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**THE EFFECT OF A CLASSROOM WIDE POSITIVE BEHAVIOR SUPPORT
USED SIMULTANEOUSLY WITH INDIVIDUALIZED INTERVENTION TO
STUDENTS WITH ASD**

By

Emily Adele Hughes

A Thesis

Submitted to the
Language, Literacy, and Special Education Department
College of Graduate and Continuing Education
In partial fulfillment of the requirement
For the degree of
Master of Arts in Special Education
At Rowan University
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Thesis Chair: Joy Xin, Ed. D.

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Emily Adele Hughes

Dedication

I would like to dedicate this manuscript to my parents, Lorraine and Richard Hughes for encouraging me every step of the way throughout my educational career.

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I offer my sincerest gratitude to Dr. Joy Xin, who gave me every opportunity for growth and knowledge, and Michelle Moore for offering advice, encouragement, and much needed breaks.

Abstract

Emily Adele Hughes

THE EFFECT OF A CLASSROOM WIDE POSITIVE BEHAVIOR SUPPORT
USED SIMULTANEOUSLY WITH INDIVIDUALIZED INTERVENTION TO
STUDENTS WITH ASD

2011/12

Joy Xin, Ed.D.

Master of Arts in Special Education

This study examined the effect that a classroom-wide positive behavior support (CW-PBS) has on decreasing the inappropriate behaviors of students with autism. In addition, individualized positive behavior strategies (e.g. teaching replacement behavior, self-monitoring) were provided simultaneously together with the CW-PBS to further examine the decrease of inappropriate behavior occurrences. A total of two adolescents with autism in a self-contained setting participated in the study. A single subject research design with AB phases was used. During the baseline, participating students' behavior was observed and frequency was recorded for 10 days, and the same observations were continued during the intervention when both CW-PBS and individualized intervention were provided. The results showed that a CW-PBS decreases the occurrences of problem behavior. In addition, individualized positive behavior support used simultaneously will continue to decrease the instances of inappropriate behavior.

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Chapter 1

Introduction

Autism Spectrum Disorder (ASD) is a neuro-developmental disorder that causes difficulty with communication, language, and social skills. For example, individuals with ASD exhibit poor imitation skills, deficiencies in verbal and non-verbal communication, unusual responses to people, as well as presenting inappropriate behaviors (American Psychiatric Association, 2011). Students who are diagnosed with ASD typically display behavior problems such as self injurious behavior (SIB) (e.g. hand biting, head hitting), non-contextual verbal behavior (e.g. repetitious phrases, echolalia), ritualistic behaviors (e.g. obsessive compulsions over schedules and/or people), and aggression (e.g. hitting, biting, scratching). Behavioral problems of students with ASD can range from the mild (e.g. disruption) to the severe (e.g. SIB, aggression). It is vital for teachers to analyze their behavior problems and provide intervention in the classroom.

Positive behavior support (PBS) uses evidence-based strategies to reduce engagement of problematic or interfering behavior in order to increase the quality of life that focuses on measured outcomes and procedures (Horner, 2000). There are three different systems when implementing PBS strategies: school-

wide positive behavior support (SW-PBS), classroom-wide positive behavior support (CW-PBS), and individualized positive behavior support. SW-PBS is aimed towards schools that have the same consistent behavioral problems over a number of students (e.g. school violence, bullying, destruction of property) (Sugai & Horner, 2008). A CW-PBS is a more focused, small-group specific set of strategies and interventions utilized in a classroom setting. The most essential elements are providing positive responses to students when they are behaving, organizing a clear classroom environment and schedule, as well as preparing clear expectations and rules for the students (Carter & Van Norman, 2010). An example of a CW-PBS would be using a token economy, a system of giving points or tokens for an appropriate behavior, as a reinforcer. The classroom behavior would be tracked based on following required rules and reinforcers would be earned at the primary and secondary levels throughout the day with classroom schedules and environment provided as a parallel to the intervention. These reinforcers, or tokens, are used for reinforcement that reflects the good behavior of the individual (Matson & Boisjoli, 2008).

Not only is PBS beneficial class-wide, but it is a helper in determining more intense and individualized intervention for students with ASD on an individual level. PBS strategies can be utilized on an individualized basis depending on the goals and needs of the specific student. These goals and needs,

along with the function of the behavior, are analyzed in order to produce the most effective evidence-based intervention, which is the process of implementing PBS strategies. For example, if an individual with ASD is engaging in SIB (e.g. head hitting), the function of the behavior should be assessed and an intervention plan based on the needs and goals of that student should be discussed, and an individualized plan should be formed using PBS strategies along with evidence-based practices (e.g. self-monitoring, teaching replacement behavior). The classroom teacher should then implement the strategies on an individual level, with objective goals and measureable outcomes (e.g. reducing the number of inappropriate behavior occurrences). Thus, for the student engaging in SIB, a positive support would be to teach that student replacement behaviors based on a differential reinforcement of other behaviors (DRO) in which the student is reinforced for *not* engaging in inappropriate target behaviors. The student is taught the appropriate behaviors while using a positive and intense reinforcement (such as DRO), for the non-presence of inappropriate social behaviors. The reinforcer needs to be meaningful to the students and effective in decreasing inappropriate behaviors while increasing the presences of the replacement behavior (Maag & Kemp, 2003). Using these supports, along with empirically-based interventions can reduce the occurrence of problematic behaviors as well as acting proactively to prevent the occurrence

of inappropriate behavior (Neitzel, 2010). The major focus of PBS is to decrease problem behaviors while preventing other behaviors from occurring when used in conjunction with empirically based practices.

It is found that PBS is effective to students with learning disabilities to reduce inappropriate behavior. It is also found that PBS, along with self-monitoring, are effective to decreasing inappropriate behavior in children with ASD (Ganz, 2008, Matson & Boisjoli, 2008, & Gresham, Van, & Cook, 2006). Self-monitoring encourages students to assess their own behavior and record when they are engaging in appropriate behaviors. This strategy allows the child to evaluate his/her own performance in the field of academic monitoring, on-task monitoring, or behavior monitoring. Actively involving students into their own reinforcement schedules may allow for increased on-task behaviors as well as a decrease in distracting or interfering problem behaviors (Holifield, Goodman, Hazelkorn, & Heflin, 2010).

It is also found that strategies such as token economy, self-monitoring, teaching replacement behavior are employed in classrooms for students with ASD; however, they are strongly focused on younger populations in elementary schools while classroom wide PBS are not emphasized for adolescent students with ASD. It seems important to create a structurally sound environment for

these students in a secondary school. Using PBS to promote appropriate behavior as well as prevent inappropriate behavior occurrences throughout the school day seems imperative to students with disabilities. A positive behavior management plan should be implemented in the classroom, with individual support strategies to meet individual students' needs, especially those with ASD.

Statement of Problems

Managing student behaviors in a classroom is a challenge for many teachers, especially for those working with students with ASD in a secondary setting. Positive behavior supports provide an opportunity for teachers to provide positive strategies to reinforce alternative appropriate behavior. It is found that some teachers are not aware of the availability of positive behavior supports and their effect, and others do not utilize these strategies in the classroom. Unawareness of these interventions seems to impact the teacher's decision making of student placement. As a result, many of these students would be placed in a self-contained classroom of an alternative school, which limits their opportunities to integrate into the public school system.

In addition, when the teachers implement an intervention, it often lacks of consistence. For example, different staff may define behaviors differently, reinforcing at inconsistent times and causing the students to respond differently

to different staff for the same behavior. This is a foundational problem in schools that can ultimately impact the behavior of the students, both individually and classroom wide. Because implementing an intervention through the support of a PBS is highly individualized, many parties need to be involved in the assessment, planning, and eventual introduction of the intervention. Between all of these steps, information can become complicated, causing inconsistencies with the PBS and intervention over staff members, classroom, and community educational settings (Horner, 2000). Without consistency, individuals with ASD may engage in additional or more severe behaviors.

Much of the research to date is focused on early intervention of young children with ASD, as well as those in elementary school. Limited studies are found for students with ASD at the secondary level. Especially with individuals with ASD, behaviors can appear at any time throughout the course of their life, even after intense intervention is given in the early stages of diagnosis. The behaviors also fluctuate over time, becoming more or less severe throughout the individual with ASD's lifetime. Although these students may receive early intervention to decrease the frequency of the behavior problem, such as SIB, when they are young, the students may present the SIB at a later time in life, making it important to treat at the secondary level as well as with the younger students (Matson & LoVullo, 2008). Even though some research is available on a

secondary level, it is mainly directed towards higher functioning students. For the lower functioning students with severe behavior problems, research is essentially limited at the secondary level. It seems that the lack of resources and research impacts the teachers' implementation of effective intervention strategies to support their students' skills acquisition and academic achievement.

Therefore, it is crucial for secondary teachers of lower functioning students with ASD to have effective PSB strategies.

Significance of Study

This study will implement a positive behavior support in a classroom to examine the effectiveness of such a classroom wide system, while simultaneous intervention is provided to the individual students with ASD who have severe behavioral problems. While the PBS used are generally more focused on elementary students and students with mild disabilities, the present study will add information pertaining to the secondary level of students with ASD. In addition, while a large amount of research is provided for higher functioning students with ASD, this present study will provide a more in-depth view of these students who have moderate to severe behavior problems.

Statement of Purpose

The purposes of this research are to (1) examine the effectiveness of a classroom-wide positive behavior management plan for students with ASD, (2) examine the effect of individual intervention using differential reinforcement of other behaviors (DRO) with a fixed interval schedule of reinforcement, (3) attempt to reduce inappropriate behaviors by teaching students appropriate replacement behaviors, and (4) attempt to reduce inappropriate behaviors by teaching students self-monitoring skills.

Research Questions

The research questions of this study are as follows:

1. Will a classroom-wide positive behavior support plan be effective in reducing inappropriate behaviors (e.g. aggression, yelling)?
2. When used simultaneously with a CW-PBS plan, will DRO with a FR reduce inappropriate behaviors and increase the on-task behavior?
3. Will teaching replacement behavior (e.g. break card, breathing exercises) reduce inappropriate behavior and increase the on-task behavior?

Definition of Terms

Replacement Behavior: an appropriate behavior to replace an inappropriate target behavior (i.e. the replacement behavior for crying would be relaxation exercises).

On-Task Behavior: when the student responds accurately to the request from the teacher (e.g. the teacher asks the student to work on a worksheet and the student completes the activity without any inappropriate target behaviors). Off-task behaviors would consist of aggression, yelling, class disruption.

Token Economy: individuals earn tokens based on engaging in socially appropriate behavior. These tokens can be exchanged for motivational privileges when needed (e.g. time with teacher).

