intervention conditions did not allow for sufficient visual or effect size analyses.

Narrative summaries of challenging behavior incidents are included in Tables 1 to 3. The challenging behavior incident narratives provide insight to the types of behavioral issues direct support professionals face on a regular basis. Although the challenging behaviors were not frequently documented during the baseline and intervention conditions, the challenging behaviors were socially significant with a high likelihood to disrupt community integration if they were to persist. The narratives, in addition to the participant demographic information, also provide context for study and the efficacy of the BOSS teaching program with adults with ID who have challenging behavior in the community. The incident narratives were transcribed as written by the authoring direct support professional without editing for language use, but deidentified for participant confidentiality.

Table 1. *PS1 Challenging Behavior Incidents.*

Recruitment Phase Incident #1
Type of Incident: Reportable Behavioral/Psychiatric Incident - Other
Date/Time of Incident: 08/03/2017 08:00 AM
INCIDENT DESCRIPTION:
PS1 called 911 on the previous shift, officers arrived and were talking with PS1. He told police that he was depressed and wanted to harm himself and showed officers and staff a minor injury from the day before from engaging in self-injurious behavior. Officers transported PS1 to the local emergency room, he was held for assessment by Mobile Crisis and admitted the following day to local psychiatric hospital. The AOD was contacted on 8-4-17 at 4:30pm.
Recruitment Phase Incident #2
Type of Incident: Sexual Abuse - alleged
Date/Time of Incident: 08/07/2017 04:30 PM
INCIDENT DESCRIPTION:
The Program Coordinator was contacted by Adult Protective Services (APS) and told that PS1 alleged that staff had sexually assaulted him. APS did not tell the Program Coordinator the date and time of this alleged incident. PS1 is currently in local psychiatric hospital for treatment. No injury noted.
Baseline Phase Incident #1
Type of Incident: Reportable Behavioral/Psychiatric Incident - Other
Date/Time of Incident: 08/22/2017 05:00 AM
INCIDENT DESCRIPTION:
Staff was cleaning the living room and heard a knock on the door; officers had responded to a 911 call that PS1 made saying his room was on fire. Officers came in and spoke with PS1 and told him that if he continued to call 911 with false reports that he could face charges. PS1 apologized and said that he snuck in and got the phone while staff was in the bathroom. Officers left without further intervention. no injury noted.
Intervention Phase Incident #1
Type of Incident: Emotional/Psychological Abuse - Alleged
Date/Time of Incident: 09/24/2017 08:30 AM
INCIDENT DESCRIPTION:
While PS1 was at the local emergency room, he would not allow staff back. When he finally allowed staff to come sit with him, he told staff that his home manager threatened to "whoop his ass and break his tablet" if he got into any more trouble.

Table 2. *PS2 Challenging Behavior Incidents.*

Recruitment Phase Incident #1
Type of Incident: Criminal Conduct
Date/Time of Incident: 07/25/2017 03:00 PM
INCIDENT DESCRIPTION:
PS2's staff called and reported that PS2 had a behavior when she was at home and her mom called Mobile Crisis. PS2 was taken to the ER, she became verbally and physically aggressive with a security guard and was arrested. PS2 was later released into her mother's custody. Agency staff was not present during this incident.

Table 3. *PS3 Challenging Behavior Incidents.*

PS3 Challenging Behavior Incidents
Recruitment Phase Incident #1
Type of Incident: RSM - Staff Convenience
Date/Time of Incident: 08/14/2017 09:00 AM
INCIDENT DESCRIPTION:
During a telephone conversation, with PS3's father, father passed on information, which was told to him, by his son, PS3. PS3 told his father that, on 8/10/2017, PS3, and his housemate were driven, to the home of PS3 House Manager who mowed his yard, while the individuals were with him. PS3 played, in the yard, while his housemate sat, in the van. As this information, was relayed, by PS3's father, it is impossible to determine if the individuals chose to travel, to the House Manager's home, and, if the housemate chose to sit in the van. No injury reported. PS3 was interviewed by the on-call investigator (housemate was on a home visit at the time) and was capable of articulating that nothing has happened to him or to housemate that has upset either of them and that they both enjoy going places. PS3 confirmed that they have been taken to the staff's house but were not upset or adversely affected in any way. Housemate denied being taken to staff's house or being left on the van. Staff talked to PS3 and asked him why he was behaving badly. Staff prompted PS3 to stop hitting himself. Staff explained why PS3 shouldn't be hitting himself, or hollering. Staff also explained to PS3 why he shouldn't throw his books down. Staff talked to PS3 and calmed him down. CPI (Physical Crisis Prevention Intervention) wasn't necessary. PS3 sat down and talked to staff. PS3 said he was sorry for behaving the way he did. PS3 promised he wouldn't hit himself anymore. PS3 went back into his room and looked at his truck books.
Baseline Phase Incident #1
Type of Incident: Self-Injurious Behavior
Date/Time of Incident: 08/27/2017 12:52 PM
INCIDENT DESCRIPTION:
PS3 became agitated when his truck books fell in the floor of the van from the seat and got bent when the van slowed down and stopped at stop sign. PS3 started hollering. He calmed down for a bit. PS3 and staff got to his roommates mom's house to pick him up. His roommate didn't want to go went into a behavior with caused PS3 to get mad again and he threw down his truck book down on the ground. PS3 calmed down again and he and staff got back into the van and went home. On the way home in the van, PS3 seemed calm but got mad again when he started looking at his bent truck book. PS3 started hollering and hitting himself on the forehead, PS3 stopped hitting himself after staff prompted him to stop, no injuries occurred from him doing this. PS3 and staff arrive home. PS3 gets out of the van and starts cursing and threw his truck book down on the ground again. PS3 then picks his truck book and goes into his room
Baseline Phase Incident #2
Type of Incident: Self-Injurious Behavior-Property Destruction
Date/Time of Incident: 09/2/2017 8:30 PM
INCIDENT DESCRIPTION:
Before PS3 got into a behavior, PS3 was in his room playing and watching "Black Dog" and looking through his truck books. PS3 seemed to be in a very good mood when staff came in. Around 8 O'clock PS3 came out of his room with his "Big Rigs: 500 series truck book" and sat at the table, he started throwing a fit when he noticed that something was wrong with it. Staff taped the cover back onto it, but PS3 said it still wasn't right and he tore the cover back off. He started blaming staff about his book being ruined and staff calmly reminded him that no one touches his truck books besides him. PS3 went on and on and wouldn't calm down. His behavior started escalating worse. He went into his room and slammed the door and ripped of his curtain off the window as well as the curtain rod. Staff took photos of the curtain and the rod PS3 had broke. PS3 started getting worse because his book wasn't changing even though staff tried fixing it for him. Staff couldn't take him to xxx to replace it and that made PS3 throw another fit. He kept on saying he wanted out of this house and when his dad gets conservatorship that he will be moving. Staff tried to remain calm through the whole behavior, which PS3 was getting worse and whatever staff said or try to do would not redirect PS3 from his behavior. PS3 than went to his room, Staff thought everything was fine until PS3 deliberately came out of his room to display his arm to staff to show them what he had done. PS3 also scratched his back up. Staff took his phone to take pictures of his back and arm. PS3 started smiling. Staff was confused and thought he had done it for attention. PS3 started back into his behavior about his book again. PS3 kept on saying he was going to show the house manager his back and try to blame it on them. Staff told PS3 that he couldn't do that because he is the one that done that to himself. PS3 still tried to blame staff for his doing. It was already going on 9:30p.m and staff tried to get PS3 to calm down so he could go to bed. PS3 yelled that he was not going to do that and he was going to stay up all night, that staff couldn't make him go to bed. PS3 went outside and pretended to drive a truck and thought he was destroying the house. He started getting tired and he eventually calmed down enough to brush his teeth. After PS3 brushed his teeth he went into his bedroom for the remainder of the night.

