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# The Impact of Implementing Positive Behavioral Interventions and Supports (PBIS) with Direct Care Staff in a Residential Treatment Center

Alexis Bickel Lubar
*Lehigh University*, alexis.lubar@gmail.com

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The Impact of Implementing Positive Behavioral Interventions and Supports (PBIS)

with Direct Care Staff in a Residential Treatment Center

Lehigh University

by

Alexis Lubar


Presented to the Graduate and Research Committee

Of Lehigh University

In Candidacy for the Degree of

Doctor of Philosophy


In

School Psychology


Lehigh University

April 2018

**Certificate of Approval**

     Approved and recommended for acceptance as a dissertation in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

_____
Date

_____
Accepted Date

                         _____
Christine Cole, Ph.D.
Dissertation Chair
Professor of School Psychology
Lehigh University


Committee Members:


_____
Stewart Shear, Ph.D.
Director of Intellectual Disability Services
Devereux Advanced Behavioral Health


_____
Bridget V. Dever, Ph.D.
Associate Professor of School Psychology
Lehigh University


_____
Patricia Manz, Ph.D.
Professor of School Psychology
Lehigh University

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**Abstract**

This study compared the ratings of self-efficacy and burnout by traditionally-trained direct care staff in a residential treatment center with ratings by a group of direct care staff that were trained to implement Positive Behavioral Interventions and Supports (PBIS) with adults who have intellectual or developmental disabilities.  Staff responses on measures of self-efficacy, using the *Teacher's Sense of Efficacy Scale* (TSES) and burnout, using the *Maslach Burnout Inventory* (MBI) were compared across the two groups: One group of staff was not exposed to PBIS training (traditional training only), whereas the other group was trained to implement PBIS. A total of 70 direct care staff members from a Residential Treatment Center (RTC) participated in this study. The mean differences of total scores on each measure were compared using *t*-tests to determine if there were significant between-group differences. In addition, as the measure of self-efficacy was originally designed for use with teachers and was slightly modified here for use with direct care staff, an exploratory factor analysis was conducted to examine the factor structure of the measure when administered to staff in an RTC.

The results indicate that the modified *TSES* has one factor, which differs from the three factors found when the *TSES* was administered to teachers who were implementing PBIS in schools. Additionally, significant differences were found in staff members' sense of self-efficacy between the control and PBIS groups. However, staff members' degree of burnout were not significantly different.   The results must be interpreted with caution because of the study's small sample size. However, there are several implications for future research that are discussed to further examine the impact of implementing PBIS on direct care staff members in residential treatment settings.

# CHAPTER 1

## Statement of the Problem

According to the American Association on Intellectual and Developmental Disabilities (AAIDD, 2013), almost 400,000 individuals with intellectual or developmental disabilities (I/DD) in the U.S. live in shared homes with others who have I/DD. Most live in homes that have five or fewer people with disabilities, but almost 24,000 individuals live in residential treatment centers (RTCs) that have 16 or more residents (AAIDD, 2013). Services provided by RTCs often include assistance with activities of daily living (e.g., putting on clothing, taking a bath or shower, and using the bathroom), management of medication, and implementation of behavioral support plans. In addition, RTCs aim to provide residents with an optimal level of physical functioning and quality of life (Harris-Kojetin, Sengupta, Park-Lee, & Valverde, 2013).

The number of RTCs in the U.S. increased following the deinstitutionalization movement that began in the 1970s (Parish, 2005; Taylor, 2001). Deinstitutionalization involved moving individuals with I/DD, who had resided in large institutional settings, into these smaller residential settings that provided opportunities to work or participate in activities in the community. Deinstitutionalization has been controversial (Parish, 2005; Taylor, 2001). Although it provided individuals with more freedom and possibly improved quality of life, it also presented challenges in meeting the complex needs of some individuals and the concerns raised by family members for the welfare of their relatives with disabilities (Lemay, 2009). For example, many adults with I/DD who currently reside in RTCs did not receive early intervention services during childhood because such interventions did not exist at that time (Gerber, Baud, Giroud, & Carminati, 2008). Therefore, many are now experiencing poor outcomes in adulthood such as exhibiting significant behavior problems (Billstedt, Gillberg, & Gillberg, 2005). This

presence of challenging behaviors may in turn prevent integration into the community, and may limit adults' access to educational and vocational opportunities while living in an RTC (Rojahn, Aman, Matson, & Mayville, 2003).

**Quality of Care in RTCs**

In many RTCs, people with I/DD spend large amounts of idle time (Emerson & Hatton, 1996; Mansell, 1996; Mansell, Elliott, Beadle-Brown, Ashman, & Macdonald, 2002). An observational study of 100 programs across the U.S. found that half of clients' time in residential programs was spent off-task or not engaged in any activity, and one-fourth of observed programs had clients who were unengaged for over 70% of their awake time (Parsons et al., 2004; Reid, Parsons, & Green, 2001).

Best practice guidelines for adults with I/DD living in RTCs have been outlined by the Health Information and Quality Authority (HIQA), initially established under the Health Act of 2007. Current HIQA (2013) guidelines advocate a person-centered approach that involves exercising choice and control in accordance with one's own preferences, and the delivery of high quality, safe, and effective care and supports to people with different abilities. In addition, the guidelines suggest that RTCs must have good leadership, skilled and experienced staff, and effective management of resources. The guidelines also promote integration and maintaining personal relationships with those in the community, the development of social networks, and responsive and consistent services based on high quality, evidence-based practice. Residential care staff should promote the positive behavioral and emotional wellbeing, as well as the health and development, of each person in the RTC (HIQA, 2013).

**Role of Direct Care Staff in RTCs**

Direct care staff are typically workers who provide person-to-person assistance to adults with I/DD who are in need of support in activities of daily living, household tasks, personal health and safety, community access and integration, relationships, work, and/or a variety of other activities (Bogenschutz, Hewitt, Nord, & Hepperlen, 2014). The direct support workforce has expanded at a faster rate than almost any other group within the U.S. labor force, and it is estimated that approximately 5 million people will be working in direct support positions by the year 2020 (Bogenschutz et al., 2014). The job of a direct support professional has changed since the 1970s when deinstitutionalization began, followed by the Americans with Disabilities Act in 1990 and the *Olmstead v. LC and EW* U.S. Supreme Court decision in 1999, which resulted in the right of people with I/DD to be integrated into the community to the greatest extent possible across all areas of their lives (e.g., in their work, learning and social activities) (Bogenshutz et al., 2014). The mean wage, however, for direct support professionals working in RTCs with adults with I/DD is $10.29 per hour, which is an annual salary of $21,403 (Payscale, Inc., 2016). As a result of the low salaries earned by these staff, most who apply for these jobs do not have credentials beyond a high school degree, and often do not have much knowledge or experience in psychology or behavioral interventions. Not surprisingly, this field has a high turnover rate, typically between 45% and 70% each year within a given organization (Bogenshutz et al., 2014; Larson et al., 2005). It is costly for each organization to replace a staff member who leaves, and the cost of turnover nationwide has been estimated to be at least $784 million dollars per year (Hewitt & Larson, 2007).

Although staff members are not well paid for the work that they do and often leave their positions, they play a critical role in the care and treatment of adults with I/DD. These staff are in

the homes of individuals with I/DD 24 hours per day, 7 days per week, where they are responsible for maintaining the safety of the individuals, helping them to better integrate into their communities, and engaging them in meaningful activities.

Direct care staff can have a tremendous influence on the lives of individuals with I/DD living in RTCs. In fact, research has indicated that staff behavior can impact individuals' inactivity, boredom, and feelings of isolation in residential care (Mansell et al., 2002; Rice & Rosen, 1991). Staff often control access to and use of various opportunities in the home and community, frequently determine the materials and activities that are available to the residents, and determine the degree of staff involvement in the activity (Mansell et al., 2002). In addition, individuals' behaviors are shaped by staff feedback and reinforcement; a simple activity can become meaningful depending on staff's approach to the activity and interaction with the individual (Mansell et al., 2002). Direct care staff are in a position of power in RTCs because they are able to reinforce engagement in meaningful activities, or allow for individuals to remain passive and unengaged, depending upon their interactions with them.

Individuals who have I/DD are at greater risk for psychopathology and maladjustment (Tenneji & Koot, 2007). As a result, they often exhibit many challenging behaviors in residential care settings. Challenging behaviors include physical aggression toward others (e.g., hitting, kicking, biting, pushing, or hair pulling), aggression toward objects (e.g., throwing or breaking objects), aggression toward self [also termed self-injurious behavior (SIB) which can include hitting self, head banging, or otherwise causing harm to one's own body], and verbal aggression (e.g., screaming, using offensive language directed toward another person) (Tsiouris, 2009). Individuals who engage in challenging behaviors are more likely than others to be congregated together on special wings or units in RTCs, which may increase staff turnover and

decrease the quality of care that those individuals receive (Mansell, Mcgill, & Emerson, 2001). In addition, research indicates that individuals who have I/DD and exhibit challenging behaviors such as aggression, destructive behavior, and SIB, are more likely to be victims of physical and verbal abuse (Strand, Benzein, & Saveman, 2004).

While it is clear that direct care staff are essential to providing effective and appropriate support to individuals with disabilities living in RTCs (Budiselik, Davies, Geba et al., 2011), there is minimal research on staff prevention and intervention strategies for adults who live in RTCs. Preliminary research has suggested that higher staff workloads (e.g., the ratio of staff to clients) and poorer staff mental health (e.g., degree of anxiety, depression, or burnout) are associated with an increased likelihood of staff using restrictive practices with individuals who exhibit challenging behaviors (Budiselik et al., 2011). The use of behavioral, interpersonal, environmental monitoring and management may help to reduce the use of restrictive practices (Budiselik et al., 2011). Frequently, behavior support plans are developed by psychologists, but these may not be understood or implemented correctly by the direct support staff who are responsible for implementing the treatment plans (Budiselik et al., 2011). As a result, individuals who have I/DD and exhibit challenging behaviors in RTCs are frequently treated with psychotropic medication (Beasley, 2004; Tsiouris, 2009). However, ongoing staff training and supervision for less restrictive interventions to address aggressive behavior is needed; in fact, the use of medication and physical restraints may be reduced by training and implementation of behavioral interventions (Miller, Hunt, & Georges, 2006). In one study, the use of physical restraints with adults with I/DD living in RTCs who exhibited aggressive behaviors was reduced by 59% following the implementation of behavioral interventions (Miller et al., 2006).

**Direct Care Staff Burnout**

A focus of recent research on staff who work with people with I/DD has centered around understanding the stress and psychological impact on these staff (Chung & Harding, 2009; Kozak, Kersten, Schillmoller, & Nienhaus, 2013). Although many jobs are associated with high levels of stress, the degree of stress can be intensified in work environments where there is constant interaction with individuals with I/DD who have a range of complex needs and who require a large degree of empathy from direct care staff (Kozak et al., 2013). Staff stress has been found to be associated with clients' challenging behavior; the more that direct care staff are exposed to severe challenging behaviors, the greater the risk that they will experience stress and that this will have an adverse impact on their mental health (Chung et al. 2009). Direct care staff can become overwhelmed by the emotional demands, and when they do not have the coping strategies or the organizational resources to manage those demands, the stress may lead to a greater impact on staff's overall functioning (Kozak et al., 2013). This continuous experience of emotional and interpersonal job-related stressors can result in burnout (Chung et al., 2009; Kozak et al., 2013; Skirrow & Hatton, 2007).

Staff burnout is correlated with reduced commitment to an organization, negative attitudes, and frequent absenteeism and turnover (Morse, Salyers, Rollins, Monroe-DeVita, & Pfahler, 2012). Burnout has been defined many ways, but most researchers utilize the definition developed by Maslach and colleagues (1993; 1996) that focuses on the components of emotional exhaustion, depersonalization, and increased self-efficacy (Ross et al., 2012). *Emotional exhaustion* refers to feelings of being depleted, spread thinly, and lacking energy (Morse et al., 2012). *Depersonalization* includes negative and cynical attitudes toward one's employment and sense of purpose at his or her job. *Negative self-efficacy*, or a reduced sense of personal

accomplishment, can include a negative perception of one's work or overall job effectiveness (Morse et al., 2012; Stalker & Harvey, 2002). Staff burnout is considered to be a job-related stress condition and sometimes referred to as a "work-related mental health impairment" (Awa, Plaumann, & Walter, 2010; Morse et al., 2012). Staff burnout has also been found to be correlated with depression and anxiety (Awa et al., 2010; Maslach et al., 2001; Morse et al., 2012).

With regard to RTCs, high levels of staff burnout have been found to be correlated with negative staff attitudes toward individuals in residential settings (Morse et al., 2012). This issue negatively shapes the quality of care that individuals with I/DD in RTCs receive, as staff play a critical role in the delivery of supports and services to these individuals (Hastings, 2010). Chung and Harding (2009) examined the construct of burnout in direct care staff who work with adults and children with I/DD and challenging behaviors in RTCs. The investigators assessed staff perceptions of residents' challenging behaviors, as well as staff burnout, and psychological wellbeing (Chung & Harding, 2009). Results indicated that staff perceptions of individuals' challenging behaviors predicted burnout and that working with individuals who frequently engaged in challenging behaviors significantly predicted emotional exhaustion in staff (Chung & Harding, 2009). Furthermore, the results showed that the more challenging the staff felt the individuals' behaviors were, the greater their emotional exhaustion and the less they felt a sense of personal accomplishment in their role of direct care staff (Chung & Harding, 2009).

Staff who work in RTCs with individuals with I/DD are often targets for violence from these individuals (Strand, Benzein, & Saveman, 2004). Employees who work with individuals with challenging behaviors, and thereby may be vulnerable to burnout, often have impaired emotional and physical health and a diminished sense of wellbeing. Although it is a prevalent

issue, there is currently little information in the literature about how to best address burnout with staff who work in the mental health field.  However, Morse et al. (2012) determined that the most effective programs to address staff burnout in the mental health field will need to be delivered across an extended period of time, rather than in a single day or brief period.  This seems to be consistent with the finding that staff burnout is chronic across time when no supports are provided to address it.  In addition, Morse et al. (2012) suggested that organization-level interventions may be exceptionally effective for addressing burnout; nonetheless, there are few existing controlled empirical studies in this area.

**Direct Care Staff Self-Efficacy**

Self-efficacy is a person's belief in his or her ability to succeed in particular situations (Bandura,1994).  According to Bandura (1993), self-efficacy beliefs have an influence on cognitive processes, which has an influence on motivation to behave, and ultimately influence behavior. For example, a person with high self-efficacy would anticipate success in a particular situation, especially a difficult one. However, a person with low self-efficacy would not believe in his/her own ability in a particular situation; rather, he or she would be likely to think of failure, which could lead to avoidance or escape from the situation (Bandura, 1997). Research has shown that self-efficacy has a strong influence on the outlook that a person has on his or her own capabilities and their possible success or failure in particular situations (Bandura, 2006; Bong, 2006).  Self-efficacy can have an impact on motivation, behavior, and achievement (Klassen & Chiu, 2010).  Further, an individual's sense of self-efficacy for given tasks can vary from one environment or situational context to another, and can change with gained experience (Kelm & McIntosh, 2011).  More specifically, the concept includes an individual's analysis of the task that

they are completing and its environmental context, as well as an assessment of his or her own competence in completing that task (Kelm & McIntosh, 2011).

An individual's sense of self-efficacy could include his/her belief about how well he/she feels he/she is achieving an identified purpose in his/her employment role (Reinke, Herman & Stormont, 2013). In fact, research indicates that low self-efficacy is one of the three components (with emotional exhaustion and depersonalization) of employee burnout; that is, when employees feel burned out, they often also experience feelings of low self-efficacy (Maslach et al., 2001; Morse et al. 2012; Paris & Hoge, 2010; Reinke, Herman & Stormont, 2013). In education, previous research has suggested that teachers with greater levels of stress (e.g., negative emotions resulting from work) have lower ratings of self-efficacy (Betoret, 2006; Schwarzer & Hallum, 2008; Skaalvik & Skaalvik, 2007). Self-efficacy has also been shown to be correlated with overall job satisfaction and job performance (Judge & Bono, 2001).