Chapter II

Literature Review

Individuals with autism have difficulty in communication and interactions with others, and present socially unacceptable behaviors. These behavior problems, such as engagement in repetitious behavior (e.g. flapping, clapping) and aggression (e.g. kicking, biting) are often observed in school. To reduce these inappropriate behaviors and increase the appropriate, empirically-based positive behavior support should be considered (Simonsen, Britton, & Young, 2010; Neitzel, 2010; Sugai & Horner, 2002; Buschbacher & Fox, 2003; Horner, 2000). PBS is considered as person-centered interventions using positive approaches to engineering environments, teach alternative behaviors, and employ meaningful consequences to enhance the quality of life for an individual (Wheeter & Richey, 2010). Three levels of intervention in PBS include school wide, classroom wide, and individualized strategies. One of the most important steps in creating a PBS is determining, defining, and measuring target behaviors clearly and objectively. Target behaviors provide the foundation for determining which level of PBS as well as the specific intervention will be considered. A functional assessment of the inappropriate target behavior serves as the primary factor for implementing PBS. Based on the functional behavior assessment,

professionals can determine what intervention, and at which level, would be appropriate to the school, classroom, and meeting the individual child's needs. Once these needs are determined, educators will implement a PBS intervention to teach socially acceptable behaviors (e.g. on-task). This chapter reviews the concepts of PBS at each level to discuss PBS interventions at the individualized level including specific strategies such as token economy, self-monitoring, and teaching replacement behavior.

School-wide Positive Behavior Support

School-wide PBS is the first level of behavior management. In the school setting, PBS should be implemented to solve overall behavior problems throughout the school. For example, PBS was shown to decrease severe behavior problems, such as bullying, violence, and blatant disregard of authority (Sugai & Horner, 2002; Bohanon, Fenning, Carney, Minnis-Kim, Anderson-Harriss, Moroz, Hicks, Kasper, Kulos, Sailor, & Pigott, 2006). In Bohanon, et.al's study, it is found that mild behaviors (abiding by dress code, attendance) as well as more severe behaviors (authoritative disobedience) were reduced when PBS was implemented in school. Thus, attendance was improved and appropriate behaviors were observed. In the three years' school-wide intervention, 1,800 students in the school district, with various ethnicities, were involved. Keeping

attendance, following dress code, and adhering to the rules of the school as well as being respectful to school personnel were the targeted behaviors. When a school-wide PBS was implemented, students were informed of the school expectations, rules, and the guidelines and examples of appropriate behaviors followed by daily practice and supervision. Reinforcement was available for those students that followed the rules and presented appropriate behaviors. In addition to the daily reinforcement from the teachers, two school-wide celebrations were held each year for those students that abided by the school discipline during the PBS intervention. By the third year, it was found that the school attendance rate increased by .39 per 100 students, dress code violations dropped from 26.63 to 8.39, and severe behaviors decreased from 1.64 office referrals to .05 office referrals. The effectiveness of this school wide PBS is shown through the decrease of inappropriate behaviors, which produces an increase of appropriate behaviors. The major concern of implementing this type of intervention for such a large population of students is consistency. Some teachers may have reinforced more than others, and newer teachers may not have been given the same consistent training over the three years during the data collection period. Also, the typical students responded more to the school expectations; whereas, those with disabilities struggled because of skill deficits related to the school expectations. Students with disabilities respond better to

individualized instruction so it is possible that they would not be receptive to a school wide intervention with the entire student population.

It appears that PBS, as a primary use of behavior management has been shown to be effective in decreasing problem behavior and increasing appropriate behavior in school (Simonsen, Britton, & Young, 2010; Neitzel, 2010; Sugai & Horner, 2002; Buschbacher & Fox, 2003). While researchers have discovered the behavior change through school-wide PBS in urban schools, there is substantial research on the effectiveness in alternative settings where students with chronic behavior problems are placed. In order for the school to keep control of the various levels of behaviors, a PBS strategy school-wide will be implemented (Simonsen, et.al, 2010). In Simonsen and his associates' study (2010), evidence was found that, over a 3-year period, when a school-wide PBS was implemented in an alternative setting, aggressive behaviors were decreased school-wide as well as an increase in the amount of students who did not engage in violent and problematic behaviors. About 50 students over the three years, who were diagnosed with multiple disabilities, were observed. These students overall engaged in severely aggressive behaviors as well as a high rate of class and school wide disruptions (on average, 14 occurrences per student). With staff training, and individualized behavior interventions in place along with a token economy system, data was collected based on the number of students followed

the general class rules and expectations. The effectiveness of the school-wide PBS showed an increase to 83% of students who did not engage in serious behaviors as compared to the 70% of the first year (Simonsen, et. al 2010). This substantial increase can be accredited to the school-wide PBS along with the individualized positive behavior supports. Generally, this school-wide intervention has demonstrated short-term positive outcomes, but is questionable on whether or not the appropriate behavior would be sustained over a period of time. Therefore, schools need to implement strategies that will be effective over years, in which a school-wide positive behavior support can be maintained (Sugai & Horner, 2002).

Classroom-wide Positive Behavior Support

Classroom-wide PBS is often provided in inclusion settings because it offers behavior management for all students in the classroom, while simultaneously focusing on individual students who need extra attention (Moroz & Jones, 2006). There are different strategies used in classroom wide behavior management. Positive Peer Reporting (PPR) is an example that encourages typical peers to praise and encourage their classmates with social deficiencies. In Moroz and Jones' study, three students, aged 7-8, engaged in social isolation as well as overall social shyness (e.g. non-participation) were participants. Each day

a “star” of the classroom was selected and all of the other students were reinforced if, throughout the day, they praised the “star” for doing something nice, working hard, and playing a game well. The students that were socially isolated, upon receiving praise, became more involved in playing games and engaged with the other students in the classroom (e.g. holding hands, playing with a toy). On average, the participating students were praised by their peers about 16 times a day when they were the “star”. After the PPR intervention, these students were reported to be more widely accepted by their peers with increased confidence. Their social involvement was increased and maintained even with removal of the PPR intervention. Therefore, it is found that the students are less likely to engage in problematic behaviors or social withdrawal, especially among the population of at-risk students (Moroz & Jones, 2006). This classroom-wide PBS may work well within the confines of an inclusion classroom or even in a self-contained environment for high functioning students with ASD, but research is still needed in terms of how to reduce aggressive and problematic behaviors in an alternative setting of students with ASD. The target children in Moroz & Jones’ study (2006) were found to no longer be socially isolated from their peers, but in a self-contained environment, such social isolation may not be a concern. Further research as to whether cognitively low-functioning students would be affected by the amount of praise and acceptance

of their peers is needed. It seems that not all PBS strategies are appropriate for certain populations of students.

One possible, and more generalizable classroom wide group contingency for students with ASD is targeted in a case study (Kamps, Wills, Heitzman-Powell, Laylin, Szoke, Petrillo, & Culey 2011) In this particular study, a group contingency was implemented in addition to individualized PBS strategies, including extinction, teaching replacement behaviors, self-management strategies, and teaching communicative skills to students that are at-risk for behavioral and emotional disabilities (Kamps et. al, 2011). The participants were 107 general education students across three classrooms, nine of which were the target population because they were at-risk for emotional behavior disorders (all nine students engaged in a high number of disruptive behaviors). On-task behavior was recorded in 30 second intervals based on the rows in which they were seated as well as frequency of the disruptive or off-task behavior occurrences (e.g. talking to peers, getting out of seat). Classroom-wide intervention consisted of 4:1 positive praise to reprimands. A token economy system was used with differential reinforcement for on-task behaviors every time a bell sounded every 2-3 minutes for the group of students that were ALL engaged in appropriate behavior. By the end of the intervention phase, there was an increase of on-task behavior of the population of the typical students as

well as that of the at-risk students. The token economy system used simultaneously with differential reinforcement was shown to be effective in diminishing inappropriate behaviors and increasing the occurrence of socially acceptable behaviors (Kamps, Tankersly, & Ellis, 2000). It demonstrated the effectiveness of a school-wide contingency across a number of classrooms, as well as increases in socially acceptable behaviors (e.g. on-task behaviors) while using a classroom wide group contingency, and then individualized PBS strategies on those students that were at-risk. While the target population used in the study (Kamps et. al, 2011) focused on at-risk emotionally and behaviorally disturbed students in an urban school district, the individualized PBS strategies are thoroughly examined and can be considered to generalize into an alternative setting, and the individualized PBS can be applied for students with ASD. Teaching replacement behaviors, self-monitoring strategies, and classroom wide group contingency have been proven to be effective among the ASD population (Matson, Shoemaker, Sipes, Horovitz, Worley, & Kozlowski, 2010; Dufrene, Watson & Weaver, 2008; Barker & Thyer, 2000; Gaines & Barry, 2008).

Children with ASD, in comparison to typically developing children, have little to no social and play skills. These children will either inappropriately play with certain toys, not engage in social play with other children, or have obsessive interests that do not relate to typical peers (e.g. will only play with the red car,

not the blue car). Also impeding social and play growth is the tendency for these children to engage in self-stimulatory behavior (Bass & Mulik, 2007). Kohler, Strain, Hoyson, Davis, Donina, and Rapp (1995) examined the effectiveness of a PBS group contingency among nine students, aged 3-5, with three classified with ASD. The children with ASD were integrated into a general education preschool classroom, and the PBS regarded peer initiation strategies and play skills. Behaviorally, one of the students with ASD engaged in stereotypy such as echolalia, and the other two responded negatively to social initiation from peers and staff. Daily play activities were available to the children and each group worked in pods of three in which two of the students were typically developing peers and one with ASD. All children were taught play skills as a group, including how to initiate, how to offer assistance, and how to organize the play area. Children were reinforced with a happy face by the teacher when they presented appropriate behaviors. For example, if one got all happy faces, another reinforcement would be provided. The typical children were more motivated to initiate, and those students with ASD were motivated by the encouragement and reinforcement associated with playing with their peers. Upon completion of the intervention, it was found that there was an increase in social interaction among both the typical students and those with ASD. Also, the reciprocation of play was increased in the children with ASD by means of more

involved responses to the initiation of play from a typical peer (Kohler, et.al 1995).