Social Validity Findings

I distributed an eight-question social validity survey (see Appendix H) to each direct support professional at the end of intervention phase of the study. Each direct support professional completed the open-ended survey independently in order to avoid introducing researcher biases to their responses. The social validity data are summarized in Table 4 below, which includes exact narrative statements from the direct support professionals regarding their experiences in using the BOSS teaching program with the adults with ID they supported. Overall, all of the direct support professionals reported having a positive experience with the BOSS teaching program. All of the direct support professionals reported that the BOSS teaching program was very easy to use and was effective at improving prosocial behavior of the adults with ID they supported. The direct support professionals also stated they were very likely to continue using the BOSS teaching program and expressed their desire to see the program expanded to other agencies.

Table 4. *Social Validity Survey Results.*

Question 1: *What are your general thoughts about using the BOSS Teaching Program in your work setting?*

DSP1: I think it's great! It's a program that actually produces real results.

DSP2: First will it work, and how well or fast will I see result from the person I'm interacting with.

DSP3: I love this program. I feel this is a great way to help people with mental disabilities. They love to know they are doing a good job on the things they do day to day.

Question 2: *Please describe the preparation necessary for using the BOSS Teaching Program throughout your daily work-shifts?*

DSP1: Just simply putting the BOSS program into action. Having the right mind set. The BOSS program puts you in the right frame of mind to have a successful day. Making sure you're doing your checklist and count sheets of actual BOSS program events/data.

DSP2: Preparation? This program is very easy to use all you do is point out the obvious and thank the person for whatever it is. Ex: my individual uses her manners. I thank her for using her manner and give her I high five. It makes her smile and now she is starting to thank me back.

DSP3: Mind state, you have to come on shift with a positive and Engaged mindset, leave all negativity outside, body tone your tone of voice has to be positive and welcoming.

Question 3: *Please describe any challenges, concerns, or problems you may have experienced with implementing the BOSS Teaching Program?*

DSP1: No problems. Just making sure your using positive reinforcement as much as possible, which in turn will usually produce positive behavior and can be very productive for people.

DSP2: Only problem I have is not everyone is using this program. I have started to use it with my other individual and she also benefits from this program. I hope one day this program will be used in training for all DIDD programs.

DSP3: Feeling that it won't work, so why bother trying. Until you actually put forth effort and see great results

Question 4: *Please describe any successes, ease of use, or other things you liked about the BOSS Teaching Program?*

DSP1: It's really exciting to see a program actually work and have real results. BOSS program is not about just going through the motions. It's about real positive and healthy verbal praise. I have used the BOSS program with a few clients now. I have seen a negative attitude switch to positive. I have witnessed verbal praise turn into someone's joy. Everyone wants to feel appreciated and respected. The BOSS program teaches you how to do that no matter who you are working with. Not only have I used the BOSS program with my clients, I have used the BOSS program with my T-ball team, and with my own family. I have witnessed angry clients turn into happier clients just by giving them verbal praise, respect, and attention. The BOSS program has taught me how to be specific and intentional with my praise.

DSP2: BOSS is very easy to use. BOSS focuses on good behavior. After using boss I have noticed a change in using less prompts and more praise statements.

DSP3: It really works! If you try and stay consistent you will see great results, a better mood in the individual and an overall happier atmosphere.

Question 5: *What kinds of effects did you notice or observe while using the BOSS Teaching Program with the individual/s you support?*

DSP1: I have noticed when using the BOSS program most people respond much better with praise and respect. BOSS program teaching you how to say specific things in a very positive and effective way.

DSP2: I have all good things to say about BOSS. The individual I support has likes to be praised for her day to day things she does. She also has started to turn her bad days around for the most , In the month we have been using BOSS.

DSP3: Repetition may be annoying but with the individual it helps them to hear it then practice, and make it just instinct.

Question 6: *How likely would you be to continue using the BOSS Teaching Program?*

DSP1: ALL THE TIME! FOREVER

DSP2: Extremely like. I even notice I use BOSS with another house I support that's not apart of this data collection.

DSP3: Very likely

Question 7: *To what degree did you notice or observer differences in the manner that individual/s you support respond to you or others when you used the BOSS Teaching Program? Please explain or describe.*

DSP1: I have noticed a big difference in my clients, family, and my T-ball team, and at the YMCA using BOSS. Positive reinforcement brings positive changes. Praise is power.

DSP2: She is quicker at apologizing when she is in a behavior. Boss tells us to focus on the good things they do and give praise statements. Also try to ignore the bad behavior. When you give less attention to the derogatory things they do it helps them realize they want to do better which results in less behavior and when they do have a behavior they will realize it and apologize quicker.

DSP3: Within a few days I saw a difference

Question 8: *What suggestions do you have for direct support professionals who are considering whether or not to use the BOSS Teaching Program?*

DSP1: DO IT! it really works. It works in all aspects of life.

DSP2: Use it!! I works very well I even started using it with my children and have seen results.

DSP3: No suggestions he did a great job.

Additional/Other Comments:
DSP1: I feel I am a better husband to my wife because of the BOSS program. I feel I am a better father to my kids and a better coach to my T-ball team because of the BOSS program. My own personal kids have responded so much better when I'm giving positive praise and specific praise.
DSP2: I feel that Boss should be its own program and given to all Support Professionals. I think that if we use this program we will be better at supporting these individuals. They are people that just have a different way at expressing how they feel. I feel that Boss is a great way to teach.
DSP3: Very thankful and pleased with the program and can't wait to see how far it goes in development and evolving to other companies in helping the individuals.

O'Neill et al. (2011) recommended that researchers conduct social validity analyses in order to examine how the results might relate to the primary findings of the study, areas for potential generalization, and other practice implications. The results of the social validity survey provide subjective support of the substantial increases in the frequencies of direct support professionals' delivery of specific praise statements and the prosocial behaviors of the adults with ID they supported. The responses on the social validity survey also provide insight to potential maintenance and generalization of the BOSS teaching program. The direct support professionals' responses on the survey indicate that they are very likely to maintain their implementation of the BOSS teaching program over time. Regarding potential generalization of the BOSS teaching program, two direct support professionals (DSP1 and DSP2) stated they had already expanded their implementation of the program to other adults with ID they supported as well as their own children.

Summary

In this study, objective behavioral outcomes of implementing the BOSS teaching program with adults with ID were collected and analyzed. The research questions driving the inquiry were quantitative in nature and focused on the collection of overt frequency data. The first research question sought to evaluate how receiving training in the BOSS

teaching program would influence direct support professionals' delivery of specific praise statements. The remaining two research questions focused on how the behavior of the adults with ID (i.e., prosocial and challenging behaviors) might change after the direct support professionals working them were trained in the BOSS teaching program.

Visual analyses of graphically displayed data and effect size analyses were conducted on prosocial behavior of the adults with ID and the direct support professionals' delivery of specific praise statements. The prosocial behaviors of the adults with ID and the direct support professionals' delivery of specific praise statements showed visually discernable increases and large effect sizes (ES ≥ 0.92). However, there was an insufficient number of challenging behavior incidents across both the baseline and intervention phases to conduct visual or effect size analyses on challenging behaviors. The challenging behavior incidents were summarized into narrative tables, which provide more subjective demographic information pertaining to the participant sample and support the efficacy of the BOSS teaching program with adults with ID who have challenging behavior. The implications, conclusions, and limitations of the study results are discussed in Chapter 5, as well as recommendations for future research on the BOSS teaching program.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this single-subject multiple-baseline study was to evaluate the behavioral outcomes of applying the BOSS teaching program with adults with ID. The BOSS teaching program has been shown to be effective in improving prosocial behaviors as well as reducing challenging behavior of students in the classroom, which are important outcomes for increasing community integration for adults with ID (see Ross, 2015). The outcomes obtained from this study contribute to the currently limited literature on evidence-based social skills interventions implemented with adults with ID.