**Positive Behavior Interventions and Supports (PBIS)**

Although there have not been many evidence-based prevention or intervention strategies developed for use with adults with I/DD, there are many that have been found to be effective with children who have disabilities and who engage in a range of challenging behaviors. One system-wide program that has been implemented in a variety of settings and that was found to be successful with groups of students who have diverse needs is Positive Behavior Interventions and Supports (PBIS) (Burden, 2006; Reinke et al., 2013; Ross, Romer, & Horner, 2012; Scheuermann & Hall, 2008; Simonsen et al. 2008). PBIS is a system-wide behavior intervention that has been implemented successfully with children and adolescents in school settings and some alternative settings (Reinke et al., 2013). PBIS aims to support and reinforce prosocial behaviors and decrease disruptive behaviors using a three-tiered model of support services

(Reinke et al., 2013). This three-tiered model includes universal interventions in Tier 1, which are those that can be implemented for all individuals, across all settings, and serve to be preventive and proactive in addressing behavior problems (Reinke et al., 2013). Tier 2 entails implementing interventions specifically designed for individuals who are at-risk of behavior problems; these interventions are designed to have high efficiency and to receive a rapid response from the individuals with whom they are implemented (Reinke et al., 2013). Tier 3 interventions are for a smaller group of individuals, based on the results of assessments (e.g., a functional behavior assessment) (Positive Behavioral Interventions & Supports, 2015). PBIS is distinct from Response to Intervention which involves a three-tiered model focused on academic instruction and progress monitoring to determine whether students require more intensive instructional interventions to make adequate academic progress (Fuchs & Deshler, 2007).

PBIS includes creating effective rules that are developmentally appropriate for the individuals to whom they pertain, are specific and observable, are stated positively, and are easy to understand and enforce (Burden, 2006; Ross et al., 2012; Scheuermann & Hall, 2008). Behavioral expectations are posted in a place where they are visible and comprehended by the individuals who are expected to follow them. In the school setting, PBIS includes effective instruction that engages students, is rigorous, relevant and delivered at a pace appropriate for the given content (Simonsen et al., 2008). In addition, students are provided with opportunities to respond to academic questions at a pace that maximizes their learning and maintains their engagement (Simonsen et al., 2008). Reinforcement of appropriate behavior is a critical component of PBIS; Reinke, Lewis-Palmer, and Martin (2007) found that teachers who delivered more praise typically experienced fewer off-task and disruptive behaviors and increased appropriate behavior among students. Specifically acknowledging appropriate behavior and

interacting with students positively, such as by providing praise, helped to positively impact

students' behavior (Kalis, Vannest, & Parker, 2007; Stormont & Reinke, 2009). Moreover, PBIS

entails responding to behavioral violations with planned, consistent and explicit responses that

direct individuals' attention to the specific rule that was violated and may result in changes in the

environment or instruction (Stormont et al., 2008).

More than 25,000 schools in the U.S. currently implement School-wide PBIS (SW-PBIS)

(Positive Behavioral Interventions and Supports, 2018). SW-PBIS is effective in reducing

problem behaviors, and increasing academic performance and socially appropriate behaviors

(Bradshaw, Mitchell, & Leaf, 2010; Horner et al., 2009; Reinke et al., 2013). SW-PBIS

improves teaming structures, opportunities for collaboration, and positive interactions between

and among adults and students (Ross et al., 2012). Implementing SW-PBIS increases the use of

evidence-based practices such as the teaching of expectations and the delivery of positive

reinforcement for desired behaviors (Ross et al., 2012).

Many studies that examined the impact of PBIS implemented in schools on teachers'

sense of self-efficacy (Kelm & McIntosh, 2012; Morse et al., 2012; Ross et al., 2012) measured

self-efficacy among teachers using the Teacher's Sense of Self-Efficacy Scale (Tschannen-

Moran and Woolfolk Hoy, 2001). These studies found that teachers' sense of self-efficacy was

significantly greater among those who were trained to implement PBIS, when compared to

teachers who were not trained to implement PBIS in their school (Kelm & McIntosh, 2012;

Morse et al., 2012; Ross et al., 2012). Therefore, examining the self-efficacy of staff members

working in a RTC who are being trained to implement PBIS could provide valuable information

about whether PBIS leads to greater self-efficacy among staff members when compared to a

group of staff members who have not been trained to implement PBIS. There is not currently a

measure of self-efficacy specifically for staff members working in a RTC; thus, it would be beneficial to modify the *TSES* and examine its dimensionality when administered to this population, instead of teachers. Gathering information about staff members' self-efficacy, particularly those who work with individuals with IDD in a RTC, could help to identify employees who are in need of coaching or additional training.  In addition, information regarding self-efficacy could help identify staff members who may be using negative practices as a result of low self-efficacy for additional training and support (Reinke et al., 2013).

**PBIS in Alternative Settings**

PBIS has been shown to be effective for thousands of students with various problem behaviors in schools across the U.S., and more studies have begun to investigate the implementation of PBIS in alternative education and juvenile justice settings.  In one of these studies, McDaniel, Jolivette, and Ennis (2012) conducted focus groups in residential and juvenile justice facilities, one in an urban alternative education setting and one in a rural area.  Both settings served grades K through 12, and a total of 410 to 540 students attended each facility. Focus groups were held in each setting, and each session was recorded and transcribed.  Two researchers then independently evaluated each focus group transcript for themes, with 6-14 themes initially identified across the programs to determine interrater reliability.  The researchers next compared the independently identified themes and developed one set of themes for focus group sessions related to systems, data and practices.  McDaniel et al. (2012) found that (a) challenging behaviors decreased following the implementation of PBIS, as indicated by the number of discipline referrals in an alternative education setting, (b) the frequency of appropriate behaviors increased, and (c) staff perceived PBIS as valuable in improving the environment in the alternative education setting in which they worked.  Similar positive outcomes have been

found in several studies in which PBIS has been implemented with adolescents in juvenile justice centers (McDaniel et al., 2012; Nelson et al., 2008; Nelson, Sprague, Jolivette, Smith, & Tobin, 2009; Nelson et al., 2010).

George, George, Kern, and Fogt (2013) conducted a longitudinal study demonstrating how SWPBIS implementation continues to result in positive outcomes for children and adolescents with Emotional and Behavior Disorders (EBD). They implemented SWPBIS at the Centennial School in Bethlehem, Pennsylvania, which serves children and adolescents with EBD, for 15 years. Their model entailed using five school-wide behavioral expectations including: Be there, be ready, be respectful, be responsible, provide others with personal space, and follow directions (George et al., 2013). In addition, they implemented self-management interventions with students, utilized a problem-solving instruction model with problem identification, prevention, developing an action plan, and requiring commitment to that plan, and developed school-wide behavioral expectations for faculty (George et al., 2013). The implementation of SWPBIS was effective in substantially decreasing the number of physical restraints, the number of office discipline referrals for students, and the amount of student suspensions (George et al., 2013). The investigators found that decreases in the number of physical restraints and suspensions were sustained across 12 years in this alternative education setting for students with EBD (George et al., 2013).

The only available literature that describes the implementation of PBIS with adults involves individuals who have traumatic brain injury (TBI). Ylvisaker, Turkstra, Oehlo, Yorkston, Kennedy, et al. (2007) reviewed this PBIS literature and found a variety of positive outcomes (e.g., decreased specific behaviors such as physical aggression, self-injury, and verbal aggression; delivered interventions in natural settings such as home, work, and community;

increased the frequency of appropriate behaviors). Although PBIS has been shown to be effective with adults with TBI, and children and adolescents who have I/DD in school and alternative settings, the PBIS framework has not yet been investigated in residential settings with adults who have I/DD and challenging behaviors. The residential setting provides an environment that has similarities to a school and allows for the implementation of PBIS. Similar to the classroom environment, in RTCs, staff members are assigned to work with a group of individuals in a specific environment. Each home provides a space for the environmental modifications of PBIS, such as the posting of behavioral expectations in the home where individuals can view them, as well as the posting of a daily schedule. Direct care staff can be trained to implement PBIS strategies including behavioral lesson plans, similar to methods used by teachers in schools. In addition, direct care staff can be trained to praise individuals for desired behaviors and to utilize behavior management strategies, such as home-wide rewards for meeting behavioral expectations over time. This strategy is also commonly implemented in the classroom with class-wide rewards for students' behavior. Overall, the implementation of PBIS in an RTC would involve training direct care staff in how to teach individuals with I/DD behavioral expectations and skills for engaging in socially appropriate behaviors, as well as in how to monitor individuals' behaviors to determine progress across time.

**Statement of Purpose**

The purpose of the current investigation was to add to the PBIS literature by investigating the impact of implementing PBIS in an RTC for adults with I/DD on staff self-efficacy and burnout. Additionally, the study investigated the psychometric properties of a well-known self-efficacy scale that was used with direct care staff in an RTC. More specifically, the following research questions were addressed:

(1) What is the factor structure of a modified version of the *Teacher's Sense of Efficacy Scale* when administered to direct care staff in an RTC?  It was hypothesized that the factor loadings for the individual items would be significant and similar in number to the three factors (e.g., Efficacy in Engagement, Efficacy in Instructional Strategies, and Efficacy in Classroom Management) found by previous investigators who used the measure with samples of teachers (Guadagnoli & Verlicer, 1988; McDaniel et al. 2012; Simonsen, Britton & Young, 2010; Tschannen-Moran & Woolfolk Hoy, 2001; Ylvisaker et al. 2007).

(2) What is the impact of implementing PBIS with adults with I/DD in an RTC on staff self-efficacy, as measured by a modified version of the *Teacher's Sense of Efficacy Scale*? It was hypothesized that staff self-efficacy in instructional practices, individual engagement, and home management, would improve for staff who were trained to implement PBIS when compared to staff who were not trained to implement PBIS (Kelm & McIntosh, 2012; Morse, Salyers, Rollins et al. 2012; Ross, Romer & Horner, 2012).

(3) What is the impact of implementing PBIS with adults with I/DD in a RTC on staff burnout, as measured by the *Maslach Burnout Inventory*? It was hypothesized that staff burnout would decrease for staff who were trained to implement PBIS when compared to staff who were not trained to implement PBIS (Kelm & McIntosh, 2012; Morse, Salyers, Rollins, et al., 2012; Ross, Romer, & Horner, 2012).

# CHAPTER 2

## Literature Review

As most studies on PBIS have been conducted in school settings, this chapter first reviews the impact of School-wide PBIS (SW-PBIS) on students and teachers. Next, the literature examining the outcomes of implementing PBIS in alternative settings, such as alternative education placements and in juvenile justice centers, is reviewed. Finally, a summary of the literature and its current limitations are discussed.

**Outcomes of SW-PBIS on Students and Teachers**

*Outcomes of SW-PBIS on students.* SW-PBIS is a systems-level program designed to prevent the early-onset of behavior problems and promote positive adjustment among children (Bradshaw et al. 2012). Randomized controlled trials involving SW-PBIS have indicated that students had significant improvements in academic achievement and discipline data following exposure to SW-PBIS (Bradshaw, Koth, Thornton, & Leaf, 2009; Bradshaw, Mitchell, & Leaf, 2010; Horner, Sugai, Smolkowski, et al. 2009). In the study by Bradshaw et al. (2012), the data from a 4-year randomized controlled trial on SW-PBIS was used to hypothesize that children in schools implementing SW-PBIS would have better teacher-rated emotion regulation and prosocial behaviors, and have fewer concentration problems and disruptive behaviors than in non-PBIS schools. In addition, they hypothesized that children in schools implementing SW-PBIS would be less likely to be referred to the office or suspended (Bradshaw et al. 2012) than those students in traditional schools. Results indicated significant effects of SW-PBIS on students' behavior, concentration in the classroom, social-emotional functioning, and prosocial behavior (Bradshaw et al. 2012). Students who attended schools where SW-PBIS was

implemented were 33% less likely to have an office discipline referral than students who attended schools without SW-PBIS (Bradshaw et al., 2012).

*Teacher self-efficacy.* Several studies have evaluated the effects of SW-PBIS on teacher self-efficacy. For example, Ross, Romer, and Horner (2012) administered the *Teacher's Sense of Efficacy Scale* (Tschannen-Moran & Hoy, 2001), a 24-item questionnaire that measures teacher self-efficacy with a 9-point Likert scale for responses to each item (1-Nothing, 3-Very little, 5-Some influence, 7-Quite a bit, and 9-A great deal), was administered to 184 teachers in 40 elementary schools to compare teachers' sense of self-efficacy in schools with SW-PBIS to those without PBIS. They defined teachers' self-efficacy as teachers' self-judgments about their ability to affect student outcomes, especially for those students who appear unmotivated or who are difficult to teach.

Results of this study revealed that teachers in schools implementing SW-PBIS with fidelity had significantly higher levels of teacher self-efficacy. In addition, an interaction effect was found in that teachers benefited most from SW-PBIS implementation in schools that had students with low socioeconomic status. Implementing SW-PBIS also improved teaming structures, increased the number of opportunities for collaboration, and enhanced teachers' positive interactions with adults and students. Furthermore, the number of evidenced-based practices increased such as the teaching of behavioral expectations and the delivery of positive reinforcement (Ross et al., 2012).

Results also indicated that teachers' sense of self-efficacy was positively related to teachers' instructional behavior and student outcomes. The survey revealed that teacher burnout was associated with frequent absences, increased health care costs, poor job performance, and mental health claims. Teachers who participated in this study who indicated that they were

burned out had less tolerance for behavior problems and more negative relationships with their students (Ross et al., 2012).

In another investigation, Klassen and Chiu (2010) examined self-efficacy and job satisfaction among a sample of 1,430 elementary, middle, and high school teachers in Western Canada who worked in urban, suburban, and rural schools. The *Teacher's Sense of Efficacy Scale* (Tschannen-Moran & Hoy, 2001) was administered to all the participants. Results indicated that teachers' years of experience were linked to their sense of instructional self-efficacy. The instructional strategies self-efficacy of teachers with 23 years of experience averaged 88% greater than that of new teachers (Klassen & Chiu, 2010). When their classroom stress exceeded the mean by 10%, teachers averaged 3% less instructional strategies self-efficacy (Klassen & Chiu, 2010). Teachers' self-efficacy about their ability to engage students was linked to the number of years that they had been teaching and the type of school in which they worked. The student engagement self-efficacy of teachers with 23 years of experience averaged 68% greater than that of new teachers (Klassen & Chiu, 2010). In addition, the grade level that they taught and the degree of classroom stress that they experienced were also linked to their self-efficacy in the area of student engagement. The overall amount of stress that teachers experienced and their sense of self-efficacy were linked to their degree of job satisfaction. Teachers with 10% greater overall teaching stress averaged 2% less job satisfaction (Klassen & Chiu, 2010). Teachers who reported higher levels of classroom stress due to students' challenging behaviors reported lower levels of self-efficacy. Furthermore, Klassen and Chiu (2010) found that teachers' workload stress accounted for 31% of the variance in teachers' overall teaching stress.

Another investigation by Kelm and McIntosh (2012) examined the effects of SW-PBIS on the self-efficacy ratings of 62 teachers; 22 from schools with SW-PBIS and 40 from non-SW-PBIS schools.  The participants had been teaching an average of 13.9 years.  The authors examined the teacher-to-student ratio at each school, the number of students of aboriginal heritage, the number of students who spoke English as a second language, the number of students receiving Special Education services, and teacher ratings on the *Teacher's Sense of Efficacy Scale* (Tschannen-Moran & Hoy, 2001).  Results indicated that teachers at SW-PBIS schools reported significantly higher levels of teacher self-efficacy than teachers who worked at schools that had not implemented PBIS. There was an effect size of .80, indicating that the difference between ratings on the *Teachers' Sense of Self-Efficacy Scale* between teachers working at schools with SW-PBS and those at non-SW-PBS schools was large ($d = .80$).

Finally, Kelm and McIntosh (2012) found that a positive school culture and a shared sense of purpose among staff were related to higher feelings of teacher self-efficacy.  Teachers' self-efficacy was greater when they perceived themselves as more capable to personally influence student outcomes.  While the Kelm and McIntosh (2012) and other studies found that implementing SW-PBIS can have a positive impact on the teachers who participate in its implementation, future studies should examine the impact of PBIS implementation on staff in alternative settings, to draw further conclusions.  In addition, the psychometric properties of this self-efficacy measure when used with direct care staff members outside of a school setting should be examined. This would provide researchers and practitioners with a greater understanding of how to interpret the information obtained about self-efficacy in alternative settings.