Individualized Positive Behavior Support

An individualized PBS is considered when an individual student engages in more disruptive and harmful behaviors. When handling behavior problems within a classroom, there are many empirically-based support strategies (e.g. self-monitoring, token economy, differential reinforcement) available to decrease problematic behaviors. On a school wide level, it is important to consider the needs of all of the student and at the classroom wide level, it is essential to evaluate and analyze the needs on a class basis. Once these two levels are secure and situated, target students should be exposed to individualized interventions based on the specific problem and function of their behaviors. This level of PBS is specifically targeted to the student's needs. Beginning with an observation of target behavior, professionals will then analyze the behavior function which leads to incorporating specific strategies as well as staff member's involvement. While this plan is supervised by the student's teacher, it is imperative for family members to input what would be best for the student based on their needs, the behavior function, and the type of the classroom setting (e.g. inclusion, self-contained) (Neitzel, 2010). For example, individuals with ASD who engage in

stereotypical and/or maladaptive and interfering behaviors are impeding the learning and developmental process throughout their schooling (Neitzel, 2010). An individualized plan reflects the student's problem and needs created with the use of PBS strategies through the collaboration between teachers and parents (Neitzel, 2010; Buschbacher et. al, 2003). Once the functional assessment has been put into place, the behavior can be broken down into the smallest parts in order to be treated within the classroom setting (Cooper, 2007). For example, if a student is engaging in self-stimulatory behavior (e.g. flapping, hand-mouthing), and the functional assessment presents that they are engaging in that behavior because it provides the student with automatic reinforcement, the next step would be to implement a PBS that reflects the needs of the student that engages in that specific behavior (e.g. movement-based sensory intervention). The PBS will act as a support system in which the child will be reinforced automatically in a different fashion to replace inappropriate self-stimulatory behavior (Mays, Beal-Alvarez, & Jolivette, 2011).

In addition to applying a functional behavior assessment, there should be a comprehensive support plan put into place to outline the details of the PBS (Buschbacher et.al, 2003). Professionals need to keep in mind the setting of the classroom, the school and specific classroom environment, and the student's level of comfort (Neitzel, 2010; Buschbacher et. al, 2003). Individualized

behavior supports should be designed to fit all aspects of the student's life as well as be easily generalized into a number of settings. If the PBS is only considered to implement within the classroom, the students may have a difficult time transferring into other settings such as different classrooms in the school and community, and eventually out of school. According to Horner (2000), PBS should be available throughout the entire day, and multiple procedures should be included. For example, if the student engages in self-injurious behavior (e.g. hand-biting), multiple structured PBS support strategies (e.g. replacement behavior and social stories) should be implemented consistently over the course of an entire day, not just when the student is engaging in that specific behavior. Because of the immense impact that problem behavior has on the daily life and functioning of students with ASD, it is important to carefully evaluate the behavior function and the related PBS intervention, especially at the individualized level (Horner, 2000). However, there is little research on school-wide PBS for the ASD population. Thus, when utilizing PBS practices in a self-contained classroom for students with ASD, the levels most commonly used are at the classroom wide and, most importantly, individualized interventions.

Understanding the importance of individualized instruction to students with ASD is foundational. According to Bambara, Nonnemacher and Kern (2009), there are five essential steps on the planning of an individualized PBS

intervention. These include (1) determining the target problem behaviors that are most interfering with student learning; (2) performing a functional behavior assessment to determine the function of the behavior; (3) utilizing data-based hypotheses that will lead to the appropriate intervention; (4) creating the individualized PBS based on the needs of the student and the results of the functional behavior assessment; (5) implementing the intervention with consistent analysis and evaluation of data and procedures. Once the functional behavior assessment has been evaluated, and a data-driven hypothesis formulated, the professionals who work the closest with the child should begin to create the most appropriate PBS intervention for the student. Taking into consideration the results of the functional assessment, professionals should evaluate the intervention that correlates to the student's behavior, environment, and experiences (Ryan, Hughes, Katsyannis, McDaniel, & Sprinkle, 2011). For example, if a student is engaging in behaviors because of difficulty with compliance, Discrete Trial Training may be most suitable (Ryan et.al, 2011). If the student is engaging in inappropriate behaviors to gain attention from staff, extinction procedures may be the best (Neitzel, 2010). The following interventions will be discussed in more length due to the eventual use in this paper's case study: token economy (classroom wide PBS), self-monitoring strategies (individualized PBS), and teaching replacement behaviors

(individualized PBS). These specific PBS interventions, have shown to be effective in reducing the problem behavior; but most importantly, it has been found to be effective in the treatment of behavior of students with ASD (Ryan et. al, 2011; Charlop-Christy & Haymes, 1998; Grindle & Remington, 2005; Gaines & Barry, 2008; Ganz & Sigafoos, 2005; Barker & Thyer, 2000; Hollin, 2003).

Token Economy

There are many strategies teachers use in class to reinforce their students' appropriate behaviors. One of these strategies is the token economy. Student(s) receive tokens contingent on their presentation of appropriate behaviors. The tokens can be stars, coins, stickers, etc. as reinforcers. It is suggested that the same form of token be used consistently throughout the year, because the individuals exposed to the token economy are going to connect that specific token to the method of reinforcement. For example, if a typical student is earning stars for each time he/she demonstrates the appropriate behavior, the star will represent an available reinforcer, which encourages students to constantly engage in that behavior to receive that reinforcer (Charlop-Christy & Haymes, 1998). According to Charlop-Christy, et.al's study (1998), token economies are found to be effective in use with students with ASD. The study focused on which token a student with autism would be most motivated by - a

typical token (e.g. star, sticker) or a token of obsession (e.g. puzzle piece). The participants were three students with autism, aged 7-9, who had little motivation to respond to demands from the teacher. Frequency data was recorded on the number of appropriate responses as well as the number of inappropriate behavior occurrences the student had throughout both the typical token reinforcement phase as well as the obsession token phase of reinforcement. The tokens of obsession were based on objects that caused the student to tantrum if access to the object was limited or denied. Results demonstrated that, among all of the socially inappropriate behaviors (e.g. crying, aggression, SIB, stereotypy, noncompliance), there was an increase in appropriate behavior and increased responding, especially when tokens of obsession were used as reinforcement. When the typical token was introduced, the students all showed a slight change in correct responses, but the typical token improved their behaviors. Using tokens based on obsession for an individual student seem to be observed as primary reinforcers instead of a secondary reinforcer (Charlop-Christy et.al, 1998). Thus, selection of reinforcers for classroom wide token economies is essential in that a primary reinforcer should be available as a token.

While classroom-wide token economies are efficient in decreasing inappropriate behaviors (Cavalier, Ferretti, & Hodges, 1997), individualized intervention is still needed for those students with severe and consistent problem

behaviors (e.g. inappropriate verbalizations). In their study, Cavalier et. al (1997) a whole class token economy procedure was implemented to decrease inappropriate behaviors in a self-contained classroom with their ultimate goal of transitioning the students into an inclusion setting. The two students that engaged in more interfering behaviors received intense individualized intervention in the form of self-management and self-recording. Between the use of the classroom token economy system and the implementation of the individualized intervention, the students' problem behaviors had a statistically significant decrease. Token economy was shown to be effective in decreasing the inappropriate behavior of the participating students with behavior problems; however, self-recording may not be the best approach to students with ASD. These students may not be able to record when they engage in a specific behavior. In terms of the efficiency and procedures of the classroom wide token economy, the reinforcement schedule could possibly be appropriate for the autistic population with the individualized intervention targeted to each individual.

Another example of a classroom wide token economy system was found in Filcheck, McNeil, Greco, & Bernard's study (2004). Disruptive behavior can affect not just the individual student's learning, but also the learning of other students in the classroom. To employ a whole classroom reinforcement system

would be beneficial to both the typical students in the classroom as well as those with learning disabilities. Token economy was implemented in a pre-school classroom that generally had behavior problems across all 17 children with an average age of 2.9 years old. These behavioral problems included calling out and hitting. Procedurally, the teacher was trained in positive practice strategies so in addition to the implementation of the token economy, they were encouraged to provide positive verbal praise instead of critical statements. The tokens consisted of shapes that would move up if a child presented an appropriate behavior, and move down when the student was engaging in disruptive behavior. When the shape reached the top of the line, the child would receive immediate reinforcement such as a sticker or spending time with the teacher. This shape also represented the child's performance. Results demonstrated a decrease of student's disruptive behaviors. While it was shown that classroom wide PBS is effective in a preschool classroom, it would also be beneficial to record on whether the token economy at a classroom wide level would be effective for secondary students with ASD.

The token economy accounts for a classroom wide PBS, making it an effective intervention to sustain on task behaviors, especially in the presence of back-up reinforcers (e.g. immediate reinforcement and token system with delayed reinforcers) (Tarbox, Ghezzi, & Wilson, 2006), decreasing inappropriate

social behaviors (e.g. screaming, stereotyping, self-injurious behavior) (LeBlanc, Hagopian, & Maglieri, 2000; Filcheck, et.al, 2004), and inappropriate classroom behaviors (e.g. getting out of seat, talking out of turn) (Higgins, Williams, & McLaughlin, 2001). Token economies have been recorded to be most beneficial to the student when paired with an individualized intervention targeted towards the needs of the particular student (Charlop-Christy et.al, 1998; Cavalier et. al, 1997; Filcheck et. al, 2004; Tarbox et al, 2006; LeBlanc et.al, 2000).

Self-Monitoring

Self-monitoring encourages students to record and assess their own behaviors, so that they can be self-aware of their behaviors. This strategy works as an effective individualized intervention to manage behaviors especially for students in general education classrooms (Rafferty, 2010; Cooper et al, 2007). Typical students are able to evaluate their own behavior and take notice of their problem behaviors. For example, if a student constantly calls out in class, he/she can be asked to record when he is calling out and how many times he calls out. A goal can be set up between the student and the teacher to reduce the frequency of him calling out. The student himself will manage his behavior to reach the goal. This self-management process increases the level of the student's involvement, and they are responsible to their own behaviors. The following

information will discuss the various populations and settings as well as procedural techniques used in implementing this intervention to students on an individualized basis.

In Parker and Kamps' study (2011), functional skills were analyzed and self-monitoring strategies were used to increase the independency of life skills. Many times, social skills will be the focus of intervention for students with autism, but increasing on-task behaviors and academic performance can also be target behaviors for self-monitoring interventions (Holifield, Goodman, Hazelkorn & Heflin, 2010). When the results were analyzed, it was found that their independent living skills and functional life skills increased, and because of the self-monitoring of verbal interactions, their social skills increased as well. Functional and independent life skills are not the only skills that self-monitoring can affect. There are many different ways that a student can self-monitor. Whether it is with a card to manage on-task behaviors (e.g. Am I doing my work at this moment?) or a reinforcer card (e.g. the student gives themselves a sticker for every time they are not engaging in a behavior), self-monitoring can increase appropriate behaviors as well as decreasing problem behaviors (Rafferty, 2010). Self-management has been found to be used in a variety of settings including college (Kalis, Vannest, & Parker, 2007), high school (Hughes, et.al, 2002), and middle school (Gaines & Barry, 2008) with a variety of student populations. It

has been shown to improve target interfering behaviors in students with ASD (Lee, Simpsons, & Shogren, 2007).

The major concern in using self-monitoring with students with ASD is that the students may not be cognitively aware of their behavior. As a result, they are unable to utilize this cognitive strategy to respond to the intervention (Ganz & Sigafos, 2005). In Ganz, et.al's study (2005), self-monitoring was provided to two children with autism, aged 19 and 20, in order to mand for help or items and to complete a task in five minutes respectively. Data was collected every five minutes on whether or not the target behaviors were observed within that time frame. A token system was used for both of the participants: one removed a preset amount of tokens for each task completed within five minutes and the other removed a snap block from the container every time he requested help or manded for an item appropriately. The first student self-monitored by manipulating the tokens independently every time he completed the task. The second student independently snapped the blocks together each time he requested for an item independently. When the participant earned all tokens or blocks, a primary reinforce was provided. Both of the participants showed an increase in their target behaviors, such as completing a task and manding for objects. Results of this study emphasizes the effective use of self-monitoring/token economy strategies because no target behaviors were observed

upon initial implementation, and only a small amount of collateral behaviors were noted over time. Also, self-monitoring allows for independence in performing functional skills, something that is essential in the life of an individual with autism. It is emphasized that self-monitoring is effective in providing independence in prevocational activities to hopefully help those students generalize skills to other areas of life (Ganz, et.al 2005).

It is clear that self-monitoring strategies have the capacity to be applied for different students in acquiring different skills, such as social, academic, functional, and independent life skills that are essential for those with ASD. One of the main concerns in providing self-monitoring to a student with ASD is his ability to maintain and generalize the skills. Typically, these are two areas in which students with ASD have difficulty. This study is essential because the majority of the research found was for typical students or students with mild behavior problems.

Teaching Replacement Behavior

Replacement behavior refers to an appropriate behavior learned to replace the inappropriate behavior. For example, if a student yells when he is angry, the replacement behavior would be counting to ten. Counting to ten, considered as a socially acceptable behavior would be the replacement behavior. If the behavior

is such that it is impeding learning and natural progression of the student, an option is to consider teaching a replacement behavior.

The procedure for determining whether teaching a replacement behavior would be acceptable includes defining the target behavior, performing a functional behavior assessment, and determining the best approach to teaching the replacement behavior. After the functional analysis has determined teaching replacement behavior would be part of a PBS, at the same time, differential reinforcement should be used in conjunction with the teaching process to ensure that the student understands the value of the replacement behavior (Matson, Shoemaker, Sipes, Horovitz, Worley, & Kozlowski, 2011). Teaching a new behavior, with the appropriate schedule of reinforcement, can be effective for a student who usually engages in inappropriate social behaviors. For example, if a student engages in hand biting, a self-injurious behavior, with the function of receiving automatic reinforcement in the way of releasing tension and gaining relief from a stressful situation (e.g. demand being placed on student, needing a break from assignment), teaching the student using breathing techniques or a break card may alleviate some of the stress and anxiety. The professional should teach the student socially acceptable behaviors in place of the inappropriate behaviors. For example, if the student uses the break card, instead of hand-biting, he will immediately receive a break (reinforcement) and will no longer

bite himself because that automatic reinforcement is right away available to the student.

Another major effect that teaching replacement behaviors has on an individual is that it has the potential ability to break habits that generally inhibit daily living skills (Adriaanse, Gollwitzer, De Ridder, Wit, & Kroese, 2011).

Teaching replacement behaviors allows for individuals to respond differently rather than the typical response always given when certain stimuli were present (Adriaanse, et.al 2011). While Adriaanse, et. al (2011) focused on snacking and drinking habits of typically developing people, the premise of this study could possibly be generalized over to the autism population. For example, an inappropriate response (e.g. hitting) when an individual is unable to communicate would act as the habitual response. Teaching how to communicate (e.g. Picture Exchange Communication System, American Sign Language), and reinforcing the appropriate communication will provide another option for the student to learn appropriate skills to function in their life as well as preventing inappropriate behavior occurrences.

Summary

PBS on school wide, classroom-wide, and individualized levels provides tiered levels of behavior management in schools. School wide PBS is effective in

treating consistent behaviors throughout an entire student population in school (e.g. school violence, property destruction. Classroom wide PBS seems to be most effective in treating individual classroom behavior problems. These interventions focusing on having the students in the entire classroom follow the class rules as well as encouraging the students to engage in appropriate behaviors. Individualized PBS is most effective in breaking down the more severe and chronic behaviors of the students in the classroom. This PBS is most often used with the population of students with autism because it allows for individualized observation of a specific target behavior, and an analysis of the behavior to determine which intervention is appropriate.

Token economies teamed with self-monitoring and replacement behavior strategies will allow the students with ASD to be exposed to new levels of independence, while becoming more socially accepted. The token economy system is most effective at a classroom wide level. Classroom wide and individualized interventions may be the root of creating phenomenal treatment to reduce the mild to severe behaviors of students with ASD. Individualized PBS, such as self-monitoring and teaching replacement behaviors are the most involved and specific to meet the student's needs. Individualized intervention is most effective for the students that engage in severely disrupting and impeding behaviors.

Currently, PBS seems to be one of the leading behavior support interventions available. The PBS model tends to be recognized mostly in individualized instruction, but should be provided in its use simultaneously with classroom wide supports as well as reinforcement on appropriate behaviors. In order to enhance the quality of life for the students, PBS to increase socially acceptable behavior and implementation for secondary students with ASD seems important.

Research on positive behavior supports, teamed with functional behavior analysis assessments in terms of the students needs individually and as a whole class, will benefit the field of ASD research in that it will give new ideas for treating behaviors in a self-contained secondary classroom. By exposing the students to these interventions, their chances of gaining independent life skills, work skills, and engaging in on-task behaviors will increase, enhancing the quality of their lives.

Chapter 3

Method

This chapter describes the participants, setting, targeted behaviors, research design, observation and training procedures, training materials, and measurement.

Participants

Students: Two students, one female and one male, participated in the study. Both of them were classified with Autism Spectrum Disorders (ASD) in a self-contained setting within a private facility that specifically services students with ASD. Both students have an Individualized Education Plan (IEP) in which specific behavior goals and objectives are defined.

The female (participant A) is an 18 year old Caucasian. She demonstrated deficits in multiple areas including academic, behavior, communication, and social skills. Her behavior problems consisted of screaming and crying, non-compliance, non-contextual verbal behavior, and being aggressive towards students and teachers. She typically isolates herself socially from others, without initiation for social interaction, but engages in tantrums multiple times throughout the day. During her tantrum, this student would scream and cry

with fingers in her ears or hands over her mouth, hitting and scratching staff and peers, and repeatedly requesting a preferred activity.

The male participant (participant B) is also 18, Caucasian. He spoke in short phrases and had little difficulty communicating the cause of his stress. However, when new and/or non-preferred situations occurred, this student would engage in inappropriate social behaviors such as darting towards teacher or other adults in a forceful manner, yelling in a tone above conversational level, and hitting others. Participant B typically engaged in these behaviors when his anxiety rose as he did not seem to know how to control stressful situations. Throughout the school day, he would initiate a conversation with peers that would reciprocate conversation or when the participant was manding for objects or information from peers and staff members. The teacher reported that participant B was compliant throughout work and social sessions, even when engaging in the behaviors. While he preferred to engage in solitary activities (e.g. playing games on the computer, coloring in his activity journal), he readily participated in social group activities (e.g. UNO, BINGO) as long as constant verbal and gestural prompts were provided. (See Table 1 for participant's information.)

Table 1. *General Information of Participating Students*

Student	Age	Classification	Behavior Problems
A	18	Autism Spectrum Disorder	Screaming, impulsive violence on staff and peers, crying, non-contextual verbal behavior
B	18	Autism Spectrum Disorder	Darting towards individuals, yelling, banging objects, throwing objects, slight aggression towards staff, inappropriate touching of self and others

Teacher: One teacher and two teacher assistants were involved in the study. They provided the CW-PBS and the individualized intervention in the classroom. The teacher and one teacher assistant independently observed students and recorded the behavior occurrences during all sessions. The inter-observer's reliability was calculated based on their agreement throughout each session of observation.

Setting

Both participants were enrolled in a program that consisted of individualized instructional planning with a curriculum focused on Applied Behavior Analysis (ABA) procedures as well as a concentration in pre-vocational and independent life skills. They were in the same classroom with other three students, as well as a head teacher and teacher assistants, with a staff to student ratio of 2:1. Student ages ranged from 18 to 21 years old; one was a Caucasian female and the 4 other were Caucasian males. Behavior problems of the class as a whole included aggression, inappropriate verbal behaviors, inappropriate touching (e.g. touching strangers, picking nose), and not following directions. During the school day, the students are in a self-contained classroom located within a public high school. All observations took place from the time the students entered the building in the morning until the time they exited the building at the end of the school day.

Materials

The materials used in the CW-PBS include data collection sheets A (see Table 2), a “snowflake” chart (see Table 3), and a bar chart (See Table 4). The data collection sheet consists of daily data collection provided in 30 minute intervals. Positive reinforcement (e.g. computer time, small candies) was provided based on the number scored on the daily data collection sheet. If the

participant achieves a score of 12, a snowflake would be presented on the chart. Once 10 snowflakes are collected, the participant will earn a trip to a local convenience store to select a preferred item. At the same time, if 11 or 12 points are earned, the student can color in a bar on the bar chart. Once 15 bars are collected, a free lunch courtesy of the teacher would be earned as a positive reinforcer (e.g. McDonald's).

Table 2. *Data Collection Sheet A*

ACTIVITY	Pack up	Arrive/ journal	Mtg./ MWC	acade	acade	prevoc	gym	lunch	social	academ	academ	tutorial	Percent
	2:30- 3:00	8:50- 9:30	9:30- 10:00	10:00- 10:30	10:30- 11:00	11:00- 11:30	11:30- 12:00	12:00- 12:30	12:30- 1:00	1:00- 1:30	1:30- 2:00	2:00- 2:30	
A	D	D	D	D	D	D	D	D	D	D	D	D	/48
	T	T	T	T	T	T	T	T	T	T	T	T	_____
	W	W	W	W	W	W	W	W	W	W	W	W	_____
	V	V	V	V	V	V	V	V	V	V	V	V	____%
B	D	D	D	D	D	D	D	D	D	D	D	D	/48
	T	T	T	T	T	T	T	T	T	T	T	T	_____
	W	W	W	W	W	W	W	W	W	W	W	W	_____
	V	V	V	V	V	V	V	V	V	V	V	V	____%
C	D	D	D	D	D	D	D	D	D	D	D	D	/48
	T	T	T	T	T	T	T	T	T	T	T	T	_____
	W	W	W	W	W	W	W	W	W	W	W	W	_____
	V	V	V	V	V	V	V	V	V	V	V	V	____%
D	D	D	D	D	D	D	D	D	D	D	D	D	/48
	T	T	T	T	T	T	T	T	T	T	T	T	_____
	W	W	W	W	W	W	W	W	W	W	W	W	_____
	V	V	V	V	V	V	V	V	V	V	V	V	____%
E	D	D	D	D	D	D	D	D	D	D	D	D	/48
	T	T	T	T	T	T	T	T	T	T	T	T	_____
	W	W	W	W	W	W	W	W	W	W	W	W	_____
	V	V	V	V	V	V	V	V	V	V	V	V	____%

D = Direction T = Touch W = Work V = Verbal

Table 3. "Snowflake" Chart


	2
3	4
5	6
7	8
9	10
11	12

Table 4. Bar Chart

Date	Color/Name
1/27	
1/30	
2/1	

Self-Monitoring

A self-monitoring chart was developed by the teacher for the participating student (See Table 5) as well as the interval data collection (See Table 6).

Table 5. *Self-Monitor Chart*



QUIET	I CAN EARN
<hr/> 	<hr/> 

Table 6. *Data Collection B*

Frequency Data

TIME	AGG	Non-Contextual	Screaming/Crying
9:00-9:29			
9:30-9:59			
10:00-10:29			
10:30-10:59			
11:00-11:29			
11:30-11:59			
12:00-12:29			
12:30-12:59			
1:00-1:29			
1:30-1:59			
2:00-2:29			
TOTAL			
PERCENTAGE			

Picture Cards

Picture cards with the appropriate behaviors described are used to teach replacement behavior (See Table 7). Each card has a picture of the appropriate behavior. When the student is showing precursor signs of the behavior or feel him/herself become anxious, the card will be used as a reminder to students for the appropriate behavior pictured on the card. Frequency data will be collected on the occurrences of inappropriate behaviors using a frequency data collection chart.

Table 7. *Picture Card Example*



Take a deep breath.

Table 8. *Data Collection C*

TIME	Aggression	Yelling	Inappropriate Social Behavior
9:00-9:29			
9:30-9:59			
10:00-10:29			
10:30-10:59			
11:00-11:29			
11:30-11:59			
12:00-12:29			
12:30-12:59			
1:00-1:29			
1:30-1:59			
2:00-2:29			
TOTAL			
PERCENTAGE			

Reinforcement

An informal preference assessment was utilized to determine the levels of reinforcement that the teacher would provide at the end of the day and throughout the individualized intervention trials (see Table 9). The assessment allows the student to interact with possible reinforcers in the classroom. Based on five different reinforcers, the teacher can determine which reinforcers the student ultimately prefers.

Table 9: *Informal Preference Assessment*

Five Item Preference Assessment				
Student: _____		Date: _____		
<p>Instructions: Allow child to sample each item for 30 seconds before beginning the preference assessment. Present the two-item pairs listed below and tell the child to “pick one.” Indicate the selected item by circling the corresponding number. Allow the child to play with the item for 15 seconds before removing the item and presenting the next pair. If the child does not select an item, represent the S^D “pick one”. If the child still does not select an item, draw a line through the pair and proceed to the next pair.</p>				
Item 1: _____		Item 2: _____		
Item 3: _____		Item 4: _____		
Item 5: _____				
1 x 2	2 x 4	4 x 5	1 x 3	2 x 3
3 x 4	1 x 5	2 x 5	1 x 4	2 x 5

Procedures

Training Procedure

Guardians of participants were given an introduction letter in which the procedure of the study was outlined as well as importance of the study, and permission to conduct the study with their children as participants (See Appendix A). Both participants' guardians gave permission for their child participated in the study.

Staff

Training sessions on data collection and specific individualized intervention strategies were provided to staff members in the preparatory periods before students arrived in the morning and in the afternoons after the students left. Training lasted a period of three days. The first day, staff members were trained by the teacher to collect data for the CW-PBS. After daily data collection, the staff was instructed to dispense reinforcement based on student's behavioral performance per day (e.g. give a snowflake, color a bar, provide appropriate level of reinforcement). The second day of training consisted of staff members learning how to collect interval and frequency data for Participant A and Participant B respectively. The final day of training was to introduce the procedures for the self-monitoring chart in addition to the use of visual cues to replace the inappropriate behaviors.

Classroom-Wide Positive Behavior Support (CW-PBS)

Baseline data was collected over 15 consecutive school days. After a 10-day break, the CW-PBS was implemented for 10 consecutive school days before the additional self-monitoring intervention was implemented. Using the daily CW-PBS data collection sheet for both baseline and intervention data collection, staff recorded data in 30 minute intervals (breaking the day into 12 thirty-minute periods), with the student being able to earn up to 4 points per period. For each of these intervals, the participant can earn up to four points. At the end of the day, the points were exchanged for a number score of 0-12. The number score represented the amount of half-hour intervals the participant did not engage in problematic behavior. Positive reinforcement (e.g. computer time, small candies) was provided based on the number scored on the daily data collection sheet. If the participant achieves a score of 12, a snowflake would be presented on the chart. Once 10 snowflakes are collected, the participant will earn a trip to a local convenience store to select a preferred item. At the same time, if 11 or 12 points are earned, the student can color in a bar on the bar chart. Once 15 bars are collected, a free lunch courtesy of the teacher would be earned as a positive reinforcer (e.g. McDonald's).

The point system consisted of the participant being able to earn one point for keeping hands and feet to themselves, one point for speaking in an

appropriate tone and for being quiet during work sessions, one point for completing activities (based upon individual goals set by the teacher in the IEP), and one point for following directions when given and within a certain amount of time. Each period, if the student earns all four points, they will earn a progress bar on their progress meter. If three points are earned, the participant will still receive a sticker. At the time of the third 3, staff will not fill in a bar for that particular period. Earning one or two points will not receive a progress bar. At the end of the day, if the student earns 11 or 12 points, they will receive a Level 1 reinforcer (a reinforcer of their choice given by staff member such as computer time). If a 9 or 10 were earned, they would receive a Level 2 reinforcer (e.g. book) based upon the results of the preference assessment. Earning 7 or 8 points in the day will give them a Level 3 reinforcer (e.g. crayons) which is, again, based upon preference assessment results. Any point score below an 8 will receive a reinforcement of a group activity run by staff members at the teacher's discretion (e.g. sand box, bead bags). After 10 consecutive school days of CW-PBS data collection, individualized intervention will be implemented. In the case of Participant A, this will be an introduction to self-monitoring strategies.

Self-Monitoring

Training sessions for the specific interventions occurred in the natural setting for the students. The training sessions for both participants were given by the teacher in a 1:1 distraction-free setting. Introduction to the intervention was provided in the child's homeroom seat with no other students in the classroom. Staff training was given in the participant's classroom as well during preparatory periods in the morning and afternoons.

Interventions for the student occurred naturally and incidentally. Typically, the class the participants were enrolled in went on local community outings daily (on average 4/5 days), and specials (e.g. gym, art, library) were held in the public high school. Other academic, social, prevocational, and life skills were taught within the self-contained classroom. Data was collected and the behaviors were observed in all locations during school hours.

A self-monitoring chart will be provided for the participant with two columns. The first column will read, "I will be quiet during (demand)" and the second column will read "so I can earn (participant chosen reinforcement)". The teacher will fill out the first column and the participant will fill out the reinforcer space in the second column. Three green check marks will be placed at the bottom of the first column (removable Velcro checks). Three red X's will be placed directly behind the checks (removable Velcro X's). As soon as the

student engages in the target behavior, a check will be replaced with an X. Once the student receives 3 X's, a timer will be set in order for them to earn back the check marks. At the end of the activity, staff will instruct participant to set the timer. The timer was initially set for 2 minutes and time was gradually increased. The timer was stopped whenever participant engaged in target behavior and restarted by the participant when he or she was quiet again. Once the timer went off, Participant A would replace an X with a check and reset the timer. Once participant replaced all X's, reinforcement was once again available for reception.

Teaching Replacement Behavior

Once the baseline data collection is complete, the replacement strategies for decreasing inappropriate target behavior was introduced simultaneously. For the first three days of intervention, Participant B watched the replacement strategies being modeled for him by staff members during times of high anxiety in the classroom. The modeling provided a foundation for use of the appropriate strategies. A picture of the replacement behavior will be given to the student to carry around throughout the school and community. In the case of Participant B, breathing techniques will be shown on the picture. When the individual becomes anxious or stressed, before engaging in the target behavior, the student referenced the photo and used the breathing techniques. After 5 consecutive

days of using the picture cue, it was discontinued and the student was observed to perform the breathing techniques completely independently. Reinforcement was given on a variable reinforcement schedule. If the participant was observed engaging in the behavior during any one of the intervals, they would receive reinforcement.

Research Design & Data Analysis

A single subject design with ABC phases (alternative treatment) was used. During baseline, student behaviors were observed and recorded for 10 consecutive school days. During phase B, the CW-PBS intervention were provided and student behaviors were observed for 15 consecutive school days; During phase C, an individualized intervention was provided to both participating students (one female and one male), their behaviors were recorded for 15 consecutive school days.

The frequency of the target behaviors of both participants was collected. Data were organized and presented in graphs. These graphs provided a comparison of the occurrence in 10-minute intervals of participant A during the baseline compared to that of the interval during intervention. The same would be used to demonstrate frequency of target behaviors of participant B during the baseline compared to the intervention.

Data collected for the CW-PBS were graphed on a weekly basis to determine the time of occurrence and analysis of these graphed data provided a more comprehensive comparison both with the baseline data before intervention as well as points students earned with only the CW-PBS solitarily or if it is more effective used in conjunction with the individualized intervention.

Chapter 4

Results

Table 10.0 presents the means and standard deviations of Student A's behavior occurrences across the phases of intervention.

Table 10. *Means and Standard Deviations of A's Behavior*

Student A	Aggression		Non-Contextual Verbal Bx		Crying/Screaming	
	<i>M</i>	<i>Std. Dev.</i>	<i>M</i>	<i>Std. Dev.</i>	<i>M</i>	<i>Std. Dev.</i>
Baseline	18.20	8.26	26.4	13.48	31.40	16.75
CW-PBS	1.67	2.16	16.53	9.21	3.93	1.83
Self-Monitoring	1.40	1.68	02.0	1.31	3.07	1.67

Figure 1.0

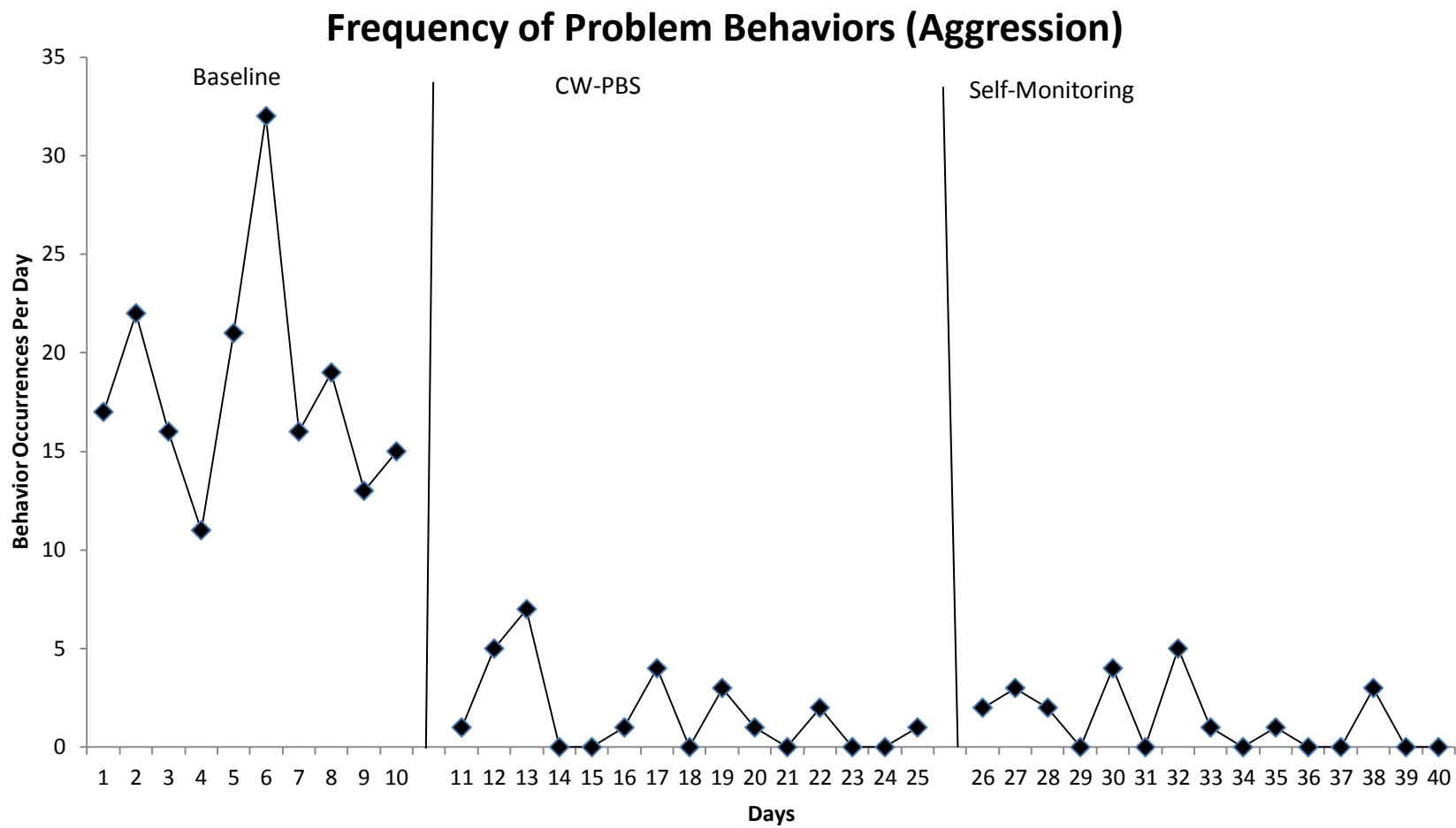


Figure 1.0 presents the frequency of behavior occurrences of student A's aggressive behavior.

Figure 1.1

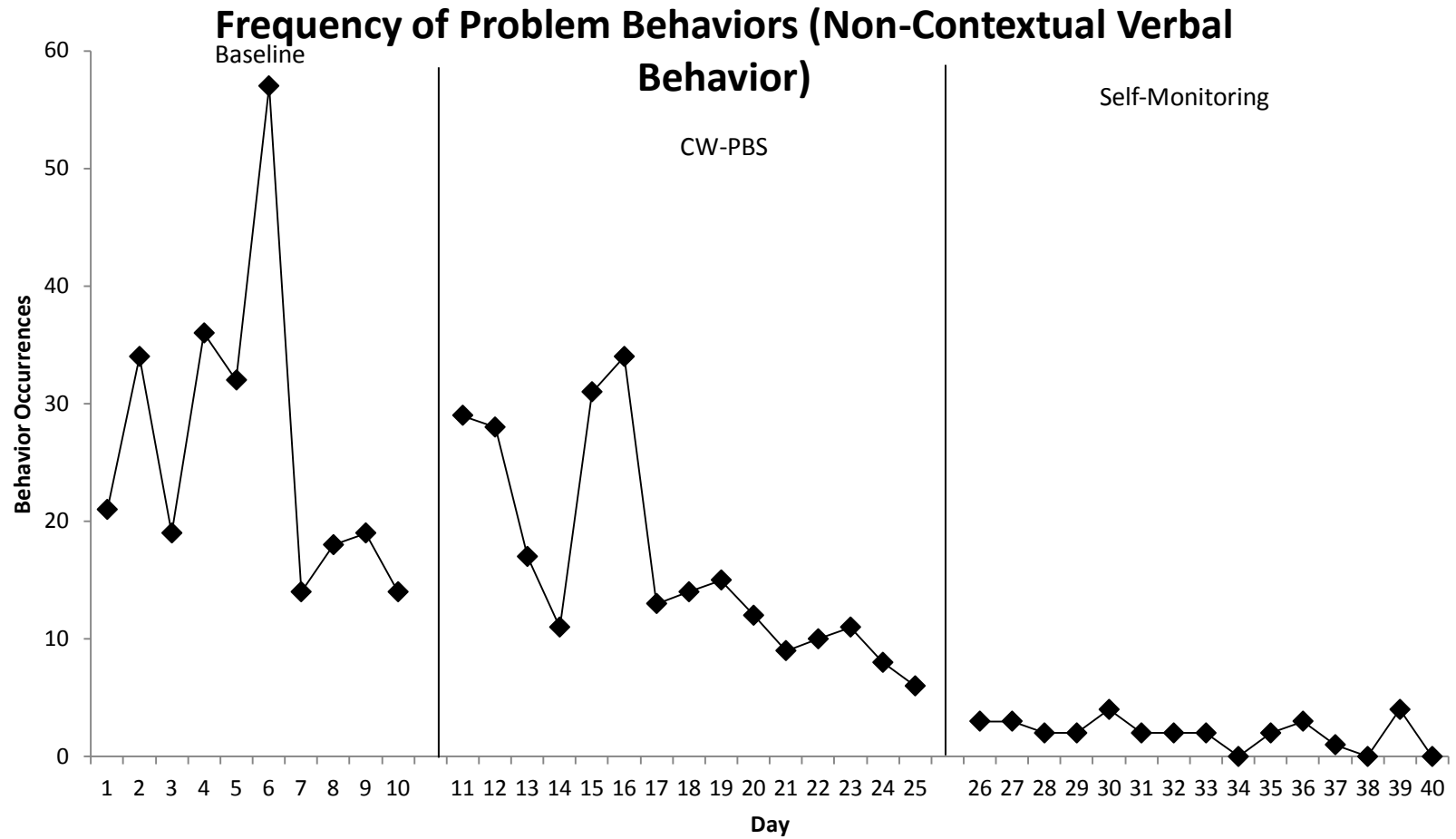


Figure 1.1 presents the frequency of behavior occurrences of student A's non-contextual verbal behavior.

Figure 1.2

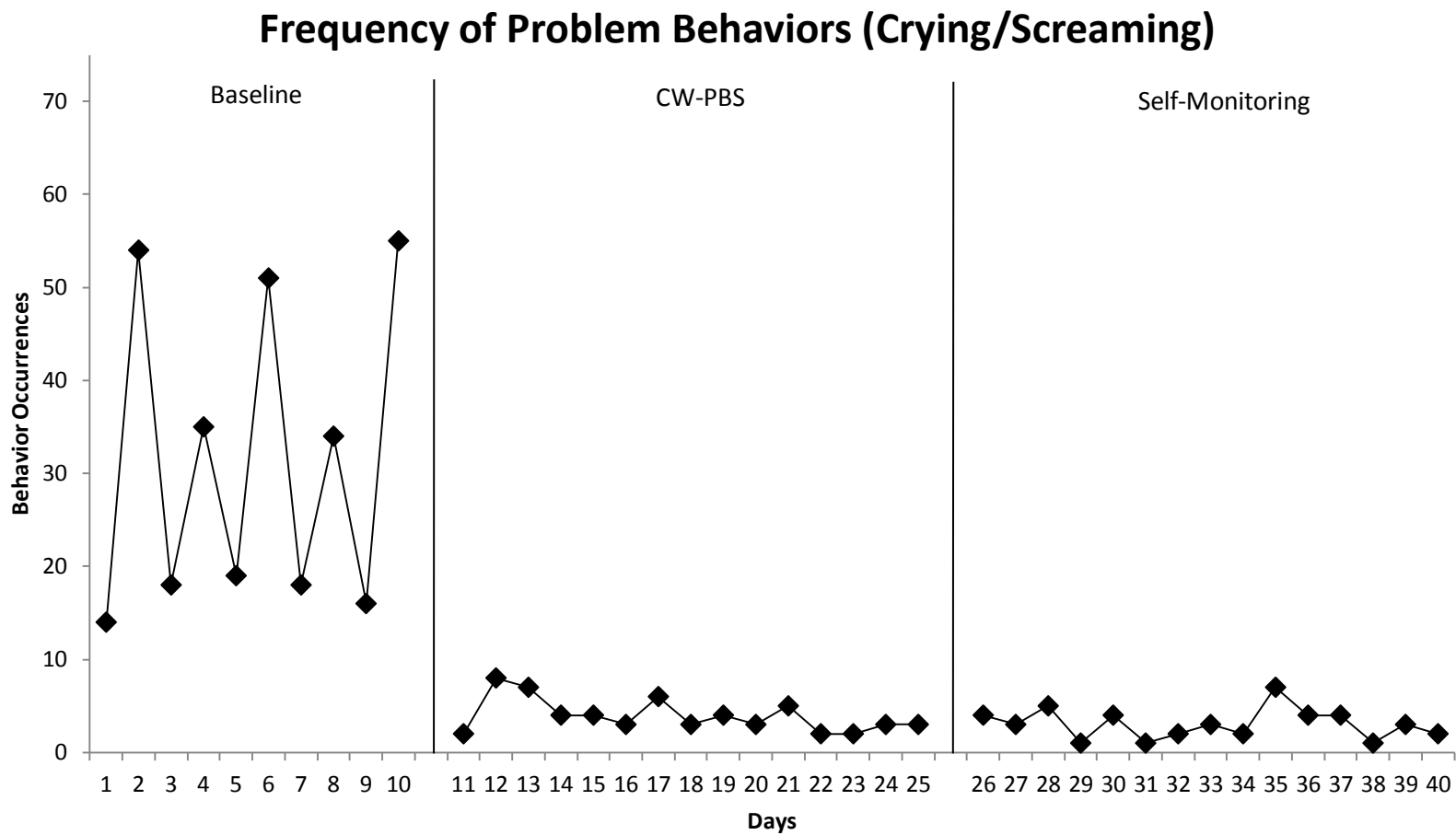


Figure 1.2 presents the frequency of behavior occurrences of student A's crying and screaming behavior.

Figures 1.0, 1.1, and 1.2 demonstrate the frequency of student A's problem behavior occurrences per day during the baseline and intervention phases. During the baseline, student A had an average of 18.2 aggressions, 26.4 non-contextual verbal behaviors, and 31.4 crying/screaming tantrums. After the introduction of the CW-PBS, this student's behavior occurrences were decreased, as the student only engaged in 1.67 aggressions, 16.5 non-contextual verbal behaviors, and 3.94 crying/screaming tantrums on average occurred. These behaviors also decreased when an individualized PBS (e.g. self-monitoring) was introduced to the student, bringing the average of aggressions down to 1.4, the non-contextual verbal behavior to 2, and the crying/screaming episodes to 3.1. The CW-PBS used simultaneously with self-monitoring strategies reduced the amount of inappropriate behaviors and increased the amount of time the student remained on-task.

The trend in phase B and phase C of all interventions and across all three behaviors is decelerating, which means that the behavior has been reduced.

Table 11 presents the means and standard deviations of Student B's behavior occurrences across all phases of intervention.

Table 11. *Means and Standard Deviations of B's Behavior*

Student B	ISB		Aggression		Yelling	
	<i>M</i>	<i>Std. Dev.</i>	<i>M</i>	<i>Std. Dev.</i>	<i>M</i>	<i>Std. Dev.</i>
Baseline	11.1	5.13	3.10	2.92	13.6	8.75
CW-PBS	4.67	3.15	2.47	2.83	8.80	7.31
Replacement Behavior	3.60	3.11	2.87	3.09	5.60	5.97

Figure 2.0

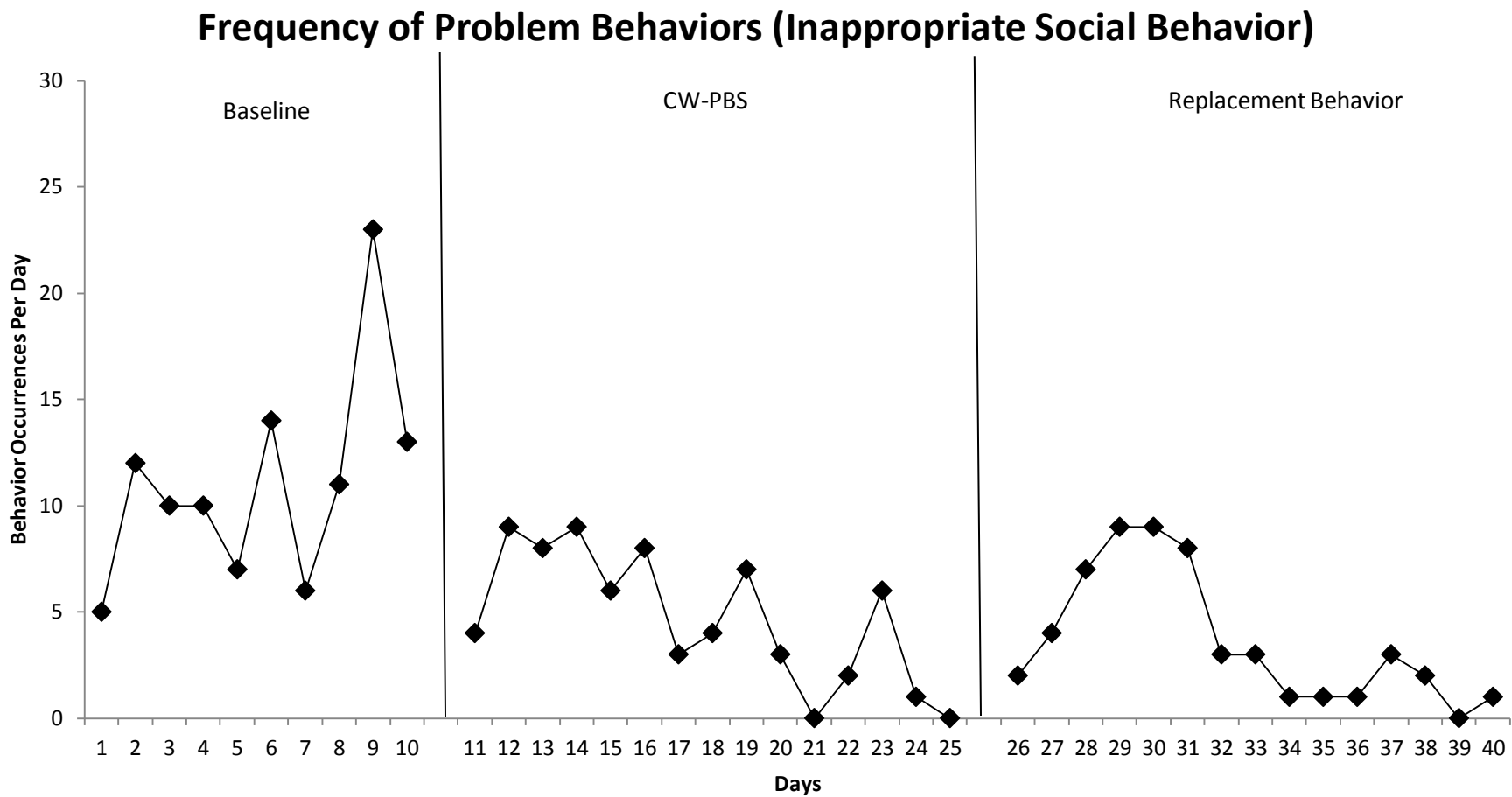


Figure 2.0 presents the frequency of behavior occurrences of student B's inappropriate social behavior.

Figure 2.1

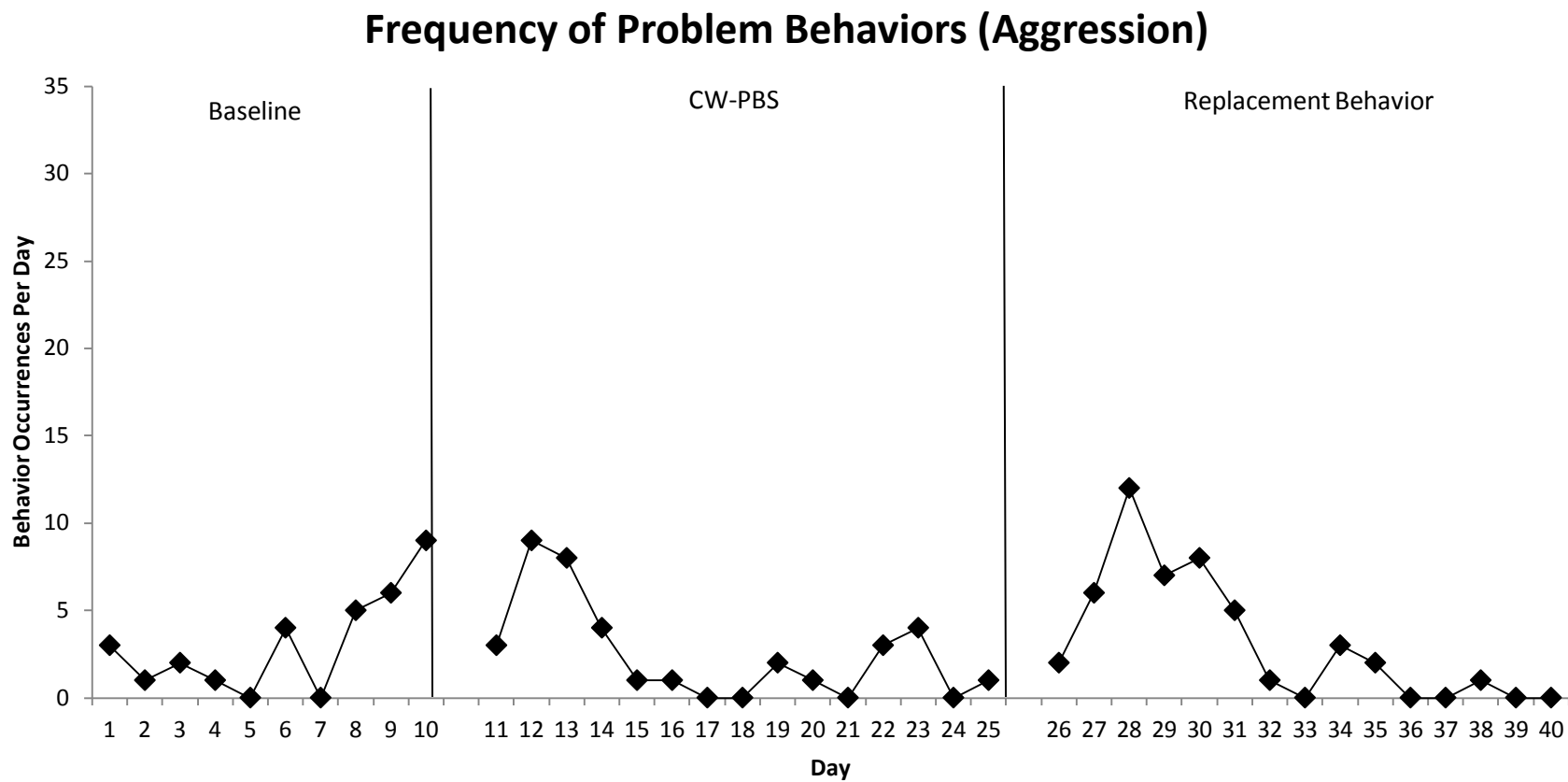


Figure 2.1 presents the frequency of behavior occurrences of student B's aggressive behavior.