Visual and effect size analyses showed discernable increases and large effect sizes (ES ≥ 0.92) in the frequency of prosocial behaviors of the adults with ID and the direct support professionals' delivery of specific praise statements following the implementation of the BOSS teaching program. However, there was not a sufficient number of challenging behavior incidents across the baseline or intervention phases of the study to adequately conduct visual or effect size analyses on challenging behaviors. The challenging behavior incidents were summarized into narrative tables, which provide more subjective demographic information pertaining to the participant sample and support the efficacy of the BOSS teaching program with adults with ID who have challenging behavior. The direct support professionals' responses on the social validity survey indicated that they liked using the BOSS teaching program, it was very easy to use, and it was effective in improving prosocial behavior of the adults with ID they supported. The direct support professionals also indicated they were very likely to

continue using the BOSS teaching program and to expand their implementation to other areas of their work and life.

Interpretation of the Findings

The current literature base includes extensive research on evidence-based social skills interventions for children with ID. However, there is far less research available on evidence-based interventions to address social skills deficits of adults with ID living in the regular community (Koegel et al., 2013; Walton & Ingersoll, 2013). The lack of effective social skills interventions for adults with ID presents serious problems for these individuals as they transition from living in more structured institutional settings and the family home environment into the community. Researchers have recognized that social skills deficits tend to persist into adulthood, are likely to worsen or lead to other more significant challenging behavior (e.g., physical aggression and self-injury), and are unlikely to change without effective strategies for improvement (Friedman et al., 2013; Matson & Adams, 2014; Tobin et al., 2014). Researchers have also recognized that deficits in social skills and the occurrence of challenging behavior contribute to poor transitions to and reduced participation in the regular community (Matson & Adams, 2014; Tobin et al., 2014).

Although there is an overall paucity of research on social skills interventions for adults with ID, researchers have shown that the most effective practices include the principles of applied behavior analysis and have been adapted from evidence-based strategies developed for children and adolescents with ID (Axelrod et al., 2012; Laugeson et al., 2015; Matson et al., 2012). Researchers have also successfully used social skills

interventions, based upon the principles of applied behavior analysis, in the school system as effective modes of classroom management (Jenkins et al., 2015; Ross, 2015). However, the limited and preliminary inquiries on the effective generalization of social skills interventions from children to the adult ID population have included more qualitative measures (e.g., structured questionnaires) rather than quantitative outcomes.

The purpose of this study was to examine the quantitative behavioral outcomes of implementing an evidence-based social skills intervention, developed as a mode of classroom management, with the adult ID population. The principles of applied behavior analysis are engrained within the BOSS teaching program, which has been shown to be an effective classroom management strategy across all grade levels (Ross, 2015). The intent of the study was to quantitatively evaluate the outcomes of expanding the BOSS teaching program from the classroom setting with school-aged children to adults with ID. The positive behavioral outcomes of the study represent a successful application and expansion of the BOSS teaching program from students in the classroom to adults with ID in the community.

The positive behavioral outcomes attained by the direct support professionals, in terms of substantially increasing their delivery of specific praise statements, represents a successful expansion of the BOSS teaching program from teachers to direct support professionals. The expansion of the BOSS teaching program from teachers to direct support professionals is important because of the different educational and professional credentialing requirements between the two populations of implementers. Teachers are typically required to have a minimum of a Bachelor's degree, complete a student teaching

internship, and hold valid licensing or certification credentials. However, the minimum

job requirements for direct support professionals are typically less and require a high

school diploma or equivalent and do not include professional licenses or certifications.

The sample of direct support professionals in this study was representative of the typical

requirements with each direct support professional holding a high school diploma as their

highest level of completed education. However, one direct support professional was a

senior undergraduate student at the time of her participation.

The positive outcomes achieved by the direct support professionals in their

successful implementation of the BOSS teaching program in this study are similar to the

positive achievements of the teacher-implementer in Long's (2016) study. In the study

by Long, the teacher-implementer showed considerable increases in her delivery of

specific praise statements across all intervention phases when compared to the baseline

condition, as did the direct support professionals in this study. The direct support

professionals also responded similarly to the teacher in Long's study on the social

validity survey. Akin to the teacher in Long's study, all three direct support professionals

indicated that the BOSS teaching program was easy to use, was effective, and they were

likely to continue using the program. Thus, the positive outcomes achieved in this study

demonstrate that direct support professionals and potentially others with educational

levels less than teachers can be trained to successfully implement the BOSS teaching

program.

The positive outcomes achieved by the adults with ID, in terms of their substantial

increases in prosocial behaviors, represent a successful expansion of the BOSS teaching

program to a novel population. The BOSS teaching program has been shown to be

effective at increasing prosocial behavior of preK-12 students in the classroom, but the

behavioral outcomes of this study represent the first successful application of the BOSS

teaching program with the adult ID population (see Long, 2016; Ross, 2015). The adults

with ID in this study showed considerable increases in their prosocial behaviors despite

having multiple intellectual and physical health diagnoses and extensive histories of

significant challenging behavior. Thus, the positive outcomes achieved in this study

demonstrate that adults with ID living in the regular community who have histories of

challenging behavior can increase their prosocial behaviors when exposed to the BOSS

teaching program.

The positive outcomes achieved by the direct support professionals and the adults

with ID also represent a successful expansion of the BOSS teaching program from the

more structured classroom setting to the general community. The regular community

presents unique challenges for implementing interventions typically not found in the

classroom environment. The regular community typically includes more diverse settings

than the classroom, including residential environments, vocational and employment

settings, and normal day-to-day community outings (Jones, 2013). The residential

locations of where people live in the community require that trainers travel into the

community to train direct support professionals as implementers. Trainers are likely to

face logistical challenges for traveling in the regular community, particularly in more

rural areas where there are greater distances between residences (Jones, 2013). Thus, the

positive outcomes obtained in this study represent a successful application of the BOSS teaching program from the classroom to the less structured community setting.

The results obtained in this study are consistent with those found by other researchers pertaining to the effectiveness and generalizability of interventions designed with the principles of applied behavior analysis as the underlying foundation. Researchers have shown that interventions developed for children and adolescents with ID, which include principles of applied behavior analysis, have been successfully adapted and applied with the adult ID population (Axelrod et al., 2012; Laugeson et al., 2015; Matson et al., 2012). The BOSS teaching program as an intervention and the application of the BOSS teaching program in this study adhere to the principles of applied behavior analysis (see Baer et al., 1968). The BOSS teaching program integrates applied behavior analysis techniques, including differential reinforcement of appropriate social skills, modeling, and the delivery of specific praise statements (Ross & Sliger, 2015). The behavioral outcomes of implementing the BOSS teaching program in this study were obtained from rigorous single-subject multiple-baseline design procedures and operationally defined variables. Thus, the adherence to practice and evaluative standards of applied behavior analysis and the successful implementation of the BOSS teaching program in this study confirms and expands upon the existing literature of evidence-based, behavior analytic practices with adults with ID.