**PBIS Implementation in Alternative Settings**

*Components of PBIS in alternative settings.* According to a survey by Lehr, Tan, and Ysseldyke (2009), 2% of all students in the U.S. are served in alternative settings. Recent research has begun investigating the impact of PBIS strategies in alternative education placements, juvenile justice centers, and some residential facilities. However, as not all of the components of PBIS can be exactly implemented in an alternative setting, these studies typically modify PBIS to accommodate the environment of the alternative setting. Simonsen, Jeffrey-Pearsall, Sugai, and McCurdy (2011) identified the non-classroom supports components of SW-PBIS that can be used in the implementation of the PBIS model in alternative settings. These include actively supervising students, direct teaching of typical setting-specific routines and behavioral expectations, using reminders and pre-corrections frequently, and providing frequent and specific positive reinforcement. Simonsen and colleagues (2011) recommended that alternative settings state observable, measurable, and specific annual setting-wide outcomes prior to implementing PBIS. In their review of the effects of PBIS in alternative settings, they found a variety of positive outcomes including: overall increases in prosocial or appropriate behavior; decreases in aggressive, disruptive, or inappropriate behavior; increases in the percentage of students responding to behavioral support; increases in the number of individuals meeting individualized and therapeutic goals; and increases in the number of individuals returning to a less restrictive environment.

Jolivette, McDaniel, Sprague, Swain-Bradway, and Ennis (2013) described how to embed the PBIS framework within alternative education settings using primary, secondary, and tertiary tier interventions. The authors described primary prevention as approaches that prevent problems from occurring, and secondary prevention as addressing the problems that exist, but are

not yet chronic or severe when they occur.  Tertiary prevention included the most effective individualized intervention approaches that can be implemented for the behaviors of individuals who engage in behaviors that put themselves or others at risk of being harmed (e.g., severe physical aggression).  Primary and secondary interventions are implemented prior to tertiary interventions, in effort to preserve resources and to provide screening and assessment to match an individual's needs with the most effective resources and interventions (Jolivette et al., 2013).

Jolivette et al. (2013) also explained the importance of the team in implementing PBIS in an alternative setting. The team can have several benefits such as providing active voices from various disciplines (e.g., education, mental health, social work, recreation, treatment services), sharing decision-making responsibilities, and ongoing data monitoring of student progress and staff well-being.  Further, it is essential for the team to focus on a common goal, maintain active communication among its members, set new goals, make decisions once all group members have agreed upon the best approach, and become aware of the structure of the organization as well as how to gain support for their decisions (Jolivette et al., 2013).

The authors noted that implementing PBIS in alternative settings entails a collaboration of data (e.g., supporting decision making), systems (e.g., supporting staff behavior), and practices (e.g., supporting student behavior).  Data include the information gathered to make decisions about how to meet student and staff needs.  This can include examining student progress and outcomes, looking at the organization's fidelity of practices, and assessing staff satisfaction and job performance (Jolivette et al., 2013).  Student data sources can include discipline referrals, staff anecdotal records, school-wide or class-wide factors such as attendance, time spent receiving direct instruction, direct observation of student behavior, and conducting focus groups with students.  Staff data sources may include surveys of job satisfaction or

feedback on current practices, direct observations of staff implementing practices, and focus groups or informal discussions with staff members about students' challenging behaviors.

There is little existing literature on implementing the PBIS framework in alternative settings. Research is needed to determine which PBIS strategies may be most effectively integrated into alternative settings. In addition, there are currently no implementation or evaluation tools designed to be used in alternative settings. Thus, most of the studies in alternative settings to date have used modified measures, examiner-constructed questionnaires and observations to indicate that PBIS is correlated with improvements in behavior (Jolivette & Nelson, 2010). Moreover, the perceptions of the target individuals and staff members who are implementing PBIS in an alternative setting ought to be studied so that feedback from those individuals can be incorporated to potentially increase the buy-in of those individuals and to improve the intervention implementation within other alternative settings.

*Outcomes of PBIS in alternative settings.* Jolivette, Patterson, Swoszowski, McDaniel, Kennedy, and Ennis (2014) implemented SW-PBIS in a residential school for students who have emotional/behavioral disorders. Staff members in the residential school were trained to implement SW-PBIS across multiple years and intensive external supports were provided for three 6-month time periods. The external supports were eventually removed entirely and follow-up focus groups of school staff members were then conducted. During the implementation of SW-PBIS, progress monitoring data indicated that student behavior improved, aggressive behavior decreased, and the overall number of discipline referrals decreased. Students in the residential school shared that SW-PBIS helped them and some of them were able to transition to less restrictive environments (Jolivette et al., 2014).

Following the implementation of SW-PBIS, a total of nine school staff members participated in lunchtime focus groups and were asked questions such as, "What has been your overall experience and/or impressions of the SW-PBIS plan?" "Are there any changes needed to the plan to make it even more effective?," "Have there been or are there any issues with implementation of SW-PBIS?," "Do you think SW-PBIS is meeting the needs of the youth?," and "Is SW-PBIS worthy of your expertise, time and effort?" Analyses were conducted on the data obtained from the focus groups using the Constant Comparative Method (Glaser & Strauss, 1967). Themes drawn from the focus group data were that SW-PBIS promoted positive behavior management, it was proactive in nature, and teachers felt that they were able to manage their classes with SW-PBIS without using punitive consequences or punishment. Additionally, implementing SW-PBIS gave children incentives to work toward and reduced the occurrence of problem behaviors. Staff shared that they felt the barriers to implementation of SW-PBIS included consistency and the reinforcement system, and that everyone must be on the same page with the goal of SW-PBIS and what they want to accomplish by implementing it. Overall, these authors concluded that SW-PBIS can successfully be implemented in an alternative educational setting for students with emotional/behavioral difficulties (Jolivette et al., 2014).

McDaniel, Jolivette, and Ennis (2012) investigated the barriers and facilitators to integrating SW-PBIS in alternative education settings that had existing behavior management systems. The study included a total of 18 staff members across two residential and juvenile justice facilities - one urban alternative education setting and one in a rural area. Both settings served children in grades K through 12, with a total of 410-540 students in each setting. The teacher-to-student ratio was 2:10 in each facility (McDaniel et al., 2012). Focus groups were held in each setting, and every session was recorded and transcribed. Two researchers

independently evaluated each focus group transcript for themes, with 6-14 themes initially identified across the programs to determine inter-rater reliability. The raters then compared the independently identified themes and developed one set of themes for focus group sessions related to systems, data, and practices.

Overall, results indicated that there was difficulty with sharing relevant data across the school staff and a lack of implementing SW-PBIS with fidelity in one of the settings, which led to its discontinuation (e.g., behavioral expectations were not posted, staff were not supported in the implementation of SW-PBIS). However, the second alternative setting worked together as a team to collect, analyze, and use data to make team-based decisions, and created their own reinforcement systems. One of the reinforcement systems focused on school-wide behavioral expectations and one focused on individual behavioral objectives. Every staff member reported that they felt they played an important role in the process of implementing SW-PBIS, which contributed to their continued involvement. McDaniel et al. (2012) outlined the essential elements of a successful SW-PBIS implementation including: school-wide buy-in; gaining and maintaining administrative support; and preparing for increased levels of demand on staff members (e.g., providing intensive support to staff members who are beginning to implement SW-PBIS). In addition, they highlighted that integrating SW-PBIS into an existing behavior management system can be extremely challenging; it may be more beneficial to adapt and/or implement only select SW-PBIS strategies that fit well within a setting's culture and current behavior management system (McDaniel et al., 2012).

Simonsen, Britton, and Young (2010) examined the outcomes of implementing SW-PBIS in an alternative school setting that served students with a range of disabilities (i.e., Downs Syndrome, Intellectual Disability, Visual Impairment, Emotional Disturbance, Traumatic Brain

Injury, Other Health Impairment and Autism Spectrum Disorders). The staff who were trained to implement positive behavior support strategies ranged in age, education, and experience (number of years in the field). The study examined student and staff behavior from baseline through the intervention phase in an AB design across 3 years. Data within the facility were taken once per month and the rate of serious incidents was calculated by dividing the total number of incidents that required physical management in a month by the number of school days in the month. The number of students responding to primary, secondary, and tertiary systems was reported monthly, along with the percentage of students with 0, 1-5, or 6 or more incident reports per month in which physical aggression was exhibited. The number of student opportunities to respond, the amount of positive feedback given by staff members, and the amount of corrective feedback provided by staff members to the students were also recorded.

The staff was able to maintain high rates of providing students with opportunities to respond and giving positive feedback, and low rates of negative or corrective statements. The number of serious behavioral incidents (those that included physical aggression and physical management strategies) and elopements decreased in frequency with the implementation of positive behavior support strategies. These authors concluded that the implementation of SW-PBIS in an alternative setting with students who have diverse and complex needs was correlated with an increase in positive interactions between staff and students, and a decrease in physical aggression and elopement exhibited by students (Simonsen et al., 2010).

Flower, McDaniel, and Jolivette (2011) reviewed the research literature examining the use of PBIS in alternative settings, primarily those serving young adults with emotional/behavioral disorders and other disabilities. The goal of implementing PBIS in an alternative setting is to prevent and respond to challenging behavior in an environment where

there is structure and routine with reinforcement delivered contingent upon student performance of desired behaviors (Flower, McDaniel, & Jolivette, 2011). The authors concluded that PBIS has been demonstrated to be effective within an alternative education setting, but is not used frequently enough (Flower et al. 2011). Few experimental studies have been conducted to demonstrate the effectiveness of PBIS within alternative settings (Flower et al., 2011).

Ylvisaker, Turkstra, Cohelo, Yorkston, Kennedy, Sohlberg, and Avery (2007) reviewed effective, evidence-based treatments for adults and children who have traumatic brain injuries. A total of 65 studies were reviewed; 52 of the studies were implemented in acute rehabilitation settings (e.g., patients received rehabilitation services there for three to six months), and the other studies were conducted in family homes, medical day programs, outpatient clinics, community school classrooms, special school classrooms or vocational training settings. Most of the studies utilized applied behavior analysis or PBIS, and 17 of the studies implemented only PBIS techniques. Those studies involving PBIS for individuals with TBI focused on utilizing internal control of behavior and behavior change by manipulating antecedents, conducting functional behavior assessments, targeting specific behaviors in natural settings, and providing interventions in natural settings (e.g., at home, work, in the community and with primary providers for those individuals). Furthermore, they highlighted the components of effective PBIS studies including: proactive adjustment of tasks and expectations; meaningful and well-understood daily routines; the assurance of an adequate amount of choice and control for the individuals with TBI; engagement in personally meaningful activities; engagement with desired people; errorless learning with adequate antecedent support prompts; planned assurance of positive, supportive, communication; and proactive development of positive communication alternatives to negative behavior.

Based on the findings from previous studies, Sprague, Scheuermann, Wang, Nelson, Jolivette, and Vincent (2013) compiled evidence-based guidelines specifically for adopting and adapting PBIS models in secure juvenile justice settings.  The authors focused on altering PBIS to be implemented with adolescents who have cognitive disabilities in juvenile justice centers. They highlighted the importance of facility-wide buy in of PBIS, implementing systematic behavior teaching, positive reinforcement systems, addressing power struggles with staff members, and how to more effectively de-escalate challenging behaviors (e.g., aggression) exhibited by juveniles in correctional facilities. These authors recommended training and evaluation for determining how well these centers utilize functional behavior assessment and implement facility-wide behavioral supports.  Furthermore, they recommended that future research assess the long-term impact on behavior change among the juveniles in the facility, both for the remainder of their time in the facility as well as when they enter a less restrictive setting or return to their communities.  No studies have investigated the long-term effects of PBIS implemented in a juvenile justice or residential setting (Sprague et al., 2013).

Johnson, Wang, Gilinsky, He, Carpenter, Nelson, and Scheuermann (2013) examined the impact of PBIS on both behavior and academic achievement in an all-male, secure juvenile justice facility in Texas.  Texas enacted a law that required the Texas Youth Commission to initiate a plan to improve behavior of juveniles in all of its secure facilities.  Specifically, the legislation required that the facility adopt system-wide classroom and individual positive behavior supports that included a variety of prevention and intervention strategies.  The behavior strategies were implemented across 10 facilities and the Johnson et al. (2013) study focuses on one of them.

In this facility, behavior incidents were coded into three categories including incidents without a referral to security, incidents with a referral to security but without an admission to security, and a behavior incident report with a referral and admission to security. School attendance and the number of certificates earned for career and technical education students were used to measure the impact of PBIS. The median age at admission of the juveniles in this facility was 16 years, the median reading achievement level was 4th grade, 30% of the students were eligible for special education services based on a diagnosed Learning Disability, and 47.6% were eligible for special education services based on an Emotional Disturbance diagnosis. A PBIS team of staff members was trained in three cohorts and the fidelity of staff training was measured at 83%. A head coach was selected to guide the implementation of PBIS and fidelity was measured using the *Facility Evaluation Tool*, an examiner-constructed tool to measure the fidelity with which PBIS was implemented in the alternative setting, with an overall score of >80% indicating acceptable fidelity.

The investigators looked at 1 year of baseline data (prior to the implementation of PBIS) and 1 year of data during SW-PBIS implementation. They found that there were reductions in the number of behavioral incidents (46%), 41% of the incidents did not entail a security referral, 56% of the incidents involved a security referral but no admission, and 35% of incidents that entailed security referrals with an admission. In addition, there were 21% increases in average daily school attendance across students and an increase of 131 certifications earned by students in the vocational programs. Johnson et al. (2013) attributed these changes to the implementation of PBIS because there was no change in facility leadership during that time, it was not due to regression to the mean because that could not explain the changes in attendance and academic achievement, and changes were not related to the other treatment modality sometimes used prior

to the implementation of PBIS because behavior of the juveniles worsened when it was initially implemented.

**Summary and Limitations**

Most research has focused on implementation of PBIS in public school settings. These studies have shown that PBIS strategies result in decreases in students' challenging behaviors and increases in appropriate, prosocial behaviors. In addition, results indicate that implementing PBIS improves teaming structures in schools, increases in the number of opportunities for collaboration, and increases positive interactions with adults and students (Ross et al., 2012). Further, studies indicated that, when compared to teachers who worked in schools that did not implement PBIS, teachers in PBIS schools have higher self-efficacy and lower levels of burnout (Ross et al., 2012; McIntosh, 2012). Stress levels have also been found to be linked to self-efficacy, such that teachers who experience more stress and work with students who exhibit more challenging behaviors, also have lower self-efficacy (Klassen & Chiu, 2010).

Although PBIS has been found to be effective when implemented with children and adolescents across settings, there are no available studies that investigated its effectiveness in residential settings for adults with I/DD. Although Ylvisaker et al. (2007) reviewed the PBIS literature for children and adults with TBI, these individuals were not living in residential settings. In addition, there was no information provided in these studies regarding the precise methods and fidelity with which PBIS was implemented. Therefore, there is a need to examine the impact of implementing PBIS in RTCs for adults with I/DD. Miller et al. (2006) argued that there is not enough information in the literature about less restrictive evidence-based interventions such as those taught in the PBIS model. In addition, although the opinions of staff members have been studied in some PBIS investigations, the specific concepts of self-efficacy

and staff burnout have not yet been examined among staff members in alternative settings. Examining staff self-efficacy and burnout would add to the existing literature to determine the impact of PBIS on these staff and the degree of burnout they are experiencing. The most widely-used measure of self-efficacy, the *Teacher's Sense of Efficacy Scale* (Tschannen-Moran & Hoy, 2001), has not yet been examined when used with direct care staff members in an RTC. Learning more about the psychometric properties of the self-efficacy scale when used with direct care staff members would indicate potential future directions for self-efficacy research.

# CHAPTER 3

## Method

### Participants and Settings

*Setting.* This study was conducted in an RTC that serves over 300 adults with I/DD and various other disabilities (e.g., Autism, traumatic brain injuries, mental health issues, etc.). The individuals served range in age from 30 to 60 years old and live in residences across the suburbs of a large city in the northeast region of the U.S. While most of the homes are located throughout the suburbs, some are situated on a suburban campus clustered together, to better serve the medical and behavioral needs of each individual. All residents have a multidisciplinary treatment team that includes direct care staff, a home supervisor, a clinician, a nurse, and a program specialist. A total of 6-10 staff members work in each residence. Staff responsibilities include cleaning the individuals' home, driving the individuals to day programs, social activities in the community, and/or grocery stores or other errands, maintaining the safety of all individuals, and monitoring each person's target behavior identified by the individual's clinician. In addition to diagnoses of I/DD, many of the individuals served take psychotropic medication to treat symptoms of mental health disorders such as challenging behaviors. Challenging behaviors include physical aggression toward staff and peers, SIB, swallowing food that is not edible, and eloping from the residence. Many also have limited adaptive behavior skills and need assistance from staff with activities of daily living (e.g., dressing, tooth brushing, bathing, etc.). The RTC does not use restrictive techniques such as mechanical restraints or chemical restraints (i.e., administering medication to individuals in effort to sedate them). The RTC began moving toward a PBIS model of service delivery in 2014 and, at the time of the study, had implemented PBIS in

eight homes.  Thus, the current study evaluated the impact of the existing, ongoing implementation of PBIS.