Figure 2.2

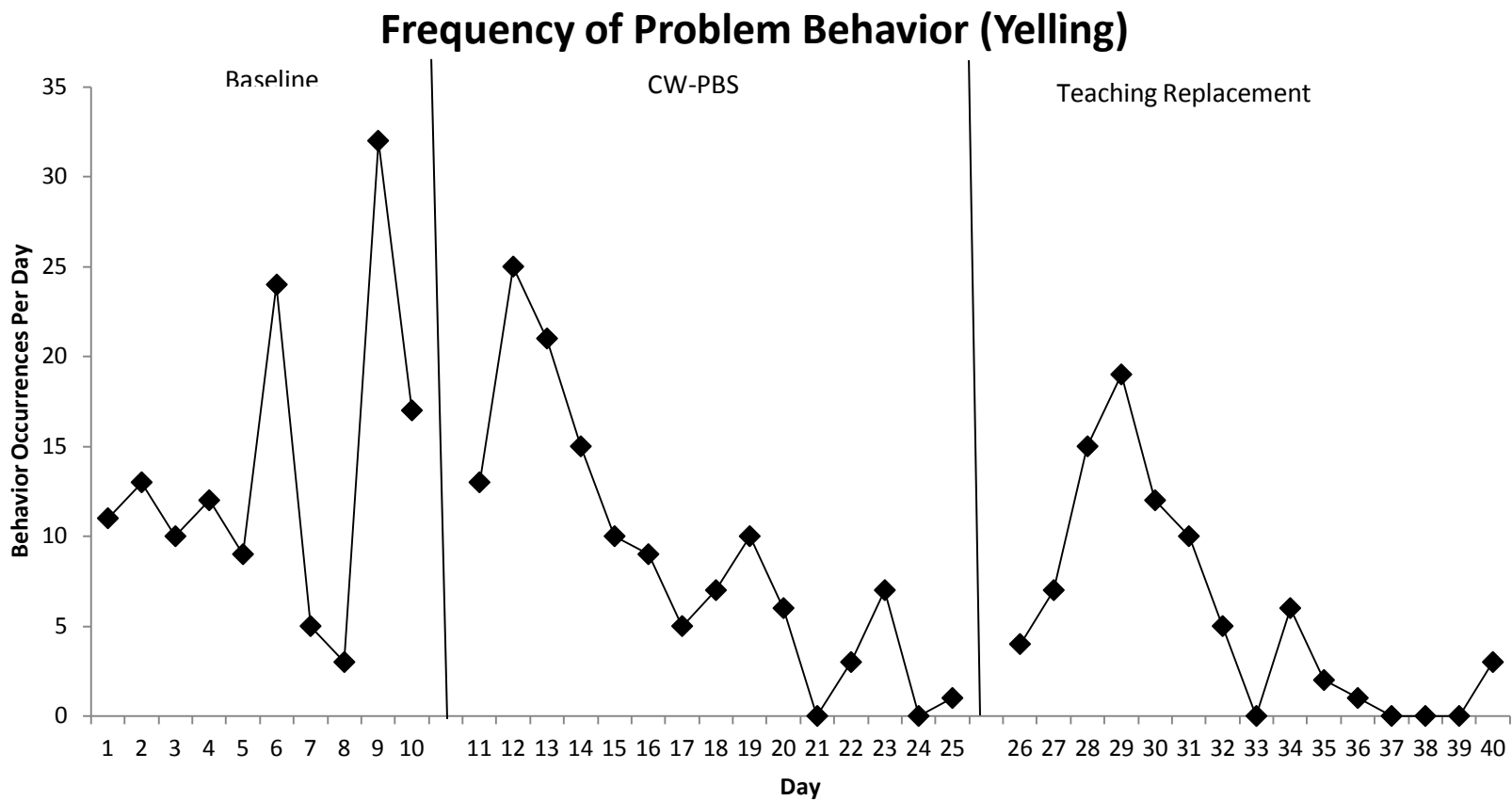


Figure 2.2 presents the frequency of behavior occurrences of student B's yelling behavior.

Figures 2.0, 2.1, and 2.2 demonstrate the effectiveness of a CW-PBS used with a PBS individualized intervention of teaching replacement behaviors using picture reminder cards on aggressive, yelling, and inappropriate social behaviors. Upon implementation of the CW-PBS, student B decreased inappropriate behaviors, going from an average of 11.1 inappropriate social behaviors, 3.1 aggressions, and 13.6 vocal yelling to 4.7 inappropriate social behaviors, 2.5 aggressions, and 8.8 vocal yelling. Also, once the individualized support of using picture cards to avoid inappropriate behaviors before they begin was introduced, the inappropriate social behavior and yelling decreased. The aggressions increased slightly; however, this can be attributed to the introduction of a new activity. Learning the skills of how and when to use the picture behavior cards was difficult for this student. The frequent occurrences of aggressions occurred during the training period of the intervention could be attributed to difficulty of the student to acclimate to the intervention in short amount of time. Once the student was out of the training period, aggressions decreased upon comprehension of the utilization of the picture card. Again, the trend line for all inappropriate behavior occurrences in the intervention phases are decreasing.

Chapter 5

Discussion

Overview of the Study

The overall purpose of this study was to determine if a classroom-wide positive behavior support only as well as simultaneously with individualized positive behavior support (e.g. self-monitoring, teaching replacement behavior) has an effect on the decrease of inappropriate behavior for students with autism in a self-contained setting. Results were obtained by observations using interval and frequency recording for two students.

In relation to the previous literature review, the results of this current study showed consistent finding to support individualized PBS. Self-monitoring and a teaching replacement behavior, increased the individual student's appropriate behavior. The current study's findings were consistent with previous research related to individualized strategies for students with autism. However, there was a variation in data between previous literature on CW-PBS and this particular study. Past studies demonstrated almost immediate effectiveness after training, whereas it took multiple sessions in this study for the students to acclimate to a new system before there was an effect on the behavior change.

Summary of Findings

Upon implementation of a CW-PBS, student A demonstrated a decrease in aggressions, non-contextual verbal behavior, and crying/screaming. In addition, student B presented the same decrease in inappropriate behaviors (e.g. inappropriate social behavior, aggression, yelling) upon introduction of a CW-PBS.

This means that CW-PBS is effective in decreasing inappropriate behaviors for students with autism in a self-contained classroom.

When individualized PBS was provided to the two individuals, student A's inappropriate behavior decreased further with the CW-PBS paired with a PBS self-monitoring strategy. Student B demonstrated a decrease in inappropriate behavior occurrences with the CW-PBS paired with the teaching of replacement behaviors. This may indicate that when used simultaneously, CW-PBS and individualized PBS are effective in decreasing problem behavior.

Limitations

There are some limitations in this study. These include the rotation of staff, school breaks, and unexpected occurrences within the public school.

Within the self-contained classroom, there was a 2:1 staff and student ratio always. The teacher and the teacher assistants were fairly consistent to implement the strategies, but there were a few sessions in which staff was exchanged into different classrooms to work with specific students, or there were absences in which the familiar staff was replaced with the unfamiliar. While there were adjustments made within the classroom to prevent the data collection from being interrupted, the change in staff altered the routine of the students, which might increase occurrences of the individual's inappropriate behavior.

During the data collection, the school had extended breaks (more than three days of no school) on two occasions. That made some changes of the schedule and routine. These changes might affect the student's behavior. For example, there were increases in inappropriate behavior occurrences after the extended breaks. Also interrupting the student schedule was typical occurrences for the public school that demonstrated to be atypical for the students within the self-contained classroom (e.g. fire drills, assemblies).

Lastly, the length of intervention may be another limitation. More time is necessary for both students to grow accustomed to the new strategies. There seemed to be an increase in inappropriate behavior occurrences right after the students were trained. This affected the findings because of the lengthy

adjustment period. If this adjustment had not been so long, both the CW-PBS and individualized PBS would have affected the student's further behavior changes over the period of the intervention.

Recommendations

The first change that would improve this study would be to train supplementary staff, aside from those that typically work with the participants on a daily basis. Because of the unstable behavior that was presented by both students when unfamiliar and untrained staff was in the room, additionally trained staff could decrease the incidences of their inappropriate behaviors. Furthermore, the trained staff should be aware of a student's preference and provide flexible reinforcement. After a time period, both students were satiated with the reinforcement they were receiving throughout the reinforcement schedule. If staff is trained to be flexible, and understanding the students' preferences, the reinforcers available may have altered the behaviors of the students.

Secondly, transitions to and from extended breaks should be thoroughly planned in anticipation of an increase in behavior due to the changed routine. Whether it is more intense communication with parents or explicit instruction to students before the break, efforts should be made to prevent behavior spikes

during any of the implementation periods. Also, transitions between introduction of the CW-PBS and the individual strategies should be implemented. By the time the students positively adjusted to the intervention, a new support was introduced, which may make both students back to the problematic behavior. Providing the students with more transitional supports with resources will assist students to adjust themselves without engaging in severe inappropriate behaviors.

Lastly, there should be more concentrated communication between staff and administration to prevent any unexpected interruptions, especially during the transition periods. Presenting the public school administration with class schedules and overall resources related to the interventions, the teachers would consistently implement the strategies without any interruption.

Conclusion

The CW-PBS decreased the frequency of inappropriate behavior occurrences (e.g. yelling, aggression). Also, using an individualized PBS (self-monitoring, teaching replacement behavior) simultaneously with the CW-PBS showed additional decreases in problem behavior overall. These results demonstrate positive outcomes of the student's behavior changes to support a Classroom-wide Positive Behavior Support and individualized Positive Behavior

Supports in managing behaviors of students with ASD. The purpose of most CW-PBS is to decrease the target behaviors that are interrupting the growth and learning of the students (Kamps, Tankersly, & Ellis, 2000; Kohler, Strain, Hoyson, Davis, Donina, and Rapp 1995). However, especially with students that engage in severe behaviors and are functioning at low level, individualized support is necessary to ensure that students are receiving their education in a least restrictive environment. Specific PBS interventions, including the two in the current study, have been shown to be effective in reducing the problem behavior; but most importantly, it has been found to be effective in the treatment of behavior of students with ASD (Ryan et. al, 2011; Charlop-Christy & Haymes, 1998; Grindle & Remington, 2005; Gaines & Barry, 2008; Ganz, 2008; Barker & Thyer, 2000; Hollin, 2003). Because of the importance of CW-PBS and individualized PBS, there are a few implications regarding the population of students with ASD.

Introduction to any new concepts to students may challenge instructors with behavioral and academic difficulties, especially in the case of a student with autism. For future classroom management, establishing a CW-PBS may be beneficial when it is implemented gradually, incorporating students as they become ready for the responsibility. For example, begin the CW-PBS with two students who are prepared to adjust to change. These students can then serve as

peer models, for other behaviorally challenged students. This process can continue until all students in the classroom are involved in the support system.

This particular study focused on students with autism that engaged in moderate to severe behaviors that inhibited the learning process and acquisition of new skills. Future research may include a different population of student with a longer term of intervention. Participants may include a higher functioning group of students, particularly when a CW-PBS is provided. Further, a consistent intervention is needed to decrease inappropriate behavior and maintain over a longer time period. This maintenance of appropriate behavior should be investigated, especially for those students with ASD.

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