Limitations of the Study

This study was designed in accordance with the rigorous single-subject research design standards established by the WWC™ (2014). A majority of the standards were

adhered to throughout the study, including operationally defined procedures and variables, systematic implementation of the independent variable, and the demonstration of a treatment effect across three different variables at three different points in time (Kratochwill et al., 2013; WWC™, 2014). However, it was not feasible to collect interobserver agreement reliability measures in this study. As noted in Chapter 4, the Walden University IRB does not allow assistants to collect research data. Thus, interobserver agreement measures for data reliability purposes, which require simultaneous observations to be conducted by two independent and trained observers, were not feasible.

Although the study adhered to most of the WWC™ (2014) criteria for single-subject research designs, there are limitations for using single-subject designs that are relevant to this study. Single-subject designs typically have limited generalizability due to the relatively small number of participants who are included in the study. This study included three different direct support professionals who worked with three different adults with ID, each of whom resided in different supported living residencies in the regular community. Although the sample of the adults with ID who participated in the study had diverse intellectual and physical health diagnoses and histories of challenging behavior, the generalizability of the results of this study remain limited due to the small number of participants (Kratochwill et al., 2013). However, the positive behavioral outcomes obtained in this study could be expanded to more diverse groups of adults with ID, to a larger number of adults with ID, and across different settings through future direct and systematic replication studies.

Recommendations

The positive behavioral outcomes attained by the direct support professionals and the adults with ID in this study confirm that behavior analytic social skills interventions, such as the BOSS teaching program, can be effectively generalized from students in the classroom to adults with ID in the regular community. Although researchers have found similar positive outcomes with other evidence-based social skills programs, this study represents the first successful application of the BOSS teaching program with adults with ID in the community. This study was conducted using a single-subject multiple-baseline design that included a small sample size of three direct support professionals and three adults with ID, which limits the generalizability of the results. Thus, I recommend future researchers conduct direct and systematic replications of the study in order to expand the results found in this study. Future researchers could consider expanding the sample size to include a larger number of direct support professionals and adults with ID, which could also expand the generality of the results to more diverse populations.

Although there were visually discernable increases and large effect sizes (ES $\geq$ 0.92) in the direct support professionals' delivery of specific praise statements and prosocial behaviors of the adults with ID, these analyses were not feasible on the challenging behavior data. Across the baseline and intervention phases of the study, there were not sufficient occurrences of challenging behavior incidents to adequately conduct visual or effect size analyses. Challenging behavior incidents were operationally defined and collected by the direct support professionals in accordance with DIDD and the partnering agency's policies for documenting reportable and nonreportable behavior

incidents. Operationally defining challenging behavior in this manner likely captured only the lower frequency, more severe behavioral incidents (e.g., physical aggression, property destruction, self-injury) included in Tables 1-3.

The challenging behavior incidents are socially important because they represent behaviors that are high risk and likely to disrupt community integration if they were to persist. However, annoying and nuisance behaviors typically associated with poor social skills can also exacerbate or lead to other, more severe challenging behavior (Matson & Adams, 2014). Researchers have shown that the BOSS teaching program has been effective in reducing nuisance and challenging behaviors as well as increasing prosocial skills (Ross, 2015). Thus, I recommend future researchers develop separate categories under the operational definition of challenging behavior to include nuisance and annoying behaviors in addition to the more severe types of challenging behavior documented in this study. The collection of objective data on nuisance behaviors and serious behavior incidents could allow future researchers to more effectively evaluate how the BOSS teaching program may influence each category of challenging behavior.

This preliminary application of the BOSS teaching program in the regular community with adults with ID demonstrated promising results for increasing direct support professionals' delivery of specific praise statements and the prosocial behaviors of adults with ID. However, the community setting, particularly in settings that are more rural such as where this study was conducted, presents unique logistical challenges for implementing the BOSS teaching program. In order to deliver training on the BOSS teaching program to the direct support professionals in this study, I traveled nearly 90

miles one-direction from my office location to the residencies of the participants. Future researchers could explore technological solutions to address these logistical issues and to expand training opportunities to a broader base of direct support professionals and adults with ID living in the regular community. Potential technological solutions could incorporate the development, dissemination, and evaluation of computer-based training modules on the BOSS teaching program as well as the use of remote training opportunities.

Implications

The positive outcomes found in this study hold the potential for positive social change at the individual and organizational levels. At the individual level, the results of the study demonstrate that the BOSS teaching program, which was developed as classroom management strategy for teachers, can be successfully applied with adults with ID. In this study, individual direct support professionals were trained to implement the BOSS teaching program with the adult with ID that they supported. There were positive behavior changes of the direct support professionals (i.e., delivery of specific praise statements) and the adults with ID (i.e., prosocial behaviors) following the initial training on the BOSS teaching program. The changes in positive social behaviors of both groups of participants were sustained or increased throughout the intervention phase of the study. In addition to the changes in positive social behaviors, direct support professionals reported they liked the BOSS teaching program, the program was easy to use and effective, and they were likely to continue implementing the program. Two of the direct

support professionals also stated they had expanded their implementation to other people they supported as well as with their own children.

The observable positive behavioral changes demonstrated by the direct support professionals and the adults with ID, as well as the positive responses obtained on the social validity survey represent positive social changes at the individual level. The positive behavioral changes achieved by the direct support professionals hold the potential for improving their job satisfaction, feelings of efficacy, and could help reduce job burnout and turnover. The positive changes in prosocial behavior achieved by the adults with ID hold the potential for increasing their access to the regular community, which could be hindered by poor social skills and challenging behavior. The increased access to the community for adults with ID is likely to improve opportunities for employment, living circumstances, and interpersonal relationships which, in turn, will likely improve the overall quality of life of these individuals.

The positive behavioral changes achieved by the direct support professionals and the adults with ID hold the potential to influence positive social change at the organizational level. The direct support professionals' increased use of specific praise statements and the improvements in prosocial behavior of the adults with ID will likely foster improved relationships between the staff members and supported persons. In addition to the positive behavioral outcomes, the direct support professionals' responses on the social validity survey suggested their implementation of the BOSS teaching program helped foster a more positive work environment. The direct support professionals reported that establishing a positive mindset with the BOSS teaching

program helped them to have a good work-shift. The responses on the survey also indicated that the direct support professionals understood that treating the adults with ID with respect and appreciation helps to foster a more positive work culture.

The potential improvements in the relationships between the direct support professionals and the adults with ID and the development of a more positive work environment could help reduce on-the-job stress levels. The high stress levels of direct support professionals likely contribute to their high turnover rate, which has been documented to be approximately 50% (Bogenschutz, Nord, & Hewitt, 2015; Reinke et al., 2013). The high turnover rates among direct support professionals can be costly for community agencies who must frequently hire and retrain new direct support professionals who are unhappy and highly stressed in a negative work culture. The results of the study suggest that incorporating the BOSS teaching program into an agency's staff development curricula can potentially impact social change at the organizational level. The inclusion of the BOSS teaching program in training curricula for direct support professionals could help community agencies decrease costly turnover rates and foster a more positive work environment.

The outcomes of this study also hold the potential for positive social change by contributing to the expansion of the literature of evidence-based social skills interventions for adults with ID. The successful implementation of the BOSS teaching program in this study confirms and expands upon the existing literature of applied behavior analysis interventions with adults with ID. In this study, I focused on implementing a behavior analytic intervention and evaluated the outcomes in accordance

with research and practice standards established by the WWC™ and the field of applied behavior analysis. The results of this study suggest that social skills interventions based upon the principles of applied behavior analysis and initially developed for children can be effectively implemented with adults with ID with minimal adaptions, as previous researchers have indicated (see Gantman et al., 2012; Laugeson & Ellingsen, 2014; Laugeson et al., 2015).