*Participants.* A group of 70 staff, ranging in age from 35 to 50 years old, who worked in homes within the RTC participated in the study. All staff completed a 2-week, 80-hour group training at the start of their employment. The training curriculum included procedures for keeping the individuals and their homes safe in various situations, as well as trainings about the history of people with I/DD, an overview of challenging behaviors, and an activity and discussion about how to be empathetic toward individuals with I/DD. In addition, staff also completed several online training modules, and met with the residence's clinician to be trained on the behavioral support plans of each individual with whom the staff member would be working. A total of 90% were from Africa and immigrated to the U.S. during their childhood or early adulthood, with another 8% self-identified as African American, and 2% self-identified as Caucasian.  Most earned low wages for working 40 hours per week, but were offered the opportunity to work additional shifts each week to earn overtime hours (1.5 times pay rate). Therefore, many staff worked more than 40 hours per week (i.e., average 56 hours per week). Individual-to-staff ratios varied depending upon each individual's needs, from a 6:1 ratio for those who needed less support, to a 1:1 ratio for individuals with more intensive support needs.

One group of 35 staff that received only traditional RTC training was recruited from a total possible pool of 30 homes throughout the agency. Staff were eligible to participate if they had successfully completed their 90-day probationary period, indicating there were no concerns about their work performance during the first 90 days of their employment.  Specifically, once IRB approval was received from both the university and the RTC, the investigator visited each home to explain the study and offer a consent form to each staff member individually.  Staff

were provided a rationale for the study, a description of the measures they would be asked to complete, and were assured that this was not a responsibility of their employment. Once staff reviewed the consent letter and had an opportunity to discuss the study and its potential risks and benefits with the investigator, those who chose to participate were asked to submit the completed self-efficacy and burnout measures to the investigator's mailbox within one week. The investigator continued this procedure until 35 staff had completed both measures.

Another group of 35 staff who, in addition to receiving the traditional RTC training, had also been trained in PBIS and worked in one of the eight homes where PBIS was being implemented participated in the study. The homes that received PBIS training had been pre-selected by the Clinical Director and the Executive Director of the RTC based on a higher number of physical restraints and challenging behaviors occurring in those homes each month. Behavior Analysts who worked with the individuals with I/DD in those homes also made referrals to the Clinical Director and the Executive Director of the RTC based on their observations of challenging behaviors, as well as staff's ability to implement prevention and intervention strategies with those individuals. Additional eligibility criteria for participation in this study included: (a) successfully engaging 80% of the individuals with I//DD in age-appropriate activities during an observation by supervisory personnel as determined by the Measure of Active Engagement by Staff form (see Appendix A; Parsons & Reid, 1993); (b) implementing a behavioral lesson plan with 80% fidelity; and (c) successfully completing their 90-day probationary period, indicating that there were no concerns about their work performance during the first 90 days of their employment. The investigator visited each of the eight PBIS homes, recruited staff, and collected data in a similar manner as described above.

**Dependent Measures**

*Self-Efficacy.* Each staff participant was asked to complete the self-report version of a modified version of the *Teacher Sense of Efficacy Scale* (*TSES*; Tschannen-Moran & Woolfolk Hoy, 2001). The scale was modified so that the wording of each item was appropriate for an RTC setting, rather than a school setting. Specifically, the term "school" was replaced by the term "center," the term "classroom" was replaced by the term "house," references to "academic progress" were replaced by "behavioral progress," the term "students" was replaced by the term "individuals," and the term "teacher" was replaced by the term "staff." A table with each item from the original scale and how that item was modified is included in Appendix B. Both the groups of staff were asked to complete this measure. The measure includes 24 items and answer choices that range on a 9-point Likert Scale from *nothing* (1) to *a great deal* (9). The scale focuses on teachers' views of their own instructional strategies, and their ability to engage students and manage behaviors in their classrooms. Previously, a mean score was calculated for each of the three sections: Student Engagement, Instructional Strategies, and Classroom Management (Tschannen-Moran & Woolfolk Hoy, 2001). Alphas were also calculated for each of the sections when it was previously administered to teachers: Student Engagement (.87), Instructional Strategies (.91), and Classroom Management (.90) (Tschannen-Moran & Woolfolk Hoy, 2001). Previously, items 1, 2, 4, 6, 9, 12, 14, and 22 loaded onto Factor 1 (Efficacy in Student Engagement). Items 10, 11, 17, 18, 20, 23, and 24 loaded onto Factor 2 (Efficacy in Instructional Strategies). Additionally, items 3, 5, 8, 13, 15, 16, and 19 loaded onto Factor 3 (Efficacy in Classroom Management). The modifications in the *TSES* for direct care staff working in an RTC were examined by conducting an Exploratory Factor Analysis (EFA) to determine the factor structure of the modified measure when administered to direct care staff.

Based on the results of the EFA with the one-factor solution, the modified *TSES* in this study produced one overall mean score for each participant.

     *Burnout.* The degree of job-related burnout for staff in each group was measured using *The Maslach Burnout Inventory* (*MBI*, Jackson & Leiter, 1997). This 22-item measure has been used previously with direct care professionals working with clients who have I/DD (Chung & Harding, 2009; Paris & Hoge, 2010). The measure includes a 7-point response scale ranging from *never experienced such a feeling* (0) to *experienced such feelings everyday* (6) (Maslach et al., 1996). Results from the measure indicate ranges of burnout from low to average to a high degree of burnout. A sum is calculated for Section A, Emotional Exhaustion, which measures a participant's potential symptoms of depression and anxiety, based on the participant's responses, and a range of 17 or less is equivalent to low-level burnout, 18 to 29 is considered moderate burnout, and over 30 is considered high level burnout (Maslach et al., 1996). Similarly, a sum is calculated for Section B, Depersonalization, which assesses a participant's negative attitude, lack of empathy for their clients, or withdrawn behavior, based on the participant's responses, and a range of 5 or less is considered low level burnout, 6 to 11 is moderate, and a score of 12 or more is high level burnout (Maslach et al., 1996). Section C assesses a participant's sense of Personal Accomplishment and whether they lack motivation or doubt their abilities to accomplish their goals, which also entails scoring a sum of the participant's responses. A sum of 33 or less indicates high burnout, a score of 34-39 indicates moderate burnout, and a score of 40 or greater indicates low-level burnout (Maslach et al., 1996). Reliability for the subscales of the MBI that were administered during this study were calculated: the Emotional Exhaustion subscale was .91, the Depersonalization subscale was .77, and the Personal Accomplishment subscale was .70 (Maslach et al., 1996). Validity of the measure was examined using the 3-Factor Model, and the

Comparative Fit Index (CFI) was determined to be .79 (Schaufeli, Bakker, Hoogduin, Schaap & Kladler, 2001). When a Revised Three-Factor Model was implemented, the CFI of the *MBI* was .89 (Schaufeli et al., 2001). The CFI is a type of fit index that compares the Chi Square Value to a Baseline model and has a null hypothesis that all of the variables in the scale are uncorrelated (Bentler, 1990). The ideal cutoff for the CFI is .90 (Bentler, 1990), which the *MBI* is just short of. Therefore, the variables may not be as strongly correlated as the ideal standard of .90 (Bentler, 1990).

**Procedures**

*Traditional training.* One group of staff participants received only the traditional 2-week, 80-hour RTC group training, plus several online training modules and meetings with the residence's clinician to be trained on the behavioral support plans of each individual with whom the staff member would working. The traditional training curriculum included information about fire safety, physical health issues of individuals, CPR and First Aid training, how to interact positively with individuals that have a wide range of needs and abilities, and safety techniques for intervening with individuals when they are a danger to themselves or others in their environment. Online training modules focused on individuals' confidentiality rights, how to protect staff from blood-born pathogens, and procedures for reporting abuse or neglect. Each residence had a Masters-level clinician trained in psychology and applied behavior analysis assigned to the home who was responsible for completing functional behavior assessments and developing behavioral support plans for individuals who engaged in challenging behaviors. Clinicians trained the staff to implement proactive strategies, as well as reactive strategies to implement in home and community settings following the occurrence of challenging behaviors.

*PBIS training.* In addition to receiving the traditional training at the start of their employment, the second group of staff received 40 hours of training by members of the RTC clinical team on key strategies of the PBIS model. This training included information on how to communicate behavioral expectations to individuals, how to provide descriptive praise, proactive strategies for managing challenging behaviors, and strategies for actively engaging individuals. The staff supervisor and clinical team members developed an activity schedule for the residence, displayed behavioral expectations in the home (e.g., "Be Respectful, Be Responsible"), and installed a whiteboard used for scheduling activities and behavioral lesson plans in the home. All staff assigned to the home also completed online training sessions which involved watching video examples and completing quizzes about how to actively engage the individuals in the residence, the purpose of PBIS, and how to implement PBIS in an RTC. Clinical team members conducted training sessions at the staff meetings by instructing staff on how to promote active engagement, modeling this with the individuals with I/DD in the residence, and demonstrating for the staff how to clearly communicate behavioral expectations. The staff were also observed by clinical team members during 15-min observation sessions of staff engaging the individuals in activities using the *Measure of Active Engagement by Staff* (see Appendix A; Parsons & Reid, 1993). Observers had previously achieved at least 80% inter-observer agreement using this measure. At the end of the session, the supervisor and clinical team member provided staff with performance feedback including identifying what staff did well (e.g., used praise statements, engaged in positive interactions), and areas for improvement (e.g., rephrasing behavioral expectations positively rather than negatively, increasing the number of praise statements).

Once staff members in a home met the criterion of successfully engaging at least 80% of the individuals with I//DD in age-appropriate activities during the 15-min observation session,

they were instructed in how to teach behavioral lesson plans. Behavioral lesson plans entailed teaching a behavioral skill to the individuals in the residence, giving examples of the skill and how it applies in their daily routine, and incorporating opportunities for them to practice the skill together. Skills that were taught included keeping your hands to yourself, how to ask for help, and speaking respectfully to others.  A clinical team member modeled for the staff how to teach a behavioral lesson plan to the individuals.  Each staff member in that home was then asked to teach a behavioral lesson plan to the individuals while being observed by the supervisor and a clinical team member, who then provided them with performance feedback at the end of the lesson.  Following this observation, staff were asked to continue teaching behavioral lesson plans to the individuals, and consultative feedback from the supervisor and a clinical team member was provided two times per week.  The behavioral lesson plans took approximately 15 min to complete; receiving feedback from the supervisor and clinical team member occurred for approximately 5 min immediately following the lesson plan.  See Appendix C for a timeline of activities for the study.

**Design and Data Analysis**

Research Question 1 involved conducting an EFA to determine the factor structure of the modified *TSES* when administered to staff in an RTC.  An EFA was conducted to examine the factor structure of the *TSES* when it was administered to this sample of RTC staff.   This method was selected because an EFA is most appropriate for early phases of test development when there is minimal support in the current literature and because it is useful for identifying latent constructs (Duffin, French & Patrick, 2012; Fabrigar, Wegener, MacCallum, & Strahan, 1999). The individual item loadings were examined.  Guadagnoli and Velicer (1988) proposed that

components with four or more loadings about .60 are considered to be reliable, regardless of the sample size. SPSS for Windows (2014) was used to complete the analysis.

The item responses were entered into a spreadsheet on SPSS for Windows (2014) and Univariate Descriptives were obtained, as well as the Initial Solution (e.g., communalities estimate for the factors). Next, significance levels for the R-matrix and the test for multicollinearity or singularity were conducted. The Maximum Likelihood extraction technique was used to fit the common factor model to the data. The Maximum Likelihood extraction technique was advantageous for this study because it allowed for the computation of a wide range of indices of the goodness of fit of the model (Fabrigar et al. 1999). In addition, this technique allowed for statistical significance testing of factor loadings and correlations between factors, as well as the calculation of confidence intervals for these parameters (Fabrigar et al., 1999). The Maximum Likelihood EFA can produce inaccurate results when the assumptions of multivariate normality are false. Thus, the distributions of the considered variables were examined before conducting the Maximum Likelihood EFA (Fabrigar et al. 1999). Furthermore, the Oblique Rotation was used which allowed correlations between factors. An Oblique Rotation produced estimates of the correlations among factors that were equal to or close to zero, and then provided a salutation similar to that of an orthogonal rotation (Fabrigar et al., 1999). There are some data sets, however, that have the best simple structure with a solution that included correlated factors, which the Promax Oblique rotation can also produce (Fabrigar et al., 1999). Thus, the Promax Rotation was selected and all of the analyses were completed using IBM Statistical Package for the Social Sciences (2016). The correlations among the factors provided information for explaining the conceptual meaning of the common factors (Fabrigar et al., 1999).

Five criteria were used to determine the number of factors to extract: (1) the *a priori* hypothesis that the measure had three dimensions; (2) the scree test, which indicated three factors based on the last substantial drop on the plot of eigenvalues (Fabrigar et al., 1999); (3) the Kaiser criterion of the number of eigenvalues greater than 1 (Costello & Osborne, 2005); (4) a parallel analysis (Horn, 1965); and (5) the interpretability of the factor solution.  In addition, the Bartlett's Test of Sphericity was used to confirm whether there were patterned relationships (significant level of $p < .05$). There was a focus on the rotated matrix for item loadings. Once these data were obtained in SPSS, an EFA was completed using SPSS and the data collected from the staff's responses to the items on the self-efficacy measure. Factor structures were examined to determine whether eigenvalues of the unrotated factors were greater than or equal to 1, whether each alpha coefficient was greater or equal to .70, and items were retained if there is a loading of .30 or higher (Fabrigar et al., 1999).

For Research Question 2, a Posttest-Only Control Group Design was used to compare the self-efficacy scores on the modified *TSES* of staff who were trained in PBIS with scores of traditionally-trained staff.  An Independent Samples *t*-test was used to determine whether there were significant differences between the means of the total scores on the *TSE*S between the two groups.  The Effect Size was also calculated using Cohen's *d* (Cohen, 1992).

Similarly, for Research Question 3, a Posttest-Only Control Group Design was used to compare the burnout measure scores on the Maslach Burnout Inventory of staff who were trained in PBIS with scores of traditionally-trained staff. An Independent Samples *t*-test was used to determine whether there were significant differences between the means of the total scores on each section (Emotional Exhaustion, Depersonalization, and Personal Accomplishment) of the Maslach Burnout Inventory between the two groups. The Effect Size for each of the *t*-tests was

calculated using Cohen's *d* (Cohen, 1992). Descriptive Statistics, including the Skewness and

Kurtosis, as well as a Histogram of the dataset were examined using SPSS to determine the

normality of the data.

## CHAPTER 4

### Results

**Exploratory Factor Analysis of the Modified *TSES***

It was hypothesized that the factor loadings for the individual items would be significant and similar in number to the three factors (e.g., Efficacy in Engagement, Efficacy in Instructional Strategies, and Efficacy in Classroom Management) found by previous investigators who used the measure with samples of teachers (Guadagnoli & Verlicer, 1988; McDaniel et al., 2012; Simonsen et al., 2010; Tschannen-Moran & Woolfolk Hoy, 2001; Ylvisaker et al., 2007).  In the current study, an EFA was conducted to determine the factor structure of the modified *TSES* that was administered to direct care staff members in an RTC.  The appropriateness of the modified *TSES* data for an EFA was affirmed by the KMO of .90 and the significant Bartlett's Test of Sphericity, which had a Chi Square value of 1816.91*,* Degree of Freedom of 276, and a *p* value of <.00.  Normality of the dataset was assessed using the Shapiro-Wilk test, which indicated normality except for the PBIS group that was significant (*p* < .05). However, the skewness and kurtosis were assessed and indicated normality, as well as the Stem and Leaf Plots, which further supported that the data had a relatively normal distribution (See Table 2).  The dimensionality of the 24 items (see Table 1) from the modified *TSES* was analyzed using Maximum Likelihood factor analysis.  Descriptive statistics for the *TSES* are included in Table 2.  Maximum Likelihood extraction was selected because it allows for the calculation of a wide range of indices for the goodness of fit of the model, as well as for statistical significance testing of factor loadings, correlations among factors, and the calculation of confidence intervals (Costello & Osborne, 2005).  An Oblique Promax Rotation was used with these data because Oblique

rotations provide estimates of the correlations between factors (Fabrigar, Wegener, MacCallum, & Strahan, 1999).

The first iteration yielded three factors based on the scree test and the Kaiser criterion (Costello & Osborne, 2005; Fabrigar et al., 1999), which had several items that loaded at .32 or higher on two factors (Costello & Osborne, 2005; Yong & Pearce, 2013). Items 2, 12, 13, 19, and 23 had items that cross-loaded on Factors 1 and 2. Item 21 had cross-loadings on Factors 1 and 3. Each item and its factor loading are displayed in Table 3. Factor 1 accounted for 65.05% of the variance, Factor 2 accounted for 5.69% of the variance, and Factor 3 accounted for 4.30% of the variance. All of the items loaded onto one of the factors during each iteration. The Factor Correlation Matrix was examined which indicated that the correlation for Factors 1 and 2 was .75, and the correlation for Factors 1 and 3 was .11. In addition, the correlation for Factors 2 and 3 was .09. The Goodness of Fit Index (GFI) was significant ($\chi^2 = 375.55$, $df = 207$, $p = .00$). Factor 1 in the first iteration had a Cronbach's alpha of .97 and Factor 2 had a Cronbach's alpha of .96. The eigenvalues for the first iteration are displayed in Table 4. The amount of variance explained was less than 5% for the third factor, only one item loaded onto that factor, and there were many cross-loadings; therefore, a 2-factor extraction was analyzed.

A second iteration was calculated using the Maximum Likelihood method and the Promax Oblique Rotation. This iteration indicated that Factor 1 explained 65.05% of the variance and Factor 2 explained 5.69% of the variance. The GFI was significant for this iteration ($\chi^2 = 447.92$, $df = 229$, $p = .00$). However, cross-loadings occurred on 5 of the items: Items 2, 12, 13, 17 and 23, which are displayed in Table 5. The correlation between the two factors was -.76. Cronbach's alpha for Factor 1 was .80 and for Factor 2 was .59. The eigenvalues for the second iteration are displayed in Table 6. A third iteration was completed using the Varimax

Orthogonal Rotation with a 2-factor extraction (see Table 7) because Varimax minimizes the

number of variables that have higher loadings on each factor and has been found to make small

loadings even smaller (Yong & Pearce, 2013). Thus, the researcher hypothesized that this could

help to decrease the number of cross-loadings on the two factors. The results from the third

iteration demonstrated that cross-loadings increased using the Varimax rotation; specifically, it

yielded cross-loadings on the two factors for items 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 13, 14, 16, 17,

18, 19, 20, 21, 23, and 24. The correlation between factors for this iteration was .74, the

Cronbach's alpha for Factor 1 was .91 and for Factor 2 was .90. The eigenvalues for the third

iteration are displayed in Table 8. These findings indicated that using the Promax Oblique

Rotation did not cause more cross-loadings on the two factors than using the Varimax

Orthogonal Rotation. The Promax Oblique Rotation entails raising each of the factor loadings to

a power of four, which then yields greater correlations among the factors and provides a simpler

factor structure (Yong & Pearce, 2013). Thus, the Promax Oblique method was utilized in the

study for subsequent analyses.

A 1-factor iteration was examined (see Table 9) to determine whether more items would

be greater or equal to .32 and compared to the 2-factor iteration, where there were several items

that cross-loaded. The 2-factor solution made it challenging to name and distinguish between the

two factors conceptually because the items that loaded onto each of the 2 factors were not all

similar conceptually. Eigenvalues for the fourth iteration, which ultimately indicated a 1-factor

solution, are displayed in Table 10. The GFI was significant for the 1-factor iteration as well ($\chi^2$

= 575.19, $df$ = 252, $p$ = .00. The internal consistency was examined and indicated strong

reliability for both the 1-factor and 2-factor solutions. However, Cronbach's alpha for the 1-

factor solution was .98 and for the 2-factor solution, Factor 1 was .80 for Factor 2 and .59.

Therefore, a Parallel Analysis (Horn, 1965) was completed (see Figure 1) to compare eigenvalues from random data, based on the same sample size and number of variables in the real data set (Hayton, Allen, & Scarpello, 2004) with eigenvalues that were produced from this analysis to identify a model with the same number of common factors as eigenvalues that are greater than the eigenvalues expected from the random dataset (Fabrigar et al., 1999). The Parallel Engine developed by Gonzaga Analytics (Gonzaga Analytics Parallel Engine, 2017) was used to complete this analysis. Both the observed and simulated eigenvalues were entered into a graph using Microsoft Excel (Excel version 2010). Factors corresponding to the eigenvalues from this study's dataset that were greater than the random eigenvalues were retained (Glorfeld, 1995; Hayton et al. 2004; Horn, 1965). The eigenvalues obtained from this dataset that were less than or equal to the random eigenvalues were indicated to be a result of sampling error (Glorfeld, 1995; Hayton et al. 2004; Horn, 1965). Visual analysis of the graph indicated that a 1-factor solution would be the best fit for this dataset based on the point of intersection of the observed and simulated eigenvalues (Glorfeld, 1995; Hayton et al. 2004; Horn, 1965). These findings were further supported, as the 1-factor solution retained all 24 of the items on the modified *TSES*, had strong Internal Consistency of .98, which is greater than the cutoff of .80 (Fabrigar et al., 1999) and the modified items were conceptually explained by one factor (see Figure 1).

**Independent Samples t-tests for the *MBI* and Modified *TSES***

It was hypothesized that staff self-efficacy in instructional practices, individual engagement, and home management, would be greater for staff who were trained to implement PBIS when compared to staff who were not trained to implement PBIS (Kelm & McIntosh, 2012; Morse, Salyers, Rollins et al. 2012; Ross, Romer & Horner, 2012). Data were collected using the modified *TSES* from both the control and the PBIS groups. Although it was

hypothesized that there would be 3 factors for the modified *TSES,* as there were when the *TSES* was administered to a sample of teachers, the modified *TSES* was found to have 1 factor. Therefore, the results supported using the composite score, which was created by calculating the mean of the responses across the 24-item scale (Tschannen-Moran & Woolfolk Hoy, 2001). The descriptive statistics were evaluated for these data (see Table 11), the skewness was -.66 (*SE* = .29), and kurtosis was -.55 (*SE* = .57). Additionally, the data had a significant Shapiro-Wilk test (Shapiro & Wilk, 1965) (*S-W* = .85, *df* = 35, *p* = .00), indicating that it may not be a normally distributed dataset. However, the Skewness and Kurtosis were assessed (Kim, 2013) and the Stem and Leaf plots further indicated normality of the dataset. The Levene's Test was examined (see Table 11), which tests for equality of variances in terms of Type I error rate and power (Levene, 1960). The Levene's Test indicated homogeneity of variance across the groups because *p* was not significant (*F* = 1.74, *p* = .19).

An Independent Samples *t*-test was conducted to compare the scores of the control group on the modified *TSES* with the scores of the PBIS group. The results of the Independent Samples *t*-test are displayed in Table 11. The scores for the control group (*M* = 6.74, *SD* = 1.46) and PBIS group (*M* = 7.89, *SD* = 1.18) were significantly different on the modified *TSES*; *t*(68) = -3.60, *p* = .001. Additionally, the difference between the means had a large effect size (*d* = .85) (Cohen, 1992). Tschannen-Moran and Woolfolk Hoy (2001) identify an average score on the *TSES* of 7 to 9 to indicate having a high level of self-efficacy, a score of 5 to 6 indicates moderate self-efficacy, a score of 2 to 4 indicates low self-efficacy, and a score of 1 indicates having no or very little self-efficacy. Both groups in this study reported high levels of self-efficacy.

It was also hypothesized that staff who were trained to implement PBIS would report lower levels of burnout on the *MBI* when compared to staff who were not trained to implement PBIS (Kelm & McIntosh, 2012; Morse, Salyers, Rollins, et al., 2012; Ross, Romer, & Horner, 2012). Data were collected using the *MBI* (Maslach, Jackson & Leiter, 2006), which measures the degree of burnout that staff members experience in their work. In this study, data were collected from both the traditionally-trained RTC staff (control group) and those who were trained to implement PBIS (PBIS group).

Once all participants completed the *MBI*, the data and descriptive statistics were examined across all 70 participants since the sample was made up of all direct care staff members working in the same environment. Specifically, the Shapiro-Wilk Test, which tests the composite null hypothesis of normality for a sample (Shapiro & Wilk, 1965), was significant (*S-W* = .94, *df* = 70, *p* = .04), which indicated that the sample did not have a normal distribution for the first section (Emotional Exhaustion) of the *MBI*. The skewness for the Emotional Exhaustion subscale of the MBI was .71 (*SE* = .29) and the kurtosis was -.03 (*SE* = .57). The Shapiro-Wilk Test for the Depersonalization subscale was also significant (*S-W* = .77, *df* = 70, *p* = .00). The skewness for the Depersonalization subscale of the *MBI* was 2.04 (*SE* = .29) and the kurtosis was 5.14 (*SE* = .57). Furthermore, the Shapiro-Wilk Test for the Personal Accomplishment subscale was significant (*S-W* = .83, *df* = 70, *p* = .00). The descriptive statistics for the Personal Accomplishment subscale were also examined, which indicated that the skewness was -1.52 (*SE* = .29) and the kurtosis was 2.41 (*SE* = .57). The Levene's Test for the Emotional Exhaustion subscale of the *MBI* indicated that the data had homogeneity of variance (*F* = .04, *p* = .83). Similarly, based on the results of the Levene's Test for the Depersonalization subscale of the *MBI* (*F* = .51, *p* = .48) homogeneity of variance was indicated for the data. The Levene's Test

for the Personal Accomplishment subscale of the *MBI* indicated that the data did not have homogeneity of variance ($F = 6.21$, $p = .02$). This indicates that the Control and PBIS groups did not have equal amounts of variance to be compared.

An Independent Samples *t*-test was conducted to compare the scores of the control group staff on the *MBI* with the scores of the PBIS group, which are displayed in Table 12. The difference in scores between the staff in the control group (*M*=12, *SD*=7.95) and PBIS group (*M*=9.94, *SD*=8.43) were not significantly different for the Emotional Exhaustion subscale of the MBI; $t(68) = 1.05$, $p = .30$. The effect size was also calculated and it indicated a small difference ($d = .26$) (Cohen, 1992). The scores on the Depersonalization subscale of the *MBI* for the control group (*M*=4.40, *SD*=5.10) and the PBIS group (*M*=3.57, *SD*=5.04) were not significantly different ($t(68)=.683$, $p=.50$). The effect size was calculated for the scores on the Depersonalization subscale and using the criterion set by Cohen (1992), it indicated that there was a small effect size ($d = .16$). Furthermore, the scores from the control group (*M*=39.86, *SD*=8.35) and the PBIS group (*M*=43.11, *SD*=5.35) on the Personal Accomplishment subscale of the *MBI* were not significantly different ($t(57.91)=-1.94$, $p= .06$). However, the Personal Accomplishment subscale had a medium effect size ($d = .51$) (Cohen, 1992).

# CHAPTER 5

## Discussion

The current study examined the impact of PBIS implementation on direct care staff's sense of self-efficacy and degree of burnout from their job. Following an examination of the dimensionality of the modified *TSES*, staff members' sense of self-efficacy as measured by the modified *TSES* and feelings of burnout as measured by the *MBI* were compared across two groups of staff, one group that was trained to implement PBIS in a RTC and a second group that was not trained to implement PBIS.

The dimensionality of the modified *TSES* when administered to direct care staff members in a RTF was examined by conducting an EFA to determine how many factors comprise the construct of self-efficacy. Previous investigators (Guadagnoli & Verlicer, 1988; McDaniel et al. 2012; Simonsen et al., 2010; Tschannen-Moran & Woolfolk Hoy, 2001; Ylvisaker et al. 2007) found the *TSES* to have a three-factor solution (e.g., Efficacy in Engagement, Efficacy in Instructional Strategies, and Efficacy in Classroom Management). Therefore, it was hypothesized that the modified *TSES* would have significant factor loadings for the individual items and that they would be similar in number to the three factors found by previous investigators who used the measure with samples of teachers (Guadagnoli & Verlicer, 1988; McDaniel et al. 2012; Simonsen et al., 2010; Tschannen-Moran & Woolfolk Hoy, 2001; Ylvisaker et al., 2007). However, the study found that a single factor was the best fit for the data from the modified *TSES*. The reliability of the modified *TSES* among direct care staff members was also examined and indicated that the measure has high reliability.

Several factors may explain these different findings for the modified *TSES*. The *TSES* has previously only been administered to teachers in schools (Kelm & McIntosh, 2012; Klassen

& Chiu, 2010; Ross, Romer & Horner, 2012; Tschannen-Moran & Woolfolk Hoy, 2001),
whereas the findings reported here involved a different target population and different setting. It
is possible that there are unique elements that make up a direct care staff member's sense of self-
efficacy when working with adults with I/DD in a RTC that may not have been captured utilizing
this modified *TSES*. This may be important for several reasons. Few direct care staff in
residential treatment have a degree in education; in fact, many of the participants in this study
had only a high school education. As such, the way that they conceptualize their role in
instructional practices, individual engagement, and home management may differ substantially
from the way teachers view their role in the classroom. These differences in the overall
conceptualization of their role (e.g., care takers vs. educators) may, in turn, have an impact on
staff's self-efficacy in a way that differs from how teachers in previous studies have reported
their self-efficacy in their role as educators, and how that influenced the 1-factor solution
(Flowers, McDaniel & Jolivette, 2011; Klassen & Chiu, 2010). Their interactions with the adults
with I/DD with whom they work extend beyond instruction, engagement, and behavior
management. They are often responsible for helping individuals with self-care activities,
maintaining their safety, and taking them to visit with family members. These responsibilities are
not the same as those of teachers and may have an impact on the staff members' sense of self-
efficacy.

It is possible that staff members conceptualize the instruction, engagement, and behavior
management implemented as part of PBIS in their residences to be skills that overlap with one
another and require similar processes, as reflected by the 1-factor solution. This was indicative
of the staff members' multi-faceted role in which they teach new skills, manage behaviors in the
home and community settings, engage individuals with a variety of interests in a wide range of

activities, and work to maintain the safety of the individuals with I/DD in their care at all times. Therefore, their responses on the modified *TSES* may have been categorized as one-dimensional. Perhaps using an additional measure of self-efficacy, such as focus groups, or a written measure that captured which aspects of staff members' jobs contributed to their conceptualization of their self-efficacy, may have provided a greater understanding of this concept within the RTC setting. To better understand these issues, future research would need to examine the conceptualization of roles and levels of self-efficacy of residential staff and teachers.

The results of the EFA must be interpreted with the consideration that the current study had a smaller sample of participants than previous studies that utilized the *TSES* with teachers in schools. Many of those studies administered the *TSES* to hundreds of teachers across schools to examine their sense of self-efficacy (e.g., Kelm & McIntosh, 2012; Klassen & Chiu, 2010; Ross et al. 2012). The smaller sample size may have affected the one-factor solution that was found and the ability to make conclusions about the self-efficacy of staff members working with adults with I/DD in a RTC. Additionally, the amount of variance explained by the one factor solution was approximately 65%, which is less than the recommended 70% (Stevens, 2009). This further indicates that these results must be interpreted with caution and that utilizing a larger sample size in future studies where staff complete the modified *TSES* would enable more conclusions to be drawn about this population.

The second research question examined the impact of implementing PBIS with adults with I/DD in an RTC on staff self-efficacy, as measured by the modified version of the *TSES*. It was hypothesized that staff self-efficacy in instructional practices, individual engagement, and home management, would be greater for staff who are trained to implement PBIS when compared to staff who are not trained to implement PBIS (Kelm & McIntosh, 2012; Morse,

Slayers, Rollins, et al. 2012; Ross et al., 2012).  Results indicated that the scores for each group were significantly different on the modified *TSES.* Additionally, the control group had a significantly lower score on the modified *TSES* than the score of the PBIS group of staff members.  The difference in overall scores on the modified *TSES* was further highlighted by the large effect size found for this *t*-test (Cohen, 1992).  This finding is consistent with previous studies that compared the self-efficacy of teachers implementing PBIS in schools to those who were not implementing PBIS in schools where they worked (Kelm & McIntosh, 2012; Klassen & Chiu, 2010; Ross, Romer & Horner, 2012).  This consistent finding in schools, in combination with the results of this current study, indicate that PBIS could be utilized as a strategy in RTCs to improve staff members' sense of self-efficacy.  In addition, the staff members received increased supervisory support from their direct supervisors and from the residential Behavior Analysts as a part of the PBIS implementation process. They were observed and given feedback on their implementation of each component of PBIS, which may have further improved their sense of self-efficacy through this process.  However, because of the small sample size utilized in this current study, this finding should be further explored in future studies with larger samples of direct care staff who are implementing PBIS in RTCs.

It is possible that a larger sample size, such as those included in the self-efficacy studies on teachers (Klassen & Chiu, 2010; Kelm & McIntosh, 2012; Ross, Romer & Horner, 2012), would have produced a more normally-distributed dataset.  In addition, it may be that the modified version of the *TSES* administered in an RTC with direct care staff did not capture the range of staff's sense of self-efficacy as well as did the original *TSES* when administered to teachers who were implementing PBIS in schools.  It is also important to note that, although significant differences in self-efficacy were found between the PBIS and control groups, both

groups reported high levels of self-efficacy in their role as RTC staff (Tschannen-Moran & Woolfolk Hoy, 2001). There are several possible reasons for this finding. These high levels of self-efficacy may be reflective of staff feeling pressure, despite the procedures implemented to ensure anonymity, that their degree of self-efficacy was an indicator of their value as an RTC employee. Previous studies that examined the self-efficacy of teachers in schools implementing PBIS and compared their self-efficacy to that of teachers in schools who were not trained to implement PBIS, also found a significant difference between the self-efficacy of those two groups of teachers (Kelm & McIntosh, 2012; Klassen & Chiu, 2010; Ross et al. 2012).

The third research question focused on the impact of implementing PBIS with adults with I/DD in a RTC on staff burnout, as measured by the *MBI*. It was hypothesized that staff who were trained to implement PBIS would report lower levels of burnout on each of the three Inventory sections (Emotional Exhaustion subscale, Depersonalization subscale, and Personal Accomplishment subscale), as compared to staff who were not trained to implement PBIS (Kelm & McIntosh, 2012; Morse, Salyers, Rollins, et al. 2012; Ross et al. 2012). The results found that the scores between the staff in the control group and the PBIS group were not significantly different for the Emotional Exhaustion, Depersonalization, and Personal Accomplishment subscales of the *MBI*. However, the results indicated that the mean difference was approaching significance, and this was further supported by a medium effect size ($d = .51$). The findings were likely affected by the small sample size included in this study. Beyond this, it is also possible that these results were due to staff employed by the RTC fearing the true anonymity of their responses on the *MBI* and thus indicating lower degrees of burnout than what they actually experienced. Staff may have felt uncomfortable or conflicted about acknowledging their feelings of burnout. The majority of the direct care staff that worked in this RTC identified as West

African males, which differed from the demographic characteristics of the samples in previous studies using the *MBI* to measure burnout in direct care staff members (Chung & Harding, 2009; Paris & Hoge, 2010). Therefore, it is possible that these results could simply be a reflection of this sample's cultural values and/or gender identity. Alternatively, the staff members may have been reporting accurately on their burnout levels, which may have been more similar across the two groups because of the number of hours per week that they work. Many staff in this RTC work multiple overtime shifts per week, which could have made these two groups more similar in their degree of burnout because staff members in both groups were working several additional hours per week, which may have made their feelings of burnout more equivalent. Moreover, this research question is novel in that there is a paucity of research on PBIS in alternative settings and this was the first study to examine burnout as measured by the *MBI* among staff implementing PBIS in an RTC. Future studies should examine burnout measured by the *MBI* with a larger sample of staff members working in a RTC. Differences in burnout between staff members implementing PBIS in a RTC might be more apparent and a larger sample size would allow for more conclusions to be drawn as to whether PBIS impacts staff members' degree of burnout.

**Limitations**

The primary limitation of this study was the small sample size. The study included approximately three participants per item for the modified *TSES* that was used to conduct the EFA. This is a relatively small sample size for this analysis (Fabrigar et al., 1999), although the analysis was justified as this was a modified version of the measure that was being explored to determine whether it could be utilized with other populations of direct care staff. In addition, the sample size was restricted by the number of staff who had been trained to implement PBIS at the time that data were being collected. Thus, there was a ceiling on the number of possible

participants for this study. Results from this relatively smaller sample size must be interpreted with caution and future studies should examine larger RTC samples. In addition, the use of the Posttest-Only Control Group Design was limited in internal validity by not providing posttest scores. However, as a result of using this design, the risks of maturation and attrition were avoided.  Moreover, there were observations of the staff members by the investigator and anecdotes shared with the investigator by direct care staff members who were trained to implement PBIS about the many positive outcomes they were experiencing from the training and implementation.  Therefore, these anecdotes and observations inspired this study in combination with the research on teachers' self-efficacy and burnout who were implementing PBIS. Thus, it was not feasible in this study to capture these staff members' pretest results before training them to implement PBIS.

This study focused on staff members working with adults with I/DD in a RTC and, as such, it examined a new population of individuals who were implementing PBIS in a non-school setting. Although the self-efficacy and degree of burnout experienced by the staff in the PBIS and control groups differed, there is much more to learn. For example, including other measures of self-efficacy and burnout may provide information about the unique experiences of staff that work with adults with I/DD, and how PBIS might impact their sense of self-efficacy and burnout related to their jobs.  However, this study served as an initial examination of the impact of PBIS training on staff members' sense of self-efficacy and degree of burnout when working with adults with I/DD in a RTC.

Furthermore, many of the participants in this study were familiar with the investigator. Therefore, it is possible that their responses on the self-efficacy and burnout scales may have been influenced by their desire to please the investigator. For example, they may have indicated

higher levels of self-efficacy about their job and lower levels of job-related burnout.  The

methodology was designed to ensure anonymity and the participants did not include any

identifying information on the modified *TSES* or the *MBI* when they returned the completed

forms to a private mailbox.  In addition, potential participants were informed that their names,

residential programs, or any other identifying information would not be used in the report of this

research study.  Nonetheless, it is possible that they were more positive in completing these

measures than they might have been if they had not been familiar with the investigator. Future

investigations of self-efficacy and burnout in RTC staff should ensure that the researcher is

unfamiliar with the participants.  Hopefully this would provide staff with a greater sense of

anonymity to ensure the confidentiality of all participants and would likely eliminate the

potential for staff members' fears of being identified for their responses on the measures. It is

possible that results from such a study may find a larger difference between the control and PBIS

groups' sense of self-efficacy and degree of burnout.

**Implications for Future Research and Practice**

Many of the studies examining self-efficacy and other variables of PBIS implementation

in schools examined the impacts on teachers and students across several schools (Bradshaw,

Waasdorp, & Leaf, 2012; Kelm & McIntosh, 2012; O'Neill, 2015; Ross, Romer & Horner,

2012).  Although studies have begun to examine PBIS in alternative settings (Fallon & Feinberg,

2016; Flowers et al. 2011; McDaniel et al. 2012; Scheuermann, Nelson, Wang & Bruntmyer,

2016; Simonsen et al. 2010; Sprague et al. 2013; Ylvisaker et al. 2007), the impact of PBIS on

direct care staff members has not been examined across more than one RTC setting. Conducting

a study with a larger sample could allow researchers to expand their research questions to

include looking at the impact of PBIS implementation on adults with I/DD who are living in

RTCs.  Studying PBIS implementation with a greater number of adults with I/DD could help discern which aspects of PBIS are most effective with this population, as well as which elements of the implementation process might contribute to staff members' degree of burnout and feelings of self-efficacy.  However, based on these preliminary findings of the significant differences in self-efficacy between the two groups of staff members, PBIS should be trained to all of the direct care staff members to provide them with evidence-based behavioral interventions to implement with the individuals with I/DD that they work with. Incorporating PBIS into the initial new-hire training for these staff members would provide them with more strategies to handle challenging behaviors with their individuals when they begin working in the residences. In addition, current staff members may feel that they do not have a repertoire of evidence-based behavioral interventions to utilize with the individuals with I/DD in their residences, and training them to implement PBIS would potentially allow them to have a greater understanding of their individuals' behaviors and how to prevent and intervene with them.

This information is important as it is possible that not all elements of the current PBIS process are necessary for implementation with adults with I/DD.  Conceivably, if the most critical elements were identified for both the adults with I/DD and the staff members who were implementing them, these could then be bolstered to increase the positive outcomes (e.g., fewer challenging behaviors of individuals with I/DD, stronger feelings of self-efficacy on the part of staff members, fewer feelings of staff burnout).  If further study can be used to maximize the positive outcomes of PBIS, residential care systems may be able to improve the overall wellbeing of their employees and consumers with this relatively inexpensive system-wide program.  Direct care staff are paid just above minimum wage to complete many challenging job responsibilities while caring for adults with I/DD, many of who engage in challenging behaviors

throughout the day.  PBIS has the potential to provide additional skills to these staff members and to, in turn, make their jobs feel more manageable and less stressful. These benefits must be explored with larger samples to determine how this can be done most effectively.

The *TSES* that was modified for this study had not been previously administered to professionals other than teachers working in schools (O'Neill, 2016; Klassen & Chiu, 2010). There are currently no implementation or evaluation tools designed to be used in alternative settings.  Most of the studies in alternative settings to date have used modified measures, examiner-constructed questionnaires and observations to indicate that PBIS is correlated with improvements in behavior (Jolivette & Nelson, 2010).  Thus, future studies should further examine the reliability and validity of this measure with a larger sample of direct care staff that are working with adults with I/DD in RTCs.  Results of such studies would provide a greater understanding of the one-dimensional measure and whether additional modifications should be made to the measure to better capture the elements of staff self-efficacy.

Although not examined in the study, it is likely that the staff participants varied in the number of years that they had worked with adults with I/DD in a RTC.  This was a factor that may have altered the findings. Future studies should examine whether staff members' degree of burnout differs by the number of years that they have worked in the field with adults with I/DD. Furthermore, their degree of burnout could differ depending upon the number of years that they were employed by a particular RTC or organization.  Examining these differences could indicate whether the impact of implementing PBIS on one's self-efficacy and degree of burnout varies based on the number of years worked in the field with adults with IDD or employed by that particular organization.

There is little existing literature on implementing the PBIS framework in alternative settings. Research is needed to determine which PBIS strategies may be most effectively integrated into alternative settings. Clients' challenging behaviors have been found to significantly predict emotional exhaustion and overall burnout in staff members (Chung & Harding, 2009). A study on the correlation and rates of individuals' challenging behaviors in an RTC and the degree of direct staff members' burnout might further enhance our knowledge of staff members' burnout and how it could potentially be improved by PBIS implementation. Morse et al. (2012) found that high levels of burnout were correlated with staff members' negative attitudes toward consumers in residential mental health settings. Future studies should examine staff burnout of direct care staff members working with adults with I/DD in an RTC, as well as whether staff members' attitudes toward the adults with I/DD differ between those implementing PBIS and those staff members in a control group. In addition, future research should look at the effects of intervention on individuals in residential care when staff burnout is targeted. Moreover, focus groups should be held with staff members to learn more about which aspects of their jobs may increase their feelings of burnout. This would provide their supervisors, Human Resources, and leaders of the RTC to learn about changes that could improve the overall work experience of the direct care staff members employed there and potentially decrease the rates of turnover among this population.

Once it is determined which PBIS components positively impact individuals with I/DD, it would be interesting to see if this might in turn affect the self-efficacy and degree of burnout experienced by the direct care staff who are implementing PBIS and working with those individuals. This may be likely, as similar results were found in studies of PBIS in schools (Bradshaw et al. 2012; Klassen & Chiu, 2010; O'Neill, 2015). It is possible that the impact on

the individuals in the RTC might mediate the degree of burnout or sense of self-efficacy experienced by the staff members caring for those individuals, and such a study could reveal the relationship of these factors.  In an effort to better understand the composition of staff self-efficacy and their degree of burnout, future research should examine how a positive impact on the individuals in an RTC with PBIS implementation could have the greatest impact on staff self-efficacy and burnout.  Alternatively, learning how staff self-efficacy and burnout impacts any benefits experienced by consumers following PBIS implementation would provide insight into the potential interactions with PBIS implementation in an RTC.

Burnout among direct care staff has been correlated with a reduced commitment to the organization, frequent absenteeism, and higher turnover (Morse et al. 2012).  A study that compared the number of staff call-outs and turnover rates across time in a group of staff implementing PBIS with a group of traditionally-trained staff in an RTC would provide additional information regarding the impact of PBIS on staff burnout.  The findings from this study, that training staff to implement PBIS was correlated with a greater sense of self-efficacy and lower levels of burnout, suggest that there may also be a positive impact on other staff behaviors such as staff call-outs and turnover rates.  These potential results could ultimately enhance the overall quality of life of the individuals with I/DD.  It would be beneficial for future studies to replicate these results and expand the variables examined.

Overall, the results of this study provide implications for both research and practice regarding the impact of PBIS implementation on RTC staff that work with adults with I/DD. Although the original *TSES* was found to have three factors, the modified version utilized in this study was found to be unidimensional. The modified *TSES* should be administered to a larger sample in future studies, to help draw further conclusions about its reliability and validity in

measuring direct care staff members' sense of self-efficacy in a RTC. In addition, significant differences were found between the control and PBIS groups regarding their sense of self-efficacy and degree of burnout they experienced. However, this area requires additional research to replicate those findings with a larger sample size and to draw further conclusions about the impact of implementing PBIS in a RTC on the direct care staff members' sense of self-efficacy and degree of burnout. Further investigation of the impact of implementing PBIS in a RTC on the direct care staff members could provide supervisors and psychologists in those RTCs with helpful insight into how to decrease staff turnover and call-out rates, and maintain staff members over time that have positive relationships with the adults with I/DD who are residing in those RTCs.

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**Table 1.**

*Descriptive Statistics for Responses to Each Item on the Modified Self-Efficacy Scale*

| | N | Mean | | Std. Deviation | Variance | Skewness | | Kurtosis | |
|---|---|---|---|---|---|---|---|---|---|
| | Statistic | Statistic | Std. Error | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| | 70 | 18.00 | 1.22 | 10.17 | 103.48 | .00 | .29 | -1.20 | .57 |
| Item 1 | 70 | 7.34 | .20 | 1.69 | 2.87 | -.63 | .29 | -.52 | .57 |
| Item 2 | 70 | 7.11 | .23 | 1.94 | 3.78 | -.71 | .29 | -.55 | .57 |
| Item 3 | 70 | 7.26 | .21 | 1.75 | 3.06 | -.67 | .29 | -.51 | .57 |
| Item 4 | 70 | 7.51 | .19 | 1.63 | 2.65 | -.80 | .29 | -.50 | .57 |
| Item 5 | 70 | 7.34 | .19 | 1.62 | 2.63 | -.62 | .29 | -.63 | .57 |
| Item 6 | 70 | 7.46 | .23 | 1.89 | 3.56 | -1.33 | .29 | 1.53 | .57 |
| Item 7 | 70 | 7.44 | .19 | 1.65 | 2.71 | -1.16 | .29 | 1.36 | .57 |
| Item 8 | 70 | 7.69 | .18 | 1.56 | 2.45 | -1.07 | .29 | .29 | .57 |
| Item 9 | 70 | 7.17 | .24 | 1.98 | 3.94 | -.88 | .29 | -.23 | .57 |
| Item 10 | 69 | 6.94 | .24 | 1.98 | 3.91 | -.76 | .29 | -.43 | .57 |
| Item 11 | 70 | 7.19 | .23 | 1.94 | 3.75 | -.87 | .29 | -.32 | .57 |
| Item 12 | 70 | 7.41 | .19 | 1.66 | 2.77 | -1.02 | .29 | .35 | .57 |
| Item 13 | 70 | 7.43 | .21 | 1.78 | 3.17 | -.78 | .29 | -.56 | .57 |
| Item 14 | 69 | 7.36 | .20 | 1.66 | 2.76 | -.66 | .29 | -.68 | .57 |
| Item 15 | 70 | 7.33 | .21 | 1.74 | 3.03 | -.67 | .29 | -.71 | .57 |
| Item 16 | 70 | 7.09 | .22 | 1.81 | 3.27 | -.73 | .29 | -.11 | .57 |
| Item 17 | 70 | 7.27 | .21 | 1.77 | 3.16 | -.87 | .29 | -.24 | .57 |
| Item 18 | 70 | 7.13 | .22 | 1.83 | 3.36 | -.67 | .29 | -.47 | .57 |
| Item 19 | 70 | 7.11 | .23 | 1.89 | 3.58 | -.81 | .29 | -.32 | .57 |
| Item 20 | 70 | 6.97 | .23 | 1.95 | 3.79 | -.61 | .29 | -.83 | .57 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Item 21 | 70 | 7.44 | .21 | 1.72 | 2.94 | -1.01 | .29 | .15 | .57 |
| Item 22 | 70 | 7.56 | .22 | 1.87 | 3.49 | -1.39 | .29 | 1.58 | .57 |
| Item 23 | 70 | 7.63 | .21 | 1.75 | 3.07 | -1.18 | .29 | .42 | .57 |
| Item 24 | 70 | 7.51 | .21 | 1.73 | 2.97 | -1.11 | .29 | .35 | .57 |

*Table 2.*

**Descriptive Statistics for the Control Group and PBIS Group TSES Data.**

| Group | | | Statistic | Std. Error |
|---|---|---|---|---|
| Control | Mean | | 6.74 | .25 |
| | 95% Confidence Interval for Mean | Lower Bound | 6.24 | |
| | | Upper Bound | 7.24 | |
| | 5% Trimmed Mean | | 6.77 | |
| | Median | | 6.79 | |
| | Variance | | 2.12 | |
| | Std. Deviation | | 1.457 | |
| | Minimum | | 3.87 | |
| | Maximum | | 9.00 | |
| | Range | | 5.12 | |
| | Interquartile Range | | 2.09 | |
| | Skewness | | -.28 | .40 |
| | Kurtosis | | -.76 | .78 |
| PBIS | Mean | | 7.89 | .19 |
| | 95% Confidence Interval for Mean | Lower Bound | 7.48 | |
| | | Upper Bound | 8.29 | |
| | 5% Trimmed Mean | | 7.98 | |
| | Median | | 8.17 | |
| | Variance | | 1.39 | |
| | Std. Deviation | | 1.18 | |
| | Minimum | | 4.96 | |
| | Maximum | | 9.00 | |
| | Range | | 4.04 | |
| | Interquartile Range | | 1.71 | |
| | Skewness | | -1.17 | .39 |
| | Kurtosis | | .52 | .78 |

*Table 3.*

**Pattern Matrix for 3-Factor Solution Using the Oblique Rotation**

| Item | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| Item 1 | .61 | .13 | -.01 |
| Item 24 | .69 | .11 | -.13 |
| Item 2 | .36 | .58 | .25 |
| Item 3 | .69 | .12 | .19 |
| Item 4 | .54 | .27 | .05 |
| Item 5 | .96 | -.07 | .13 |
| Item 6 | -.07 | .97 | .04 |
| Item 7 | .60 | .17 | .20 |
| Item 8 | .61 | .02 | -.10 |
| Item 9 | .24 | .72 | -.05 |
| Item 10 | .77 | .18 | .00 |
| Item 11 | .60 | .26 | -.19 |
| Item 12 | .37 | .45 | .04 |
| Item 13 | .41 | .39 | .11 |
| Item 14 | .71 | .10 | -.18 |
| Item 15 | 1.05 | -.19 | -.08 |
| Item 16 | .89 | -.05 | .08 |
| Item 17 | .30 | .61 | .06 |
| Item 18 | .16 | .72 | .13 |
| Item 19 | .56 | .33 | -.12 |
| Item 20 | .18 | .66 | -.19 |
| Item 21 | .66 | .12 | -.52 |
| Item 22 | -.13 | .94 | -.12 |
| Item 23 | .40 | .45 | -.29 |

*Table 4.*

*Eigenvalues for the First Iteration with Maximum Likelihood Extraction Method*

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings |
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 15.61 | 65.05 | 65.05 | 15.26 | 63.57 | 63.57 | 14.17 |
| 2 | 1.36 | 5.69 | 70.74 | 1.06 | 4.43 | 68.00 | 12.72 |
| 3 | 1.03 | 4.29 | 75.04 | .79 | 3.32 | 71.32 | 1.03 |
| 4 | .91 | 3.78 | 78.82 | | | | |
| 5 | .69 | 2.88 | 81.69 | | | | |
| 6 | .62 | 2.59 | 84.28 | | | | |
| 7 | .55 | 2.31 | 86.59 | | | | |
| 8 | .43 | 1.81 | 88.40 | | | | |
| 9 | .39 | 1.66 | 90.06 | | | | |
| 10 | .35 | 1.47 | 91.53 | | | | |
| 11 | .32 | 1.32 | 92.85 | | | | |
| 12 | .28 | 1.18 | 94.04 | | | | |
| 13 | .24 | .99 | 95.03 | | | | |
| 14 | .20 | .84 | 95.87 | | | | |
| 15 | .19 | .79 | 96.66 | | | | |
| 16 | .15 | .65 | 97.31 | | | | |
| 17 | .13 | .56 | 97.87 | | | | |
| 18 | .13 | .54 | 98.41 | | | | |
| 19 | .10 | .43 | 98.84 | | | | |
| 20 | .07 | .32 | 99.16 | | | | |
| 21 | .07 | .29 | 99.45 | | | | |
| 22 | .06 | .25 | 99.70 | | | | |
| 23 | .04 | .15 | 99.86 | | | | |
| 24 | .03 | .14 | 100.00 | | | | |

*Table 5.*

**Pattern Matrix for 2-Factor Solution Using the Oblique Rotation**

| Item Number | Factor 1 | Factor 2 |
|---|---|---|
| Item 1 | .61 | -.12 |
| Item 24 | .75 | -.08 |
| Item 2 | .31 | -.59 |
| Item 3 | .65 | -.13 |
| Item 4 | .56 | -.24 |
| Item 5 | .92 | .07 |
| Item 6 | -.08 | -.98 |
| Item 7 | .56 | -.18 |
| Item 8 | .65 | .01 |
| Item 9 | .27 | -.70 |
| Item 10 | .79 | -.16 |
| Item 11 | .67 | -.22 |
| Item 12 | .38 | -.43 |
| Item 13 | .39 | -.39 |
| Item 14 | .78 | -.05 |
| Item 15 | 1.12 | .26 |
| Item 16 | .90 | .07 |
| Item 17 | .31 | -.59 |
| Item 18 | .15 | -.72 |
| Item 19 | .63 | -.29 |
| Item 20 | .26 | -.63 |
| Item 21 | .77 | -.07 |

| | | |
|---|---|---|
| Item 22 | -.07 | -.90 |
| Item 23 | .48 | -.41 |

*Table 6.*

**Eigenvalues for the Second Iteration**

| Factor | Total | % of Variance | Cumulative % | Rotation Sums of Squared Loadings Total |
|---|---|---|---|---|
| 1 | 15.61 | 65.05 | 65.05 | 14.36 |
| 2 | 1.36 | 5.69 | 70.74 | 12.62 |
| 3 | 1.03 | 4.29 | 75.04 | |
| 4 | .91 | 3.78 | 78.82 | |
| 5 | .69 | 2.88 | 81.69 | |
| 6 | .62 | 2.59 | 84.28 | |
| 7 | .55 | 2.30 | 86.59 | |
| 8 | .43 | 1.81 | 88.40 | |
| 9 | .39 | 1.66 | 90.06 | |
| 10 | .35 | 1.47 | 91.53 | |
| 11 | .32 | 1.31 | 92.85 | |
| 12 | .28 | 1.18 | 94.04 | |
| 13 | .24 | .99 | 95.03 | |
| 14 | .20 | .83 | 95.87 | |
| 15 | .19 | .79 | 96.66 | |
| 16 | .15 | .65 | 97.31 | |
| 17 | .13 | .56 | 97.87 | |
| 18 | .13 | .54 | 98.41 | |
| 19 | .10 | .43 | 98.84 | |
| 20 | .08 | .32 | 99.16 | |
| 21 | .07 | .29 | 99.45 | |
| 22 | .06 | .25 | 99.70 | |
| 23 | .04 | .15 | 99.86 | |
| 24 | .03 | .14 | 100.00 | |

*Table 7.*

*Pattern Matrix for the Third Iteration:  2-Factor Solution Using the Varimax Rotation*

| Items | Factor 1 | Factor 2 |
|---|---|---|
| Item 1 | .59 | .39 |
| Item 2 | .49 | .69 |
| Item 3 | .63 | .42 |
| Item 4 | .59 | .48 |
| Item 5 | .79 | .36 |
| Item 6 | .29 | .87 |
| Item 7 | .57 | .42 |
| Item 8 | .58 | .29 |
| Item 9 | .51 | .78 |
| Item 10 | .76 | .51 |
| Item 11 | .68 | .51 |
| Item 12 | .50 | .58 |
| Item 13 | .49 | .54 |
| Item 14 | .71 | .41 |
| Item 15 | .89 | .28 |
| Item 16 | .77 | .34 |
| Item 17 | .49 | .69 |
| Item 18 | .40 | .74 |
| Item 19 | .67 | .56 |
| Item 20 | .47 | .69 |

| | | |
|---|---|---|
| Item 21 | .71 | .42 |
| Item 22 | .28 | .80 |
| Item 23 | .58 | .60 |
| Item 24 | .69 | .42 |

*Table 8.*

**Eigenvalues for the Third Iteration, using the Varimax Rotation**

| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 15.61 | 65.05 | 65.05 | 15.278 | 63.659 | 63.659 | 8.877 | 36.988 | 36.988 |
| 2 | 1.37 | 5.69 | 70.74 | 1.084 | 4.518 | 68.177 | 7.485 | 31.189 | 68.177 |
| 3 | 1.03 | 4.29 | 75.04 | | | | | | |
| 4 | .91 | 3.78 | 78.82 | | | | | | |
| 5 | .69 | 2.88 | 81.69 | | | | | | |
| 6 | .62 | 2.59 | 84.28 | | | | | | |
| 7 | .55 | 2.31 | 86.59 | | | | | | |
| 8 | .43 | 1.81 | 88.40 | | | | | | |
| 9 | .39 | 1.66 | 90.06 | | | | | | |
| 10 | .35 | 1.47 | 91.53 | | | | | | |
| 11 | .32 | 1.32 | 92.85 | | | | | | |
| 12 | .28 | 1.18 | 94.04 | | | | | | |
| 13 | .24 | .99 | 95.03 | | | | | | |
| 14 | .20 | .84 | 95.87 | | | | | | |
| 15 | .19 | .79 | 96.66 | | | | | | |
| 16 | .15 | .65 | 97.31 | | | | | | |
| 17 | .13 | .56 | 97.87 | | | | | | |
| 18 | .13 | .54 | 98.41 | | | | | | |
| 19 | .10 | .43 | 98.84 | | | | | | |
| 20 | .08 | .32 | 99.16 | | | | | | |

| 21 | .07 | .29 | 99.45 |
|----|-----|-----|-------|
| 22 | .06 | .25 | 99.70 |
| 23 | .04 | .15 | 99.86 |
| 24 | .03 | .14 | 100.00 |

*Table 9.*

**Factor Matrix for the Fourth Iteration: A 1-Factor Solution**

| Item | Factor |
|------|--------|
| Item 1 | .70 |
| Item 2 | .83 |
| Item 3 | .75 |
| Item 4 | .76 |
| Item 5 | .82 |
| Item 6 | .79 |
| Item 7 | .71 |
| Item 8 | .62 |
| Item 9 | .89 |
| Item 10 | .90 |
| Item 11 | .85 |
| Item 12 | .77 |
| Item 13 | .73 |
| Item 14 | .80 |
| Item 15 | .84 |
| Item 16 | .81 |
| Item 17 | .83 |
| Item 18 | .79 |
| Item 19 | .87 |
| Item 20 | .82 |
| Item 21 | .81 |
| Item 22 | .74 |
| Item 23 | .83 |
| Item 24 | .79 |

*Table 10.*

**Eigenvalues for the Fourth Iteration: A 1-factor Solution**

| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 15.61 | 65.05 | 65.05 | 15.25 | 63.55 | 63.55 |
| 2 | 1.37 | 5.69 | 70.74 | | | |
| 3 | 1.03 | 4.29 | 75.04 | | | |
| 4 | .91 | 3.78 | 78.82 | | | |
| 5 | .69 | 2.88 | 81.69 | | | |
| 6 | .62 | 2.59 | 84.28 | | | |
| 7 | .55 | 2.31 | 86.59 | | | |
| 8 | .43 | 1.81 | 88.40 | | | |
| 9 | .39 | 1.66 | 90.06 | | | |
| 10 | .35 | 1.47 | 91.53 | | | |
| 11 | .32 | 1.32 | 92.85 | | | |
| 12 | .28 | 1.18 | 94.04 | | | |
| 13 | .24 | .99 | 95.03 | | | |
| 14 | .20 | .84 | 95.87 | | | |
| 15 | .19 | .79 | 96.66 | | | |
| 16 | .15 | .65 | 97.31 | | | |
| 17 | .13 | .56 | 97.87 | | | |
| 18 | .13 | .54 | 98.41 | | | |
| 19 | .10 | .43 | 98.84 | | | |
| 20 | .08 | .32 | 99.16 | | | |
| 21 | .07 | .29 | 99.45 | | | |
| 22 | .06 | .25 | 99.70 | | | |
| 23 | .04 | .15 | 99.86 | | | |
| 24 | .03 | .14 | 100.00 | | | |

*Table 11.*

 **Independent samples t –test results for the modified Teacher's Sense of Efficacy Scale**

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| Equal variances assumed | 1.74 | .19 | -3.59 | 68 | .00 | -1.14 | .32 | -1.77 | -.51 |
| Equal variances not assumed | | | -3.59 | 65.23 | .00 | -1.14 | .32 | -1.77 | -.51 |

*Table 12.*

*Independent samples t-tests for the Maslach Burnout Inventory*

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| MBI A | Equal variances assumed | .04 | .83 | 1.05 | 68 | .30 | 2.06 | 1.96 | -1.85 | 5.96 |
| | Equal variances not assumed | | | 1.05 | 67.77 | .30 | 2.06 | 1.96 | -1.85 | 5.96 |
| MBI B | Equal variances assumed | .51 | .48 | .68 | 68 | .50 | .83 | 1.21 | -1.59 | 3.25 |
| | Equal variances not assumed | | | .68 | 67.99 | .50 | .83 | 1.21 | -1.59 | 3.25 |
| MBI C | Equal variances assumed | 6.21 | .02 | -1.94 | 68 | .06 | -3.26 | 1.68 | -6.60 | .09 |
| | Equal variances not assumed | | | -1.94 | 57.91 | .06 | -3.26 | 1.68 | -6.61 | .09 |

Figure 1

*Parallel Analysis of Eigenvalues Observed and Simulated Eigenvalues*
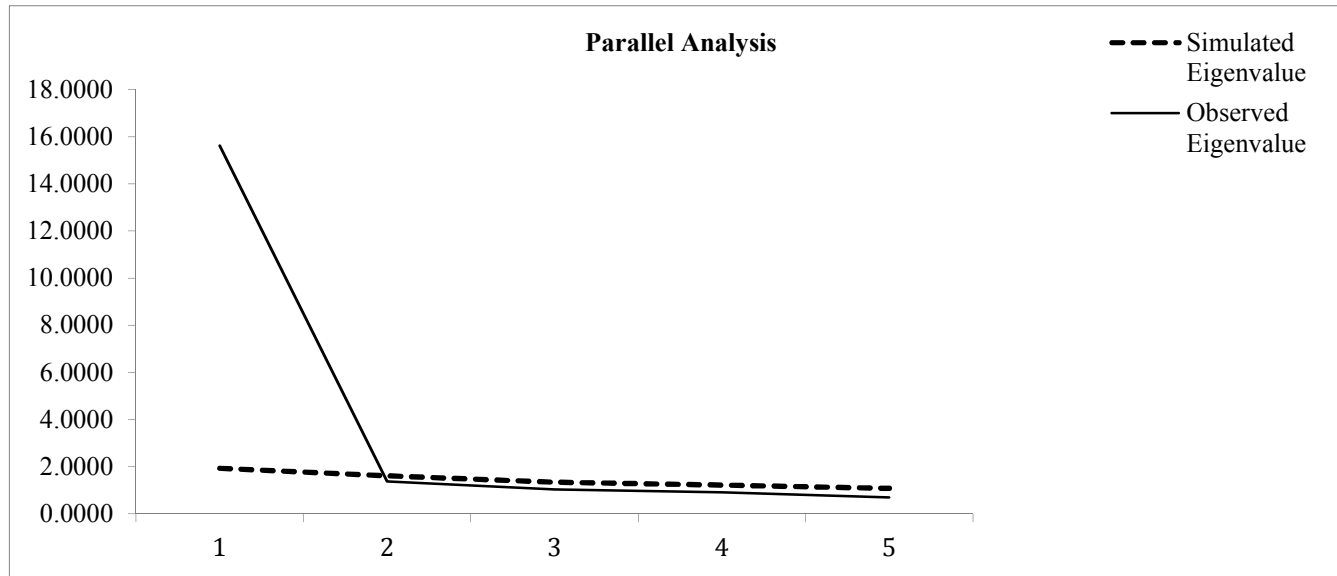
# ACTIVE ENGAGEMENT DATA

## MATERIALS - Materials Accessible to Individuals- based on a one time look around

| | Percent% |
|---|---|
| 1. Number of individuals ____<br>Scan each individual and determine the number that have materials accessible<br>2. Number of individuals with materials accessible _____<br>Percent of individuals with materials accessible (#1/#2)*100)_____<br>**Names of Staff Observed:** | |

## POSITIVE INTERACTIONS/Effective Praise (4:1 Ratio)

Observe staff / individual interactions for 10 minutes. Put a mark in the appropriate box each time a staff/interaction occurs with an individual.

**Positive Interaction**: any praise which doesn't qualify as effective praise, any appropriate use of visual icon strategies with an individual, doing something for an individual when the individual is present (e.g. helping load the washing machine), agreeing to do something for an individual when the individual requests it, interactions with an individual that includes a calm/pleasant tone of voice, offers to help, touching appropriately, appropriate use of humor, being attentive, smiling, listening, expressions of concern, eye contact with appropriate facial expression, playing a game with a an individual. All positive interactions should be counted for up to 10 minutes.

**Effective Praise:** each occurrence of behavior specific verbal praise, for example, '<name>, good job cleaning the table.

**Negative Interaction**: Verbally stating once or multiple times that the individual is doing something wrong), use of a coercive, any interaction that makes an individual seem scared, fearful, or guilty (individual sighs, cringes, cries, etc.), any interaction which may cause harm to an individual.

| Time | Staff Requests Instructions (R/I) | Positive Interact (PI) | Effective Praise (EP) | Negative Interactions (NI) |
|---|---|---|---|---|
| From:<br>To: | | | | |

Effective Praise_____ + Positive Interactions _____ =Total Positive_____          Total Negative Interactions

–

**Percent Calculation = (Total Positive Interactions/Total Positive Interactions + Total Negative Interactions x 100 = _____%)**

## INDIVIDUAL POSITIVE INTERACTIONS
### (Can be during 10 minute observation – select two minute period at beginning or end)

**-** For two minutes, count the number of individuals that receive an interaction from staff.
1.  Number of individuals at start _____ At end  _____        Average_____
2. Number of individuals receiving an interaction from staff _____        2/1 = _____

**Comments:**

Appendix B: Modifications to the Teacher Sense of Efficacy Scale

| Item | Original Teacher's Sense of Efficacy Scale | Modified Teacher's Sense of Efficacy Scale |
|------|---------------------------------------------|---------------------------------------------|
| Item 1 | How much can you do to get through to the most difficult **students**? | *Individuals* |
| Item 2 | How much can you do to help your **students** think **critically**? | *Individuals; about their behavior* |
| Item 3 | How much can you do to control disruptive behavior in the **classroom**? | *House* |
| Item 4 | How much can you do to motivate **students** who show low interest in **school work?** | *Individuals; participating in house activities* |
| Item 5 | To what extent can you make your expectations clear about **student** behavior? | *Individual* |
| Item 6 | How much can you do to get **students** to believe they can **do well in school work**? | *Individuals; make progress behaviorally* |
| Item 7 | How well can you respond to difficult questions from your **students**? | *Individuals* |
| Item 8 | How well can you establish routines to keep activities running smoothly? | No modifications were made to this item. |
| Item 9 | How much can you do to help your **students** value learning? | *Individuals* |
| Item 10 | How much can you gauge **student** comprehension of what you have taught? | *Individual* |
| Item 11 | To what extent can you craft good questions for your **students**? | *Individuals* |
| Item 12 | How much can you do to foster **student** creativity? | *Individual* |
| Item 13 | How much can you do to get **children** to follow **classroom** rules? | *Individuals; house* |
| Item 14 | How much can you do to improve the **understanding** of a **student** who is **failing**? | *Behavior; individual; engaging in challenging behaviors* |
| Item 15 | How much can you do to calm a **student** who is disruptive or noisy? | *Individual* |
| Item 16 | How well can you establish a **classroom** management system with **each group of students?** | *House; your individuals* |
| Item 17 | How much can you do to adjust your lessons to the proper level for individual **students**? | *Individuals* |
| Item 18 | How much can you use a variety of assessment strategies? | No modifications were made to this item. |
| Item 19 | How well can you keep a few problem **students** from ruining an entire lesson? | *Individuals* |
| Item 20 | To what extent can you provide an alternative explanation or example when **students** are confused? | *Individuals* |
| Item 21 | How well can you respond to defiant **students**? | *Individuals* |

| Item 22 | How much can you assist families in helping their children **do well in school**? | **To make progress behaviorally** |
|---------|-----------------------------------------|-------------------|
| Item 23 | How well can you implement alternative strategies in your **classroom**? | **House** |
| Item 24 | How well can you provide appropriate challenges for very capable **students**? | **Individuals** |

Appendix C: Timeline for Implementation of PBIS

| PBIS HOME | 2015 | | | | 2016 | | | | 2017 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1st quarter | 2nd quarter | 3rd quarter | 4th quarter | 1st quarter | 2nd quarter | 3rd quarter | 4th quarter | 1st quarter | 2nd quarter | 3rd quarter | 4th quarter |
| 1 | b | e | | | | | | | | | | |
| 2 | b | e | | | | | | | | | | |
| 3 | | | b | e | | | | | | | | |
| 4 | | | | b | | e | | | | | | |
| 5 | | | | | b | e | | | | | | |
| 6 | | | | | | b | e | | | | | |
| 7 | | | | | | | b | e | | | | |
| 8 | | | | | | | | b | e | | | |

b = PBIS training began
e = PBIS staff met training criteria and are eligible to participate in study

# ALEXIS B. LUBAR

2121 MARKET STREET
APARTMENT 219
PHILADELPHIA, PA 19103
(610) 517-6333
alexis.lubar@gmail.com

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## EDUCATIONAL BACKGROUND

Candidate for PhD. School Psychology; in progress
Lehigh University, Bethlehem, PA
American Psychological Association accredited program
National Association of School Psychologists – approved program

- PhD Student Representative for Admissions
- APA Student Representative
- Research Assistant; "Autism Speaks" Project
- Student Mentor

Master of Education (M.Ed.), Human Development; May 2013
Lehigh University, Bethlehem, PA

- Degree obtained through PhD program track

Bachelor of Arts, Psychology; 2009
University of Maryland, College Park, MD

- Minor in Special Education
- Presidential Scholarship, University of Maryland, 9/2005-5/2009
- Distinguished Dean's List, University of Maryland, 2007, 2008, 2009
- Psi Chi Honor Society, 10/2007-5/2009
- Golden Key International Honor Society, 2008, 2009

## CLINICAL EXPERIENCE

August 2017-present     <u>Devereux Advanced Behavioral Health – Children's IDD Services</u>
APA-Accredited Health Service Psychology Doctoral Internship
*CIDDS, West Chester, PA*

Behavior Analyst for children and adolescents with Intellectual Disabilities, Autism Spectrum Disorder, and Disruptive Behavior Disorders in a residential treatment facility. Completed functional behavioral assessments, cognitive assessments, and neuropsychological assessments. Collected and analyzed behavior data to determine evidence-based interventions, as well as to consult with Managed Care companies about clients' length of stay in residential treatment. Conducted sessions with children's family members to teach behavioral intervention skills to family members and to consult with them about challenging behaviors that occur during family visits. Facilitated behavioral consultation across the school, residential and community settings. Received group and individual supervision by licensed psychologists and bimonthly didactic training. Facilitating a mixed-methods research study that will be presented in a poster session.

September 2009 to
August 2011; June
2013 – July 2017

Devereux Advanced Behavioral Health – Pennsylvania Adult Services
Clinical Associate, Behavior Analyst
*Whitlock Center, Berwyn, PA*

Assisted in the development and implementation of clinical treatment programs to serve transition-age and young adult individuals with developmental disabilities, traumatic or acquired brain injury, and other intellectual disabilities. Consulted with staff members and trained them on behavioral support plans to implement with clients. Trained direct care staff members on evidence-based practices for working with clients that have ASD, Intellectual Disabilities, Fragile X Syndrome, and Prader Willi Syndrome. Instructed Positive Approaches training program for newly hired and veteran Devereux employees. Formulated Behavior Support and Treatment plans based on best practice methodology and individual needs, and conducted related plan trainings. Completed Functional Behavior Assessments, Dementia Screenings, Quality of Life assessments, Satisfaction questionnaires, and cognitive assessments with clients. Contributed to the on-going initiatives of the clinical research team that focused on improving the quality of treatment for residents of the programs. Used Microsoft Excel to create detailed graphs of residents' symptomatology and target behaviors. Completed several case studies with clients to improve their functional academics, engagement in challenging behaviors, and communication skills. Co-led an advocacy groups for residents, as well as provided individual counseling as outlined in treatment plan. Co-facilitated client groups on social skills for individuals with ASD, anger management, problem-solving, and Trauma-Focused CBT. Implemented alternative communication strategies with nonverbal individuals, helped individuals to purchase iPads for use as alternative communication devices, and worked with individuals to achieve their community integration goals. Advocated for individuals to have changes in their vocational placement, such as a job in the community or a more rigorous job in a vocational program, and established volunteer opportunities for them. Administered and scored standardized cognitive, behavioral and psychological assessments and worked as a member of a multidisciplinary team to implement evidence-based interventions for individuals with a range of medical and behavioral issues.

February 2015 to
June 2015

Upper Darby High School
Practicum Student
*Upper Darby, PA*

Consulted with special education teachers about progress monitoring of students to make educational placement decisions. Conducted counseling and individualized intervention sessions with high school students in the Emotional Support program. Completed educational evaluations using standardized and curriculum based assessments. Conducted behavioral observations and completed several functional based assessments. Worked with multidisciplinary team members and provided feedback to parents/guardians for evaluations that I completed.

September 2013 to
December 2014

Aronimink Elementary School
Practicum Student
*Drexel Hill, PA*

Conducted initial evaluations and reevaluations that entailed administering cognitive assessments, collecting and analyzing academic test data and progress-monitoring, completing behavioral observations using the BOSS, and interviewing teachers and parents. Worked with a multidisciplinary team, attended team and parent meetings, and wrote reports for the evaluations. Co-facilitated a social skills group for elementary students with autism.

| | |
|---|---|
| September 2013 to May 2014 | **Children's Hospital of Philadelphia – Center for Autism Research**<br>Practicum Student<br>*Philadelphia, PA* |

Administered cognitive and neuropsychological assessments to children and adults that have Autism Spectrum Disorders as a part of several research studies. Interpreted and scored the assessment results, and completed reports on each participant.

| | |
|---|---|
| February 2012 to July 2013 | **Autism Resource Community Hub of Lehigh Valley**<br>Therapeutic Staff Support<br>*Allentown, PA* |

Supported children on the Autism Spectrum at home, school, and in the community. Responsible for the implementation of behavior support plans. Provided family members with resources and education regarding their child's strengths and needs. Developed therapeutic rapport with all students on caseload, as well as established working relationships with caregivers and related service providers. Provided service grounded in the theories of Applied Behavior Analysis principles. Utilized ABA methodology and evidence based interventions to guide treatment plan development.

| | |
|---|---|
| September 2011 to June 2013 | **Course-Related Practicum in Early Head Start Center and Elementary Schools**<br>*Allentown, PA* |

Practicum experience earned in Applied Behavior Analysis, Assessment of Intelligence, Behavioral Consultation, Behavioral Assessment and Curriculum Based Assessment. Implemented interventions through a Conjoint Behavioral Consultation process in an Early Head Start Center with 4-year-old children with autism, their parents and teachers, as well as conducting assessments, clinical interviews and observations with teachers, students and parents in elementary schools.

## RESEARCH ASSISTANTSHIPS

| | |
|---|---|
| September 2011 to September 2014 | Study: "Autism Speaks"<br>*Lehigh University*, *Allentown, PA* |

Implemented a peer-mediated social skills intervention with high-school students who have Autism in a school setting. Responsible for tracking and monitoring treatment integrity procedures and data collection. Trained typical peers on how to implement basic intervention strategies with their peers who

have autism.  Administered and scored the CARS for students with autism who were participating in the study. Implemented a similar intervention with students with autism who were more withdrawn communicators and examined social validity data for the study as part of my Qualifying Project to earn my Master's Degree.

January 2008 to          Study: "Father/Child Interactions in Children's Language
January 2009              Development"
                         *Family Involvement Laboratory; University of Maryland, College Park, MD*

Transcribed and coded tapes using the Child Language Data Exchange System of low-income Head Start fathers interacting with their children for the Father/Child Interactions in Children's Language Development Study, in collaboration with New York University. Assisted in the research of and writing for chapter in the *Handbook of Latino Psychology,* on intervention programs for Latino families with children in Head Start.

January 2008 to          Study: "The Real Relationship"
May 2008                 *University of Maryland, College Park, MD*

Transcribed tapes of therapy sessions to examine the existence of the Real Relationship between therapists and college student clients.

January 2007 to          Study:  "College Life"
May 2007                 *National Institute of Health; University of Maryland, College Park, MD*

Conducted 2-hour interviews with assessments of college students about their lifestyle and behavior, in relation to their substance abuse and mental health status, for the National Institute of Health.

## RELATED WORK  EXPERIENCE

August 2012 to           Therapeutic Care Provider:  One-on-one provider for young adult with
May 2013                 autism living at home with his parents

Worked part-time implementing behavioral and social skills interventions with young adult with autism whose parents felt that he needed additional supports in the community and at home.

August 2007 to           Teaching Assistant: "Psychology of Gender"
December 2007            *University of Maryland, College Park, MD*

Lectured material to class of 150 students on 300-level course, "Psychology of Gender". Responsible for grading exams and papers, as well as addressing students' academic needs.

### CHILD ADVOCACY
June 2008 to             Society for Research in Child Development
May 2009                 *Washington, DC*
                         Intern

Coordinated and assisted in the process of dissemination of selected research findings to policymakers

| June 2007 to | Support Center for Child Advocates |
| August 2007 | *Philadelphia, PA* |
| | Intern |

Attended home visits with social workers for children who were victims of abuse.  Participated in development meetings for behavior contracts of assigned children.   Assisted in the planning of the Outcomes of Behavioral Health Project.

| August 2005 to | Advocates for Children: College Park Scholars Program |
| May 2007 | *College Park, MD* |
| | Program Assistant |

Selected for the program at admission to the University of Maryland, based on academic merit, previous related experience, and interests.  Actively participated in 4 semesters of classes with peers, learning about children's needs, child welfare, development and ways to advocate for children. Organized programs for patients of Children's Hospital and residents of a homeless shelter.  Contributed to development of a community-based research project that evaluated the effects of a community literacy program on children's aspirations and future academic success.

CRISIS COUNSELING

| February 2006 to | Peer Counseling and Crisis Intervention Center |
| December 2008 | *College Park, MD* |
| | Help Center Counselor |

Trained to deescalate individuals in crisis by phone and through walk-in counseling; provided support in person and over the phone. Gained exposure to de-escalation methods and interventions.

## PROFESSIONAL AWARDS

Recipient of the 2015 Employee of the Year Award while working as a Behavior Analyst for Devereux Pennsylvania Adult Services.

## PROFESSIONAL PUBLICATIONS:

Cabrera, N.J., Shannon, J.D., Rodriguez, V., & **Lubar, A**. (2009).  Early intervention programs: the case of head start for Latino children.  In F. Villarruel, G. Carlo and J. Grau (Eds.), *The Handbook of Latino Psychology* (251-266).   Thousand Oaks: Sage.

## PROFESSIONAL PRESENTATIONS AND LECTURES

Bambara, L., Ayad, E., Lubar, A., & Tsai, S. (April 2014).  *Peer intervention to improve the conversational skills of high school students with autism.*  TASH Webinar.

Cole, C.L., Bambara, L.M., Kunsch, C.A., Ayad, E., & Lubar, A. (February 2014). *Use of peer mediation strategies to improve social communication skills in adolescents with Autism.* Paper presented at the annual meeting of the National Association of School Psychologists, Washington, DC.

Cristofaro, T.N., Cabrera, N., Kondelis, B., Durham, M., Lubar, A., Tamis LeMonda, C.S., & Baumwell (April 2009*). Low-income Fathers' Linguistic Influence on their   Toddlers' Language Development.* Poster presented at the 2009 Biennial Meeting of the Society for Research on Child Development, Denver, CO.

Herrigel, M., Shear, S.M., Russell, M., Donlon, K., Chrislock, K., Fernandez, L.N., Cos, T., Allen, R., Holden, T., Lubar, A.B., Milford, A., Smith, G., & Woodland, S. (August 2011). *Comparing the Relationship Between the Practice of Faith and Quality of Life for Adult Individuals with I/DD: The Forgotten Frontier?* Poster presented at the 2011 American Psychological Association Convention, Washington, DC.

Kunsch, C., Cole, C.L., Ayad, E., & Lubar, A.B. (February 2015).  Teaching peers to support conversation with high school students with ASD. Paper accepted for the annual meeting of the National Association of School Psychologists, Orlando, FL.