The results of this study suggest that professionals who work with adults with ID should look to the existing literature for evidence-based social skills interventions developed for children and adolescents. It is likely that behavior analytic social skills interventions developed for children and adolescents could be readily modified and effectively implemented with adults with ID. The school systems have been working towards effectively implementing evidence-based positive behavior supports for nearly 20 years. I recommend that the leaders of community-based support systems for adults with ID advocate for the use of similar behavior analytic evidence-based practices in the regular community.

Conclusion

The purpose of this single-subject multiple-baseline study was to evaluate the behavioral outcomes of implementing the BOSS teaching program with adults with ID living in the regular community. The multiple-baseline design was used in accordance with the WWC™ research design standards to evaluate overt behavioral changes. Behavioral data were collected on the frequency of prosocial and challenging behaviors displayed by adults with ID as well as the frequency of specific praise statements

delivered by direct support professionals across study conditions. The direct support professionals who participated in the study received training on the BOSS teaching program during an initial classroom-style session and weekly follow-up sessions.

Visual analyses of graphically displayed data and effect size analyses were conducted on the prosocial behavior of the adults with ID and the direct support professionals' delivery of specific praise statements. The visual analyses showed there were discernable increases in the prosocial behaviors of the adults with ID and the frequency of specific praise statements delivered by direct support professionals. The effect size analyses confirmed the increases observed through the visual analyses. The effect size calculations showed large effect sizes (ES $\geq$ 0.92) in prosocial behavior of the adults with ID and the direct support professionals' delivery of specific praise statements. However, there was an insufficient number of challenging behavior incidents across both the baseline and intervention phases of the study to adequately conduct visual or effect size analyses on challenging behaviors of the adults with ID.

In addition to the positive behavioral changes achieved by the direct support professionals and the adults with ID, the direct support professionals reported having positive experiences with the BOSS teaching program on the social validity survey. Each of the direct support professionals who participated in the study reported that the BOSS teaching program was very easy to use and was effective at improving prosocial behavior of the adults with ID they supported. The direct support professionals also reported that they were likely to maintain their implementation of the intervention and expressed their desire to see the program expanded to other agencies within the DIDD system.

At the current time, the number of adults with ID transitioning from structured institutional, school, and home environments into the regular community has been referred to as a pending crisis by researchers (Bishop-Fitzpatrick et al., 2014; Cox et al., 2014; Gerhardt & Lainer, 2011). It has been estimated that 70% of the children currently diagnosed with autism spectrum disorders alone are under the age of 14. The large population of children currently diagnosed with ID indicates that there will be a substantial increase in the number of adults diagnosed with ID in the coming decade (Bishop-Fitzpatrick et al., 2014). However, the pending crisis does not solely pertain to the considerable increase in the number of adults diagnosed with ID, but the current lack of evidence-based interventions and supports in the community setting for these individuals. In order to avert the pending social crisis, it is critical that researchers and practitioners continue to develop and expand upon the currently sparse literature of evidence-based practices for adults with ID in the community.

The positive outcomes achieved in this study represent a novel application of the BOSS teaching program, which was initially developed as a classroom management strategy, with adults with ID. The results of this study confirm previous research findings that interventions developed for children and adolescents, which incorporate principles of applied behavior analysis, can be effectively implemented with adults with ID. The results of this study also represent one addition to the currently small literature base of evidence-based interventions for adults with ID in the community. It is essential that researchers and practitioners continue exploring evidence-based practices for adults with

ID in the community such as the BOSS teaching program, which has been shown to be an

effective, easy to use, and generalizable social skills intervention.

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Appendix A: Individual Assent Form

ASSENT FORM FOR RESEARCH

Hello, my name is Mick Needham and I am doing a research project to learn about how behavior may change when direct support professionals are trained in using positive reinforcement procedures (e.g., delivering praise for appropriate behavior). I am inviting you to join my project. I am inviting individuals who receive services through the Department of Intellectual and Developmental Disabilities (DIDD) to be in the study. I am going to read this form with you. I want you to learn about the project before you decide if you want to be in it.

WHO I AM:
I am a student at Walden University. I am working on my doctoral degree. You might already know me as a behavior analyst, but this study is separate from that role.

ABOUT THE PROJECT:
If you agree to be in this project, you will be asked to:
- Allow the researcher to visit you at your residence and possibly while you are in the community up to two times per week for approximately six weeks.
- Allow the researcher to collect data on prosocial and challenging behaviors.

IT'S YOUR CHOICE:
You don't have to be in this project if you don't want to. If you decide now that you want to join the project, you can still change your mind later. If you want to stop, you can.

Being in this project might make you tired or stressed, such as having visitors come to your residence. Being in this study would not pose risk to your safety or wellbeing. We are hoping this project might help you and others improve appropriate behaviors.

You may receive small thank you gifts for participating in the study including snacks during training sessions or visits and a t-shirt at the end of your participation.

PRIVACY:
Everything you tell me during this project will be kept private. That means that no one else will know your name or what answers you gave. The only time I have to tell someone is if I learn about something that could hurt you or someone else.

ASKING QUESTIONS:
You can ask me any questions you want now. If you think of a question later, you or your conservator can reach me on the phone at XXX or email at XXX@tn.gov. If you or your conservator would like to ask my university a question, you can call 612-312-1210. Walden University's approval number for this study is 05-26-17-0409390.

I will give you a copy of this form to keep.

If you want to join the project, please sign your name below.

Name

Signature

Date

Researcher Signature

Appendix B: Regional Human Rights Committee Approval

Attachment # 13: RHRC 601B

HRC 601B

Review of Proposed Research or Academic Projects
Decision/Follow-up Instructions

February 17, 2017

_____
Chairperson HRC Committee

Decision

The request for HRC approval of research/academic projects is:

☒ Approved

☐ Not Approved (Reasons provided below)
Reasons for non-approval:

☐ Conditional Approval (Revisions must be submitted to the chairperson of the HRC by _____.
                                                                                    (Date)

The project may not proceed until final approval is provided by the chairperson of the HRC.

Issues requiring revision to obtain full approval:

Copy of recommendations submitted to:

☐ Project Coordinator.
☐ Service recipient and/or legal representative
☐ Provider agency executive director/CEO.
☐ Regional Director

Additional Follow-up Actions Required? ☐ Yes   ☒ No
(If yes, refer to the following re-review section)

A Regional HRC decision may be appealed to the DMRS Deputy Commissioner or designee.

Follow-up Actions

Tentative date for Follow-up review: _____
                                                              (date)

Required documentation must be submitted by: _____ (Refer to RHRC instructions as needed)
                                                                              (date)

Follow-up action(s)	Responsible person(s)	Reporting expectation(s)
		☐ Written report ☐ Attend and present
		☐ Written report ☐ Attend and present
		☐ Written report ☐ Attend and present

NOTE: Attendance is not required when only "written report" is checked.

22

Appendix C: BOSS Teaching Program Training PowerPoint Presentation
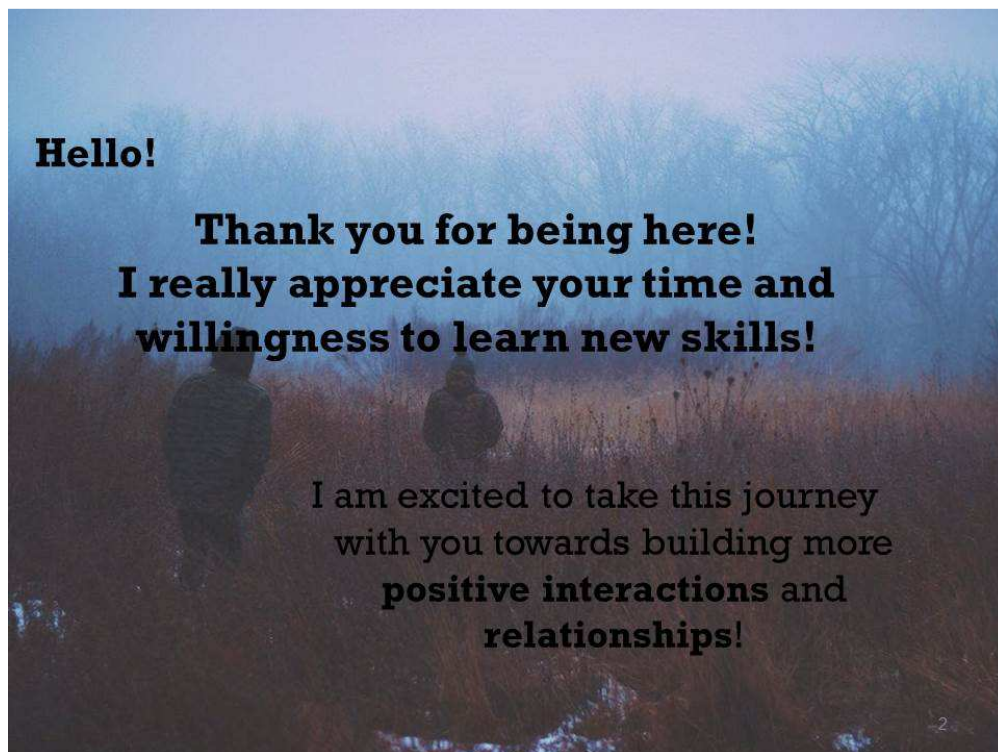
big concept

"If you want to get it, you must teach it!"
Dr. Peter Ross

Brain Folders and a new Approach

The BOSS teaching program encourages us to abandon traditional approaches and to learn new behaviors ourselves.

In order to become BOSS staff, we need to add new "brain folders" to our existing file cabinet of knowledge.

A big part of expanding our brain folders and using the BOSS teaching program includes "resisting the reaction of punishment, to which we all have been conditioned."
Dr. Peter Ross

Brain Folders Diagram
Illustrated by Dawn Cohen.

6

Real Life Testimonials

- Thousands of teachers across the country have learned to use the BOSS teaching program.
- For many teachers, the BOSS teaching program has **significantly improved** their students' behavior AND **Transformed** their professional lives.
- Here are just a few of the amazing experiences others have had with BOSS.

7

How can I use the BOSS Teaching Program with the people I support?

Watch for Cooperative and Polite Behaviors → Point out the behaviors you want to see → Reinforce the behaviors with Specific Praise Statements

Make it a **BIG** Deal!!!

Celebrate the desirable and appropriate behaviors when you see them!!!

USE Specific Praise Statements!

8

The way to Be a BOSS

big concept

Positive reinforcement: The immediate, response-contingent presentation or delivery of a reinforcer that results in an increased frequency of that response.

> In short, the use of positive reinforcement increases or strengthens behavior to be more likely to happen in the future.
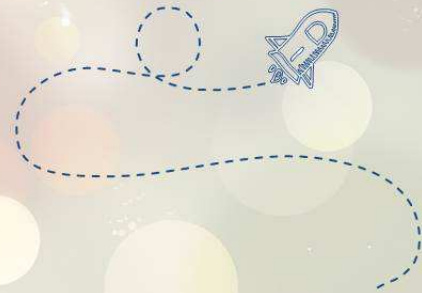
9

What is a Specific Praise Statement?

A Specific Praise Statement is a comment that provides **clear** feedback on something that a person did **well**.

A Specific Praise Statement is not simply saying thank you or good job.

A Specific Praise Statement point outs **exactly** what the person **did** that was appropriate, cooperative, or polite.

Celebrate Especially Desirable behaviors when they happen!!

10

Examples of Specific Praise Statements

Examples of Cooperative and Polite Behavior	Examples Specific Praise Statements
Proximity: Being near others appropriately.	Great job with personal space!
Helping: Assisting others with a task verbally or nonverbally.	Awesome job! Thanks a lot for helping w/____!
Cooperating: Verbally or nonverbally.	Excellent work! Thanks for doing _____!
Friendliness and affection: Nice or kind words and actions.	Thanks for being so nice, I appreciate you saying __!
Humor: Laughing, playing, or joking appropriate.	Great joke! That was really funny!
Comments: Positive or affirming.	That was really nice thing to say!
Talking: Engaged in appropriate conversation.	Great idea! It is great talking with you about ___!
Sharing: Sharing materials or ideas.	Thank you for sharing _____!
Turn taking: Waiting for turn.	Great job waiting! Thanks for taking turns!
Empathy/Sympathy/Caregiving: Expressing or showing concern verbally or nonverbally.	Thanks for understanding! Thanks for caring about _____!

11

How can I use the BOSS Teaching Program with the people I support?

Watch for Cooperative and Polite Behaviors → Point out the behaviors you want to see → Reinforce the behaviors with Specific Praise Statements
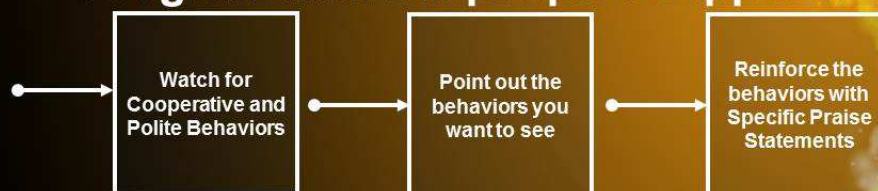
MODEL Appropriate, Cooperative, and Polite Behaviors!

Remember **your** behavior has a **HUGE** influence on the behavior of the person you support....
And vice versa.

12

As we are **modeling**, **watching for**, **pointing out** and **reinforcing** **cooperative and polite behavior**, we are also going to do our best to:

IGNORE Nuisance or Annoying behaivor.

AVOID making a **BIG** deal out of Nuisance or Annoying behavior.

For example, we will resist the urge to give reprimands for behavior that might annoy us but is not causing serious problems.

The way to Be a BOSS

Molecular Behavioral Contingency Analysis

Natural Dysfunctional Reinforcement Contingency

Before (Antecedent)	Behavior	Consequence
No Attention	Says 'I hate this' (Inappropriate Verbalization)	Attention (Reprimand)

BOSS Positive Reinforcement Contingency

Before (Antecedent)	Behavior	Consequence
No Attention	Says 'Help please' (Cooperative & Polite)	Attention (Specific Praise Statement)

Extinction Contingency

Before (Antecedent)	Behavior	Consequence
No Attention	Says 'I hate this' (Inappropriate Verbalization)	No Attention (Planned Ignoring)

14

The way to Be a BOSS
big concept

As you can see from the example above, it is important to remember that when you pay attention to nuisance behaviors or behaviors that you do **NOT** want, you are actually reinforcing those behaviors.
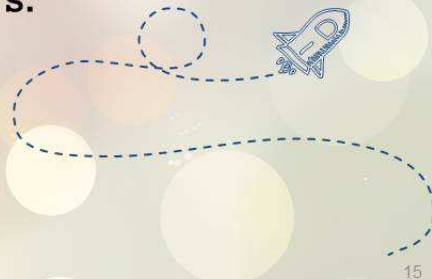
15

The way to Be a BOSS

In addition to reinforcing behaviors we do not want, negative remarks and reprimands [also called "critical authoritarian remarks" CARs] can have other negative effects:

- The person may rebel more strongly OR
- Secretly try to undermine direction
- Potential reductions in self-esteem
- Loss of respect for staff and other authority figures

Oftentimes, we may overuse CARs without even knowing it because of our own learning history and exposure to them…Examples?

16

The way to Be a BOSS

Regularly ignore nuisance behavior and resist the urge to give reprimands for annoying or nuisance behavior.

Point out the behaviors you want [behavioral opportunities] as often as possible.

Use Specific Praise Statements to point out exactly what the person did that was appropriate, cooperative, or polite.

Celebrate Especially Desirable behaviors when they happen!!

Make sure BOSS language is at least 25% of your overall communication with the person you support.

17

The way to Be a BOSS

Talk about desirable behavior!

Model desirable behavior!

Use Specific Praise Statements

Reinforce desirable behavior!

18

The steps for being a BOSS

At the beginning of your shift, review the BOSS teaching program Daily Guide.

State to the person you support that you will be watching for cooperative and polite behavior during your shift.

Frequently use **Specific Praise Statements** to point out **exactly** what the person **did** that was appropriate, cooperative, or polite.

Complete the BOSS teaching program checklist at the end of your shift.

19

Reminders and Tools for being a BOSS

BOSS Teaching Program Daily Guide

Prior to beginning your work shift, please review the steps below for proper implementation of the BOSS Teaching Program. At the end of your work shift, please remember to complete the BOSS Teaching Program Checklist. Place your initials at the end of the form as your signature and fill-in today's date.

At the beginning of your work shift [and throughout the day], remind the individual/s you support that you will be watching for "polite and cooperative" behavior and spend some time talking about "cooperation and politeness." As stated in the steps below, remember to follow-through with delivering specific praise statements [complements] to the individual/s you support when they demonstrate cooperative and polite behavior.

1. Regularly ignore nuisance behavior.
2. Avoid making a "big deal" [deliver reprimands] about inappropriate/nuisance behavior.
3. Point out the behaviors you want. These are referred to as "opportunities to respond." It is very important that you take opportunities to point out desirable [cooperative and polite] behaviors as often as possible. This will help you to adhere to #5 below.
4. Punctuate [make a "big deal" or celebrate] especially desirable behaviors when they occur.
5. Make sure that the BOSS language is 25% of your overall communication with the individual/s you support. You must continue to talk about desirable behavior, reinforce desirable behavior [using specific praise statements], and model desirable behavior throughout the day.
6. Embrace the credo: "If you want to get it, you must teach it!"

Direct Support Professional's Initials:_____ Date: _____

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Reminders and Tools for being a BOSS

BOSS Teaching Program Checklist

Prior to beginning your work shift, please review the BOSS Teaching Program Daily Guide. At the end of your work-shift, please complete this form about your follow-through on the steps of the BOSS Teaching Program. Please place an X to the left of the "Yes" or "No" boxes. Place an X next to the "N/A" box if the question is not applicable. Place your initials at the end of the form as your signature and fill-in today's date.

1. ☐YES ☐NO ☐N/A: I regularly ignored nuisance behaviors.

2. ☐YES ☐NO ☐N/A: I regularly avoided making a "big deal" [deliver reprimands] about inappropriate/nuisance behavior.

3. ☐YES ☐NO ☐N/A: I regularly pointed out the behavior I wanted to see in order to highlight and point out desirable behaviors as often as possible.

4. ☐YES ☐NO ☐N/A: I regularly punctuated [made a "big deal"] especially desirable behaviors when they occurred.

5. ☐YES ☐NO ☐N/A: I consistently reinforced desirable [cooperative and polite] behavior using specific praise statements.

6. ☐YES ☐NO ☐N/A: I consistently talked about desirable behavior and modeled desirable behavior throughout my work-shift.

7. ☐YES ☐NO ☐N/A: If I expected to see a behavior, I explicitly taught the behavior to the individual/s I support.

8. ☐YES ☐NO ☐N/A: I was not able to fulfill part of my role or responsibility during today's session. I will inform the researcher immediately and describe it on the back.

9. ☐YES ☐NO ☐N/A: I have documented something on the back of this form that I am aware of something significant that may have affected one or more of the participants.

10. ☐YES ☐NO ☐N/A: I have a question or concern for the researcher and will explain it on the back of this form so that it can be addressed before the next session.

Direct Support Professional's Initials:_____ _____ Date: _____ _____

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Reminders and Tools for being a BOSS

	Pro-social Behavior Examples	Specific Praise Statements Examples	
	Proximity: Being near others appropriately.	Great job with personal space!	
	Helping: Assisting others with a task verbally or nonverbally.	Awesome job! Thanks a lot for helping w/____!	
	Cooperating: Verbally or nonverbally.	Excellent work! Thanks for doing _____!	
	Friendliness and affection: Nice or kind words and actions.	Thanks for being so nice, I appreciate you saying _____!	
	Humor: Laughing, playing, or joking appropriately.	Great joke! That was really funny!	
	Comments: Positive or affirming.	That was really nice thing to say!	
	Talking: Engaged in appropriate conversation.	Great idea! That was a great conversation!	
	Sharing: Sharing materials or ideas.	Thank you for sharing _____!	
	Turn taking: Waiting for turn.	Great job waiting! Thanks for taking turns!	
	Empathy/Sympathy/Caregiving: Expressing or showing concern verbally or nonverbally	Thanks for understanding! Thanks for caring about _____!	Initials:
Example	₩₩ ₩₩ |||	₩₩ ₩₩		MN
Date: __/__ __/__ __ Work-shift Start Time: ___:___AM or PM		Work-shift End Time:___:___AM or PM	
Hour 0-1			
Hour 1-2			
Hour 2-3			
Hour 3-4			
Hour 4-5			
Hour 5-6			
Hour 6-7			
Hour 7-8			
Notes:			

22

You get out what you put in....

Keep in mind that BOSS is like many other things in life.....

If you closely follow the procedures of the BOSS teaching program, then you will enjoy many benefits from the program.

But remember, your enjoyment of these benefits is depended upon **your** dedication and commitment to becoming a **BOSS Staff!**

23

Thank you so much for your time and excellent Participation!
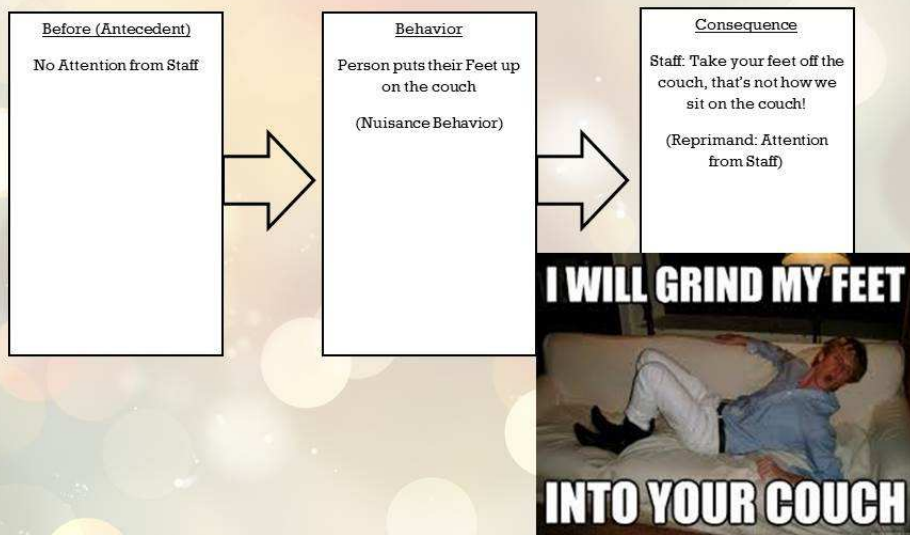
Any Questions?

Let's practice some examples for using the BOSS Teaching Program.

GO BOSS Staff!!!!!!

Examples

Before (Antecedent)		Behavior		Consequence
No Attention from Staff	→	Person puts their Feet up on the couch (Nuisance Behavior)	→	Staff: Take your feet off the couch, that's not how we sit on the couch! (Reprimand: Attention from Staff)

The way to Be a BOSS

How can we address this problem like a **BOSS**?

The way to Be a BOSS

Talk about desirable behavior!

Model desirable behavior!

Use Specific Praise Statements

Reinforce desirable behavior!

27

Examples

Before (Antecedent)

No Attention from Staff

How can we address this problem like a **BOSS**?

Consequence

Staff: That's disgusting! Y... getting your food all over the place!

Reprimand: Attention from Staff)

...METHING ON MY FACE?

WHERE?!

28

Examples

Before (Antecedent)

No Attention from Staff

How can we address this problem like a BOSS?

Consequence

Staff: Don't interrupt me ... talking with someone else!

...mand: Attention ... Staff)

I'm sorry, is my teaching interrupting you?

TeacherMemes.com
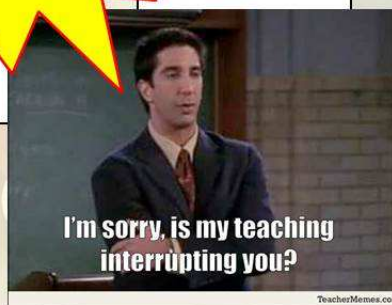
Do you have any Examples from your work or personal life?

Before (Antecedent)

No Attention

Behavior

(Nuisance Behavior)

Consequence

(Reprimand)
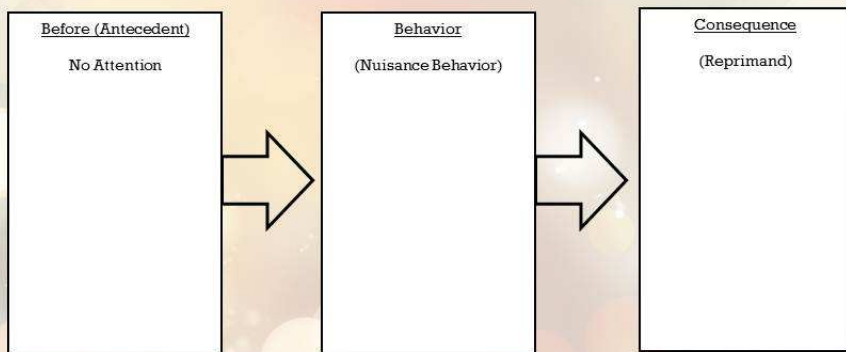
Appendix D: BOSS Teaching Program Treatment Fidelity Checklist

During the observation session, the researcher will complete this form on the direct support professionals' follow-through on the steps of the BOSS Teaching Program. The researcher will place an **X** to the left of the **"**Yes" or "No" boxes when the direct support professional (DSP) follows each of the steps below. The researcher will place an **X** next to the "N/A" box if the question is not applicable or the step is not observed during the session.

1. ☐**YES** ☐**NO** ☐**N/A:** The DSP regularly ignored nuisance behaviors.

2. ☐**YES** ☐**NO** ☐**N/A:** The DSP regularly avoided making a "big deal" [delivered reprimands] about inappropriate/nuisance behavior.

3. ☐**YES** ☐**NO** ☐**N/A:** The DSP regularly pointed out the behavior he/she wanted to see in order to highlight and point out desirable behaviors as often as possible.

4. ☐**YES** ☐**NO** ☐**N/A:** The DSP regularly punctuated [made a big deal] especially desirable behaviors when they occurred.

5. ☐**YES** ☐**NO** ☐**N/A:** The DSP consistently reinforced desirable [cooperative and polite] behavior using specific praise statements.

6. ☐**YES** ☐**NO** ☐**N/A:** The DSP consistently talked about desirable behavior and modeled desirable behavior throughout his/her work-shift.

7. ☐**YES** ☐**NO** ☐**N/A:** If the DSP stated he/she expected a behavior, the DSP explicitly taught the behavior to the individual/s he/she supports.

8. ☐**YES** ☐**NO** ☐**N/A:** I was not able to fulfill part of my role or responsibility during today's session. I will inform the researcher immediately and describe it on the back.

9. ☐**YES** ☐**NO** ☐**N/A:** I have documented something on the back of this form that I am aware of something significant that may have affected one or more of the participants.

10. ☐**YES** ☐**NO** ☐**N/A:** I have a question or concern for the researcher and will explain it on the back of this form so that it can be addressed before the next session.

Researcher's Initials:_____ Date: _____

Appendix E: Baseline Phase Data Collection Form

	Pro-social Behavior	Specific Praise Statements	Initials
Example	‖‖ ‖‖ ‖‖	‖‖ ‖‖	MN
Date: ___/___/___ Work-shift Start Time: ___:___ AM or PM		Work-shift End Time: ___:___ AM or PM	
Hour 0-1			
Hour 1-2			
Hour 2-3			
Hour 3-4			
Hour 4-5			
Hour 5-6			
Hour 6-7			
Hour 7-8			
Notes:			

Appendix F: Intervention Phase Data Collection Form

	Pro-social Behavior	Specific Praise Statements	
	Examples	**Examples**	
	Proximity: Being near others appropriately.	Great job with personal space!	
	Helping: Assisting others with a task verbally or nonverbally.	Awesome job! Thanks a lot for helping w/____!	
	Cooperating: Verbally or nonverbally.	Excellent work! Thanks for doing ____!	
	Friendliness and affection: Nice or kind words and actions.	Thanks for being so nice, I appreciate you saying ____!	
	Humor: Laughing, playing, or joking appropriately.	Great joke! That was really funny!	
	Comments: Positive or affirming.	That was really nice thing to say!	
	Talking: Engaged in appropriate conversation.	Great idea! That was a great conversation!	
	Sharing: Sharing materials or ideas.	Thank you for sharing ____!	
	Turn taking: Waiting for turn.	Great job waiting! Thanks for taking turns!	
	Empathy/Sympathy/Caregiving: Expressing or showing concern verbally or nonverbally	Thanks for understanding! Thanks for caring about ____!	Initials:
Example	卌 卌 |||	卌 卌 |	MN
Date: __ __ / __ / __ __ Work-shift Start Time: __ : __ AM or PM		Work-shift End Time: __ : __ AM or PM	
Hour 0-1			
Hour 1-2			
Hour 2-3			
Hour 3-4			
Hour 4-5			
Hour 5-6			
Hour 6-7			
Hour 7-8			
Notes:			

Appendix G: Permission to Reprint Figure 1

Appendix H: Social Validity Survey: Direct Support Professionals

1. What are your general thoughts about using the BOSS Teaching Program in your work setting?

2. Please describe the preparation necessary for using the BOSS Teaching Program throughout your daily work-shifts?

3. Please describe any challenges, concerns, or problems you may have experienced with implementing the BOSS Teaching Program?

4. Please describe any successes, ease of use, or other things you liked about the BOSS Teaching Program?

5. What kinds of effects did you notice or observe while using the BOSS Teaching Program with the individual/s you support?

6. How likely would you be to continue using the BOSS Teaching Program?

7. To what degree did you notice or observer differences in the manner that individual/s you support respond to you or others when you used the BOSS Teaching Program? Please explain or describe.

8. What suggestions do you have for direct support professionals who are considering whether or not to use the BOSS Teaching Program?

Additional/Other Comments: