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Evaluating the Impact of Acceptance and Commitment Therapy on Children with Emotional and Behavioral Disorders

Keely Deanna Sabaini
Southern Illinois University Carbondale, kdls@siu.edu

EVALUATING THE IMPACT OF ACCEPTANCE AND COMMITMENT THERAPY ON CHILDREN WITH EMOTIONAL AND BEHAVIORAL DISORDERS

by

Keely D. Sabaini

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Approved by:

Mark R. Dixon, Chair

Joel Ringdahl

Jonathan Baker

Graduate School
Southern Illinois University Carbondale
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The present study examined the effects of Acceptance and Commitment Therapy (ACT) as a core behavior modification method on students with severe behavior disorders. A pre/posttest design was implemented and both control and treatment groups were exposed to testing measures. Students in the treatment group were exposed to ACT as well as contingency based classroom management, and a token economy in an attempt to increase grade point average (GPA), days in attendance, and psychological flexibility. Results are discussed regarding the increase in GPA and attendance, and levels of psychological flexibility are also elaborated upon. Limitations, implications, and future research are also discussed.

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CHAPTER 1

INTRODUCTION

A wide range of children in school are diagnosed with a type of behavior disorder. Students with emotional and behavior disorders (EBD) have been documented as aggressive and disruptive as well as off-task in classrooms (Sutherland, Alder, & Gunter, 2003). The United States Department of Education (2009) lists behavior disorders as meeting one or more of the following criteria:

> (a) an inability to learn that cannot be explained by intellectual, sensory, or health factors, (b) an inability to build or maintain satisfactory interpersonal relationships with peers or teachers, (c) inappropriate types of behaviors or feelings under normal circumstances, (d) a general pervasive mood of unhappiness or depression, and (e) a tendency to develop physical symptoms or fears associated with personal or school problems.

These students may exhibit aggression in the classroom first, leading to academic failure, or may have received poor instruction and lack of behavior management which can lead to the onset of aggression. If the former occurs, then the student may struggle to have the understanding of what classroom participation looks like due to their preoccupation with behavior problems in the past (Sutherland et al., 2003). If a student's main activity in class has been to disrupt, it can be challenging to ameliorate his or her actions to suit a typical classroom environment. This can lead to negative attitudes towards school, limited positive interactions or interpersonal skills, and a propensity to

engage in further negative behaviors to gain what he or she wants (Patterson, Reid, Dishion, 1992). These students may engage in bullying behaviors as well. Delinquent behaviors combined with possible lack of empathy may cause aggression due to their reactive nature (Rose & Espelage, 2012). Other students around the diagnosed children may suffer consequences of the disability in the form of aggression and general teasing.

Many of these diagnosed individuals may be located in residential facilities which have expanded and become more available to "at-risk youth" (Bettman, Lundahl, Wright, Jasperson, & McRoberts, 2011). The Data Accountability Center (2010) reports that emotional and behavior disorder students are five times as likely to be retained in a residential facility, of some sort, than kept in the home. While these facilities may hold many of the children, countless are found in the regular education classrooms. In 2011 Smith, Katsiyannis, and Ryan reported that 37.3% of emotional and behavioral disabled students spent over 80% of their school day in a regular classroom. The behaviors that are emitted are often challenging and therefore need to be housed in a more restrictive environment. The data reported by Smith et al. (2011) indicates that this is not the current practice.

A variety of diagnoses can be found in these environments. ADHD is a predominant finding in school-aged children. In a study conducted in 2007 by the Centers for Disease Control and Prevention it was estimated that 9.5% of children aged 4-17 were diagnosed with ADHD. This made up 5.4 million of the children attending school. ADHD can be characterized by "forgetfulness, carelessness, inattention, disorganization, distractedness, figetiness, and impulsivity" with onset typically seen by the age of seven (Ebejer, Medland, Werf, Gondro, Henders, Lynskey, & Duffy, 2012). A range of

difficulties can arise from ADHD for both teachers and students in the classroom. Decreased ability to focus on reading tasks, impulsivity, motor performance, and inappropriate emotional and/or social interactions with peers and staff are among some of the symptoms (Ebejer et al., 2012). These effects can inhibit students from completing work, staying on task, and having appropriate social relationships that are necessary to succeed in the classroom. Many of these students may have more of a tendency to be expelled from school, suspended, or have to retake a grade level (Geng, 2011).

Disorders such as Post Traumatic Stress Disorder (PTSD) have been found at an increasing rate in children who have been victimized physically and/or sexually (Ackerman, Newton, McPherson, Jones, & Dykman, 1998). The rate for sexual abuse is higher in females (two times the rate of young males) but physical abuse remains higher in males (two times the rate of young females) (Kinard, 1995). This may contribute to the result of a much higher rate of young males found in behavior disorder classrooms and increased levels of aggressive behavior demonstrated (Cavendish, Nielsen, & Montague, 2012). Very few studies have been conducted indicating the prevalence of PTSD in the classroom, but what studies have shown is 40% of high school students have had a traumatic experience and 3-6% of those students have PTSD (Kaminer, Seedat, & Stein, 2005).

Another behavior disorder that is frequently found in the classroom is Oppositional Defiance Disorder (ODD). It is "the most prevalent and resource-demanding mental health problem" found in children (Monkvold, Lundervold, & Manger, 2011). Symptoms and patterns of ODD are disobedience, defiance, hostile or violent behavior. These patterns will most likely effect the person's behavior and success

academically (APA, 2000). ODD has traditionally been found in males (Loeber, Burke, Lahey, Winters, & Zera, 2000). Males are found, more typically than females, to hit, kick, and become involved in physical altercations with peers (Maccoby, 2004). Three times the amount of boys over girls are diagnosed before puberty age and symptoms can include truancy, running away, and liquor and tobacco offenses (Puzzanchera, Stahl, Finnegan, Tierney, & Snyder, 2002).

Long-term effects of behavior disorders on these children include increased likelihood of unemployment, conduct disorders, mood disorders, and substance abuse (Ebejer et al., 2012). Not only will the disorders follow them but a possible collection of unwanted habits or disabilities can develop. Breslau, Fenn, and Peterson (1993) found consistent results demonstrating long-term relations between early childhood behavior problems and substance abuse and dependency in adulthood. Alcohol abuse has been directly linked to a history of behavioral disorders as well. Long and Boik (1993) researched students in late elementary and early middle school in a longitudinal study with findings that these "delinquent' behaving students were more likely to abuse alcohol by the sixth grade.

Suicide can be a violent reaction sparked by the symptoms of these behavior disorders. It has been found to occur in children who currently suffer or have in the past from a type of behavior disorder. A preliminary investigation found a higher rate of suicidal behavior (including suicide attempts) in young adult with ADHD than students in the control group (Chronis-Tuscano, Molina, Pelham, Applegate, Dahike, Overmeyer, & Lahey, 2010). A comprehensive view of this finding also reports "over 200% greater odds" of suicide attempts before the age of 18 in children diagnosed with ADHD

(Chronis-Tuscano et al., 2010). This alarming information reveals the severity a behavior disorder can have on a child.

Behavior disorders among school-aged children can arise from numerous environmental and social factors. These factors can have detrimental effects on these children causing long-term impairment. Mental and social effects such as antisocial behaviors, violence, verbal aggressions, economic struggles, and many other disabling characteristics can result from an unstable environment during childhood. Student-aged children, in particular, can be susceptible to more volatile outcomes because educational goals are at risk. Lack of motivation amongst these students can be very high and may influence how they view academics and in turn future endeavors (such as employment, relationships). These children may suffer from one disability but can also be panged by multiple social issues.

Community factors, such as violence seen or experienced, are related to a host of behavioral problems as well as psychological difficulties (Achenbach, Ceballo, Dahl, Aretakis, & Ramirez, 2001). Children who are exposed to violence or feel threatened in the home may fail to appropriately manage behaviors. Low socio-economic households are more susceptible to violence, and the children in these homes have a higher risk of emotional and behavioral disorders (Cooley-Strickland, Quille, Griffin, Stuart, Bradshaw, & Furr-Holden, 2009). It has been reported that children belonging to an ethnic minority more frequently have emotional and behavioral problems (Bevaart, Mieloo, Jansen, Raat, Donker, Verhulst, &VanOort, 2012). Cavendish et al. (2012) reports higher levels of "externalizing behaviors" amongst African American and Hispanic students.

In a study relating abused children and comorbid disabilities, it was found that in relation to children without PTSD, those who were diagnosed had high rates of ADHD (Ackerman et al., 1998). Other disorders, including anxiety, brief psychotic, and mood disorders were found in these children as well. Environmental risk factors such as negative attention from parents, physical neglect, low birth weight, and emotional neglect can all contribute to these maladjusted behaviors (Ebejer et al., 2012).

Many teachers may be ill-equipped to manage these students due to the nature of the problem . Unfortunately, these aggressive and generally disruptive behaviors can increase negative relationships between a student and a teacher. It is suggested that relationships of this sort that develop during kindergarten are linked with problem behaviors through the eighth grade (Sutherland et al., 2003). Other research has suggested that less academic instruction is being given to behavior students, and that there is an inverse relationship between the high rates of behavior and low rates of instruction provided by teachers (Carr, Taylor, & Robinson, 1991). These low rates of instruction can play a chief role in the futures of these children. Low amounts of instruction will not sufficiently equip students with the necessary tools needed to function in society. Several interventions have been attempted to reduce frequency of behavior problems in the educational system.

Medication is often used to combat the disabilities. Such interventions can have a positive effect but in instances of ADHD, for example, many of the problems cannot be sufficiently addressed by medication alone (Schultz, Storer, Watabe, Sadler, & Evans, 2011).

Among non-medicinal interventions attempted to control these disorders, positive behavior intervention and support (PBIS). PBIS is a rapidly popular intervention that is consequence-based and is used upon initial defiance by student in the classroom. It is based on the coercion theory which can instigate and further engage students and teachers in inappropriate interactions during a conflict. This protocol is not empirically supported and suggests no solid evidence of the effectiveness of the procedures (Benner, Nelson, Sanders, & Ralston, 2012).

Cognitive behavioral interventions (CBI) have been used with children to reduce PTSD symtoms (Nixon, Sterk, & Pearce, 2012). posCBIs can be used in the classroom setting to reduce impulsive behaviors. This is done by modeling problem solving and self-instruction skills (Robinson, 2007). --take this section out possibly

The Boys Town model is one intervention that lingers in support of young children nationwide. Created by a priest in 1917 it is comprised of five elements. These elements are the basis for treatment and include skills to build healthy family and school relationships, appropriate school behavior, a fostering of healthy moral and spirituality, and suitable interactions with authority (Boys Town, 2013). Although this method has gained great attention, the techniques are outdated and not effective. A contingency based protocol alone is followed by strictly run, rule-governed teachers which can adversely affect a student (Dowd & Peter, 1996).

Token economies are another intervention that is very widely used in the classroom setting. These reward-based systems have been found to be effective across a variety of grade levels, socioeconomic populations, and behaviors (Klimas et al., 2007;

McLaughlin, 2007). An increase in jump rope practice (Alstot, 2012) and reduction in drooling of patients with cerebral palsy (Sethy, Mokashi, & Swee, 2011) have shown significant results indicating tokens functioned as an appropriate intervention. Some controversy has risen as a result of suggestions that these tokens are like bribery and can actually decrease appropriate behaviors (Kohn, 1999). Other research suggests that token economies are not as generalizable as predicted (Corrigan, 1995). Carton and Schweitzer (1996) found an increase in appropriate medical behaviors in a patient with end-stage renal disease, but stated that the "intervention was not linked empirically to values maintaining noncompliance" in regards to avoiding medical attention. When the system was removed, the noncompliant behaviors increased signifying a lack of consistency. When implemented unaccompanied by another intervention these economies may be lacking..behavior problems may do what is necessary to get by—tokens for what they want only in the classroom inhibiting generalization to other environments?

Level systems, such as the three level (red, yellow, green), have been implemented in classrooms across the country. Teachers have found effectiveness in this program in increasing appropriate behaviors and academic success (Barbetta, 1990). Little empirical evidence exists to support these claims and low generalization has occurred from the classroom to other environments. Many of the interventions mentioned above have been found to have some effective results but when they are implemented alone they lack strength. These contingency-based interventions may seem effective but need to be manipulated to reveal the function and environmental conditions under which the behavior is occurring (LeGray, Dufrene, Sterling-Turner, Olmi, & Bellone, 2010).

Classrooms have seen a great expansion in mindfulness-based approaches in recent times. Mindfulness comes when one is "paying attention on purpose" or in the present moment and has a "non-judgmental experience" (Kabat-Zinn, 2003). This behavior therapy has had significant effects on reduction of anxiety and depression on cancer patients and survivors (Piet, Wurtzen, & Zachariae, 2012). Little research has been conducted on mindfulness in children and adolescents with behavior disorders, as the primary focus thus far has been on adult population (Burke, 2010). Studies that have involved mindfulness and children were conducted to gain insight on effectiveness with pain management and depressive relapse prevention (Allen, 2006), to evaluate art therapy on levels of anxiety and reactivity (Coholic, 2011), and mindfulness training for ADHD children and parenting for the parents (Oord & Peijnenburg, 2012). Two recent case studies by Singh, Lancioni, Singh, Winton, and Atkins (2010) found significant results of compliance in children with ADHD after intensive mindfulness training. This training may lead to significant results in behavior disorder students but a limited amount of significant research has been conducted thus far.

Many classroom staff members use an FBA to determine the function of the behaviors exhibited instead of focusing on the topography. In a study by Ervin, Radford, Bertsch, Piper, Ehrhardt, and Poling (2001) showed that 98% of the students, of whom FBAs were conducted on in the classroom, demonstrated a decrease in negative behaviors. A combination of one or more of the mentioned interventions may be necessary to effectively battle behavior disorders in school-aged children. .

Acceptance and Commitment Therapy (ACT) is an alternative approach to these interventions that embraces a restructuring of past methods. It encompasses both

contingency-based and mindfulness interventions by training clients to choose value-driven choices to avoid unwanted things in life.

Unlike traditional CBT methods, ACT resists the natural human tendencies to define the problem as anxiety or depression but rather accept that these "feelings" can be an opportunity to empower the client (Hayes, 2004). ACT also deters clients from disputing the thoughts they may have but to embrace and accept them as a part of life. Its methods are utilized to break cognitive fusion, reduce avoidance, and move in a value-driven direction. The thoughts of these plaguing symptoms, such as anger, anxiety, resentment, and depression, may not be terminated by the client, but the goal is to move away from them as they are unworkable means to failure (Hayes, 2004). CBT works to analyze and test cognitions and language while ACT modifies the context. The environmental factors and history in which people behave is related to the context. By breaking up fused thoughts with defusion exercises (Hayes, Strosahl, & Wilson, 1999) words and thoughts can lose all meaning previously correlated with the client's experiences.

Hayes (2004) postulates that the "biggest failure" behavior therapy has undergone was not dealing with cognition adequately. Language and cognition are more appropriately recognized in therapy with ACT; which is built upon functional contexts in Relational Frame Theory (RFT) (Hayes, Barnes-Holmes, & Roche, 2001). Like mindfulness therapy, ACT is nontraditional. Harris (2009) states, in lay terms, that ACT is "to create a rich, full, and meaningful life while accepting the pain that inevitably goes with it". By using psychological skills to manage thoughts and feelings, this intervention is equipped with the tools students need to achieve effective behavior management.

Functional conceptualism is at the core of ACTs philosophical base. It encourages clients to resist what is true or known to them and grip the theory that their world is only based on their interactions within it (Hayes, 2004).

Strong evidence has been given that has shaken behavior therapists core, suggesting that behaviors can be changed by adjusting function of thought before altering the form (Segal, Williams, & Teasdale, 2002). With ACT sanctioned by Substance Abuse and Mental Health Services Administration (SAMHSA) and recognized as an empirically-based treatment for a variety of disabilities by division 12 of the American Psychological Association, it has begun to make great strides worldwide (Hayes, 2008).

In an effort to develop an alternate intervention that would combat a variety of anxiety symptoms, research on patients with panic disorder, generalized anxiety disorder, obsessive-compulsive disorder, and social anxiety disorder were subjected to ACT and traditional cognitive behavior therapy (CBT) (Arch, Eifert, Davies, Vilardaga, Rose, & Craske, 2012). Results from this study indicated a significant decrease from the ACT intervention. Though these findings were similar to those found with CBT, the reliability of therapist competency with ACT was low.

In a research design comparing ACT protocol to a supporting intervention for behavioral seizure management in 27 South African adults with epilepsy, ACT was shown to have significantly reduced 57% of seizures after one month of treatment compared to no reduction in control group (Lundgren, Dahl, Melin, 2006).

Substance-abuse clients were studied by Luoma, Kohlenberg, Hayes, and Fletcher (2011) in which ACT strategies were employed resulting in a reduction of shame and

substance abuse as well as an increase in treatment attendance. An applied relaxation (AR) approach was compared to ACT in people with chronic pain (Thorsell, Finnes, Dahl, Lundgren, Gybrant, Gordh, & Burhman, 2011). Interventions included several weeks of self-help training in both interventions as well as an initial face-to-face session. The measures included in the study assessed satisfaction of life, depression, and acceptance of pain among a variety of others. Results indicated that the clients exposed to ACT therapy reported a decrease in pain intensity, improvements in depression and anxiety, and level of acceptance regarding chronic pain. The ACT model has been used in a variety of populations and within a diverse topography of behaviors but has not touched upon behavior disorders found in school-aged children.

ACT focuses on an increase in psychological flexibility to denote if clients have begun to reduce cognitive fusion and accept events, thoughts, and memories that occur in life. Psychological flexibility can be defined as "the ability to experience a current negative state (memory or feeling) while moving in a valued direction" (Codd, Twohig, Crosby, & Enno, 2011). To teach these skills, a model based on psychological flexibility has been created which includes six areas. This model, also referred to as the psychological flexibility model or the hexaflex, represents the six areas that contribute to psychological flexibility: present moment; values; committed action; self-as-context; defusion; and acceptance (Hayes, Stroshal, & Wilson, 2012).

How can this be applied to behavior disorders in school-aged children? Students may suffer from negative self-talk such as "I'm stupid" or "I will never be able to do anything right". As reported by Carr et al. (1991), these students may be treated differently in the school system. Students with behavior disorders may experience

experiential avoidance which involves the person avoiding thoughts, events, emotions, and memories and altering them in some way (Hayes et al., 2012). An example of this in the classroom may result in a student flopping to the floor, yelling, or exhibiting other disruptive behaviors in an effort to avoid discussion of a painful event (or something that is a reminder of the memory). Evidence demonstrating a relationship between experiential avoidance and behavioral problems is growing (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). By utilizing acceptance versus avoidance, any event in one's life can be processed allowing the person to lead a value-driven life.

ACT can identify these areas of need within the student and address the control many people neglect over their thoughts. A case study involving an adult woman suffering from PTSD utilized ACT to defuse thoughts of worthlessness and to distance the client from the negative self-view she held (Twohig, 2009). There is a growing need for investigation of effective interventions that involve children with behavior disorders. Little research in this area has been conducted and none of this has involved ACT as a method of intervention. The purpose of this study was to evaluate the effects of ACT, a token economy, and highly trained staff on GPA, attendance, and psychological flexibility of students with behavior disorders.

CHAPTER 2

METHOD

Participants and Setting

The participants in this study were all gathered from school districts in central Illinois. The study consisted of 18 students (16 males; 2 female) diagnosed with a variety of behavior disorders ranging from ADHD to autism. Ages of the students were between 15 and 18. Participants in the treatment group were all enrolled in an alternative school in a rural town in Illinois called Journeys. Many students resided in the district in which the school was located, but some were from districts within 30 miles of the school.

Journeys school was created to house students with severe behavior disabilities and serves as an alternative school for the surrounding areas. Students were assigned to Journeys based on expulsions from home district or change of placement by the director in their district. Many of the placement changes occurred because the student's behavior was not manageable in their current educational setting and the administration made decisions to remove them. Students at Journeys are sent by school administers/school districts, Boys Town, and private boarding schools due to expulsions or lack of ability for staff to maintain such aversive behaviors. Parents are not able to send their student by choice, therefore, Journeys is an alternative to what the districts or other facilities offer and is listed as a "last resort" placement. The behaviors of these students range from such violent acts as bringing knives to school, accosting a teacher, bringing a gun on the bus to physical violence with peers/staff and verbal aggressions.

The students were housed in three classrooms throughout the study. School days were from 9 a.m. to 2 p.m., Monday through Friday. Each room had one special education teacher and two behavior technicians. Other staff included a school psychologist who served as the school principal.

All measures were given to students in their corresponding classrooms in both treatment and control groups. ACT lessons were provided to students in the ACT room which was a 25ft x 25ft room located near classrooms. This room housed yoga mats, bean bags, rugs, low lighting, projector and screen, and all materials necessary for students and staff to complete daily activities. Typical school years are 180 days in length and 180 ACT lessons were provided to all staff members.

Each classroom at Journeys was decorated with one or more hexaflexes and statements reflecting aspects of ACT. All checkout sessions were completed in the classroom by the teacher or behavior technician.

Materials

To measure the amount of psychological change or flexibility a person has achieved, measures such as the Acceptance and Action Questionnaire-II (AAQ-2) (Bond, Hayes, Baer, Carpenter, Guenole, Orcutt, Waltz, & Zettle, 2011), and the Avoidance and Fusion Questionnaire for Youth (AFQ-Y) (Greco, Murrell, & Coyne, 2005) were used during pretest and posttest phases of the research. The AAQ-2 was chosen for this study based upon the measures ability to identify rigidity of thoughts and avoidance of private events or experiential avoidance (Wenzlaff & Wegner, 2000). The AFQ-Y was chosen due to it being a child-report measure (Greco, Lambert, & Baer, 2008). The

questionnaires were given to each student by the classroom teacher or experimenter. Students who were unable to read were given reading accommodations by the teacher or experimenter. This was only the case with one student from the treatment group. No statements on the measures were altered or manipulated verbally in any way if the participant required verbal assistance.

The token economy at Journeys included reinforcing items available to participants in the classroom store for purchase with points. Items included gum, candy, snack items, squishy ball time, computer time, games, lunch buyout, visit with staff, hygiene items, and a variety of other reinforcers. A list of prices for the items was listed in each classroom as well as a list of point consequence for behaviors. Point sheets and point exchange logs were also utilized daily by all staff to collect data on the behaviors of each student. A checkout sheet was used to review behaviors and events that occurred that day. Each participant and a staff member privately discussed in the classroom or hallway each aspect of the hexaflex in relation to the participants' day.

Design and Procedure

A pretest-posttest quasi-experimental design was used to evaluate any differences between the groups. A treatment and control group were assigned and evaluated throughout the study. Due to the lack of a matched control group for all of the ages at Journeys, only the high school aged students were used in this study. Students from a behavior disorder classroom in a local school district were assigned as the matched control group. All students in this classroom were of high school age (15-18). It was noted that these students were a very conservative match to the treatment group because

of their low frequency and magnitude of behaviors. The independent variable was the implementation of ACT with 180 days of lessons, a token economy, and highly trained staff. The dependent variable was the participants GPA, days in attendance, percentage of behavior points, and psychological flexibility scores.

Staff Training Prior to any involvement with the students, the staff at Journeys was enrolled in a five day intensive training. All of the staff was trained by a Board Certified Behavior Analyst (BCBA) prior to the start of the school year. Training included an introduction of RFT and a brief description of mindfulness methods. Staff was also provided with example ACT lessons and instructed to role play a variety of these lessons to gain experience in implementation. Training on point sheets, data collection, and general contingency-based methods of behavior modification were also taught in the sessions and throughout the year. This training was provided by both the BCBA and qualified teaching staff.

Pretest The design began with a pretest, both the AAQ-2 and AFQ-Y, given to participants in each group at the end of the first quarter. The GPA and attendance records for all participants were gathered and evaluated by the experimenter and at times by a second observer. The 2011-2012 school year GPA and attendance records served as a baseline for the treatment group. This information was unavailable for the control group participants.

An informal preference assessment was conducted by the classroom teachers to determine highly reinforcing items. This was completed the first week of school. Once

this was determined, items were presented to students in the classroom store and offered as a purchase with points.

Token Economy Each teacher at Journeys constructed a classroom store filled with highly preferred items (based upon results from informal preference assessments). Items were available for purchase with points earned throughout the day. A daily point sheet for each participant was used to calculate points accumulated or deducted (shown in Figure 1 and 2). Every half hour participants could earn up to 20 points. Each day consisted of 11 half hours equalling 220 possible points earned per day. Participants could lose points as well with point purchase amount for behaviors listed on chalkboard in each room (throwing-100 points, threatening-50 points, leaving the area-50 points, break-50 points etc.). For example, if a participant refused to work, the teacher would inform him/her that he/she is purchasing a break (50 points) if he/she does not return to assigned task.

Participants were able to spend points at a "cashout" time before lunch and given another opportunity after "checkout" at the end of the day. If a participant demonstrated a behavior beyond the allocated point loss on the point sheet, staff would mark the target behavior exhibited and point reduction. Points were added by staff at the end of the day and entered into the point exchange log. Each point sheet had two sides in which the front side listed appropriate and inappropriate behaviors and the back side listed social behaviors reflective of the hexaflex. Targeted positive behaviors included remaining in the present moment and accepting the current situation. Targeted negative behaviors included not defusing from a situation and not working towards his/her personal values. The teachers operationally defined the participants individual target behavior based on

their best clinical judgment. For instance, one participant's acceptance of a situation may have looked different from another participant's acceptance.

ACT Teachers were provided with 180 days of ACT lessons and purchased any materials that were required for each day. A random rotation of lesson days was assigned to each of the 10 staff members. After students were given breakfast, each class was led to the ACT room where lessons were given. Lessons typically were conducted for 30 to 40 minutes each day. Each classroom attended ACT room on separate occasions and were done on a rotation (ex. First classroom ACT 9:00-9:30 a.m.; Second classroom Act 9:30-10:00 a.m.). Each lesson provided staff with a brief description and introduction to topic. A small hexaflex with a highlighted space indicated the area of ACT to be discussed. Lessons were broken down into three levels of ability: *Grades K-4, Intermediate Grades, Middle/High School*. The staff determined which level to teach from depending on the cognitive ability of the students. All staff used the *Middle/High School* level of instruction. After the introduction and explanation of which area of the hexaflex was to be discussed, the staff member began the interactive portion of the lesson. Lessons included supplies necessary and instructions to complete the project. Staff was instructed to continuously and consistently involve the participants in the lesson. If a student refused participation after verbal redirection, a point reduction was taken. At completion of the lesson or project, students openly discussed aspects of the hexaflex and how applicable areas related to the lesson. Any work was posted throughout the school as a display of accomplishments.

Checkout Teachers and behavior technicians completed a checkout sheet daily. This sheet provided staff with a list of each area of the hexaflex as well as space to write examples

of how that participant behaved in accordance with that portion of ACT. Another blank was provided adjacent to the teacher example in which the staff would list the participant's personal example. Staff would meet with each participant individually in the classroom or the hallway and discuss each area of the hexaflex in detail pertaining to the participant's day. This was typically done at 1:45 p.m. Staff was instructed to ask the participants, "What did you have to accept today?, How or what did you defuse from today?, What did/do you value?, Are you working towards those values by committing to action?, When were you 'you'? When were you in the present moment?". Staff was also instructed to share their own example of each of these areas with the participant. If a participant refused to checkout it resulted in a loss of points.

Posttest A posttest was implemented for both control and treatment groups at the end of the fourth quarter. The AAQ-2 and AFQ-Y were administered to all participants as previously done in pretest portion of study. The GPA and attendance records for all participants were gathered at the close of the school year by the experimenter.

The psychological measures provided participants with either a 7-point (AAQ-2) or a 4-point (AFQ-Y) Likert scale to rate statements. A circle or coloring of a number indicated how true each statement was for the participant. A second observer independently scored data on AAQ-2, AFQ-Y, and point data collection throughout at least 30% of study. The second observer independently calculated behavior percent points as well as scores on both psychological measures. Interobserver agreement was calculated for all measures by dividing the number of agreements by the number of agreements plus the number of disagreements and multiplying by 100. For point data collection agreement was 98% and psychological measure agreement was 99%.

CHAPTER 3

RESULTS

Figure 5 shows the overall GPA of both control and treatment groups. As shown, the participants in the treatment group increased from an average 1.3 in 2011/2012 school year to 3.13 in 2012/2013 school year. This is a 46% increase in GPA in treatment group from baseline. In comparison to the control group GPA average of 1.2, the treatment group's average was 48% higher. The results of the independent samples *t* test revealed a significant difference between the control group's (m=.99, sd=1.06) and treatment group (m=3.13, sd=.38) in relation to GPA (.000, $p<.05$).

Figure 6 shows the average days in attendance of both the control and treatment group participants. Baseline data for the treatment group was at an average of 60% attendance. The average attendance in the 2012-2013 school year for treatment group was 89% which is a 20% increase. The control group averaged at 79% attendance which is 10% lower than the treatment group. The independent samples *t* test revealed significant differences between the control (m=76.6, sd=6.76) and treatment (m=88.9, sd=11.73) on days in attendance (.000, $p< .05$).

Figure 7 depicts participants' scores on the AAQ-2. The higher the score on this measure the more psychologically inflexible the individual. As shown the participants in the treatment group decreased from an average of 21.5 to 17.5. This was an 8% decrease in scores which demonstrates the ability to be flexible in thought and acceptance of thoughts, feelings, and experiences that occur in life. The control group scores resulted in an 18% increase from the first to fourth quarter demonstrating experiential avoidance or a

general decrease in psychological flexibility. The results from this independent *t* test showed

Figure 8 shows the scores for both groups on the AFQ-Y measure. Higher scores on this measure also is a result of experiential avoidance or inflexibility. The pretest was given in the first quarter of the year and posttest given the fourth quarter for both groups. The treatment group average score first quarter was 20.7 and fourth quarter was at 20.2. This was a 1% decrease from the pretest to the posttest. In the control group, the first quarter average score was at 10 and increased to 18.7 or a 22% increase from the pretest to the posttest.

In Figure 9 the average behavior points earned for the treatment group are shown. There is an increasing variable trend depicted in the graph demonstrating an overall increase in points earned across the school year. The first data point is indicating a high level of behavior points. This could be attributed to the "honeymoon effect" that can occur at the beginning of a school year. There were very little academic and behavior demands put upon the students this first week. Some variability can be attributed to a participant's father passing away (week 11/05-11/09) which resulted in severe demonstrations of aberrant behaviors, therefore reducing the overall average.

CHAPTER 4

DISCUSSION

The present study evaluated the effects of ACT, a token economy, and highly trained staff on participants GPA, attendance, and psychological flexibility. The results show that the intervention used with the treatment group increased GPA and increased days in attendance in comparison to baseline from previous year. It also indicated that the treatment group had an overall higher GPA and days in attendance than the control group. The minimal reduction of scores on the AFQ-Y may be due to several variables. Questionnaires are self-report measures and can often be unreliable due to their subjectivity. Variability within statements or lack of objectively written statements may equate unreliable responses which may have attributed to the results in this study. The ability of at least one participant to read/low processing may have affected the scores. Also, the AAQ-2 may be too advanced for this population. The control group was an extremely conservative representation in comparison to the treatment group. More significant results may have been gathered if the behaviors were as severe as those found in the treatment group.

A limitation of this study is that no baseline was taken for participants in the control group. Although this would have been valuable to the study and a basis for change in the participants, the information was unavailable to experimenters. Another limitation was the limited number of participants in the groups. Due to the low number of students in the school and lack of a matched control group for the younger students, the generalization of these results may be limited. No randomization was used and a limited

number and age of students may have damaged the internal validity of this study. Confounding variables such as the participants' history of education may have affected the results. The increase in GPA could be attributed to the staffs' skill from training, but their methods do not explain the increase in psychological flexibility or attendance based solely on behavior modification training. A higher level of control would be achieved with randomization in further research. Conducting a maintenance phase with all participants may eliminate some variability as well.

The results of this study are an indication that future research in this area is needed. Previous research (Klimas et al., 2007; Piet et al., 2012; Lundgren et al., 2006) has used these evidence-based methods to reduce a variety of maladaptive behaviors. Little research has been conducted on students with behavior disorders, though, and with the rising number of school-aged children affected (Ebejer et al., 2012; Kaminer et al., 2005) it is imperative that research is continued. Further research could investigate the effects of ACT on these students' parents. Parent training may further increase grades and decrease problem behaviors. If parents were aware of the lessons and training the students are receiving daily, they may be able to provide their student with the necessary skills needed at home.

The data demonstrated a reduction in target behaviors and an increase in desired behaviors but it also revealed a functional difference in these students. Unlike many schools and special education classrooms that may not provide appropriate instruction and interactions with these students (Smith et al, 2011; Southerland et al., 2003), Journeys catapults students into a mindful exploration of their daily lives. The use of

ACT along with a token economy and highly trained staff to implement the interventions serves as a productive method of behavior modification.

Daily Point System

Name_____ Date_____

Points Earned	Staff	Time Period	Points Lost	Comments (positive & negative behavior)
	1) Follow Directions 2) Complete assignment			1) Not following school/classroom rules 2) Disrespectful 3) Inappropriate behaviors
0 5 10		8:30-9:00	0 5 10	
0 5 10		9:00-9:30	0 5 10	
0 5 10		9:30-10:00	0 5 10	
0 5 10		10:00-10:30	0 5 10	
0 5 10		10:30-11:00	0 5 10	
0 5 10		11:00-11:30	0 5 10	
0 5 10		11:30-12:00	0 5 10	
0 5 10		12:00-12:30	0 5 10	
0 5 10		12:30-1:00	0 5 10	
0 5 10		1:00-1:30	0 5 10	
0 5 10		1:30-2:00	0 5 10	
Total				

EARNED Key: 10 points for participation and assignment completion
5 points for either participation or assignment completion
0 points for neither participation nor assignment completion

LOST Key: 10 points for violation of school rules, disrespectful to peers, violations in classroom rules, and Inappropriate behavior towards teacher/staff
5 points for one or more of the above
0 points for none of the above

Bank Balance			
Earned Morning Points +			
Lost Morning Points —			
Total			
Morning Cash Out —			
Total		A K T S	
Earned Afternoon Points +			
Lost Afternoon Points —			
Total			
Afternoon Cash Out —			
		A K T S	
Ending Daily Balance			

Total Points Possible_____

Total Points Earned _____

Figure 1. Front side of point sheet used with treatment group.

I

Social Behavior Checklist

Name_____ **Date**_____

Points Earned	Targeted Positive Behavior	Staff	Time Period		Points Lost	Targeted Negative Behaviors
	1) Remained in the present moment 2) Accepted current situation					1) Did not defuse from situation 2) Not working toward personal values
0 5 10			8:30-9:00		0 5 10	
0 5 10			9:00-9:30		0 5 10	
0 5 10			9:30-10:00		0 5 10	
0 5 10			10:00-10:30		0 5 10	
0 5 10			10:30-11:00		0 5 10	
0 5 10			11:00-11:30		0 5 10	
0 5 10			11:30-12:00		0 5 10	
0 5 10			12:00-12:30		0 5 10	
0 5 10			12:30-1:00		0 5 10	
0 5 10			1:00-1:30		0 5 10	
0 5 10			1:30-2:00		0 5 10	
Total						

Figure 2. Back of point sheet used with treatment group.

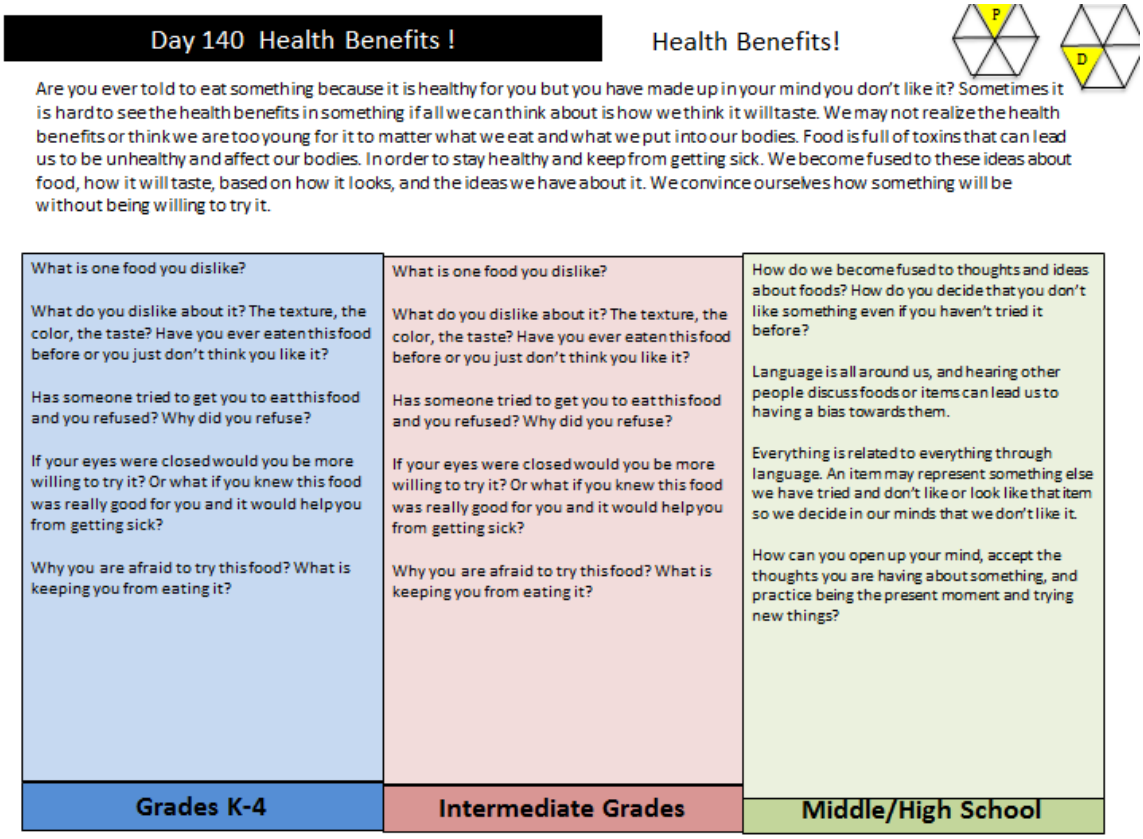

Figure 3. The image is an example of the 180-day ACT lessons provided to staff. What is shown is the first page of the lesson. This activity focuses on present moment and defusion.

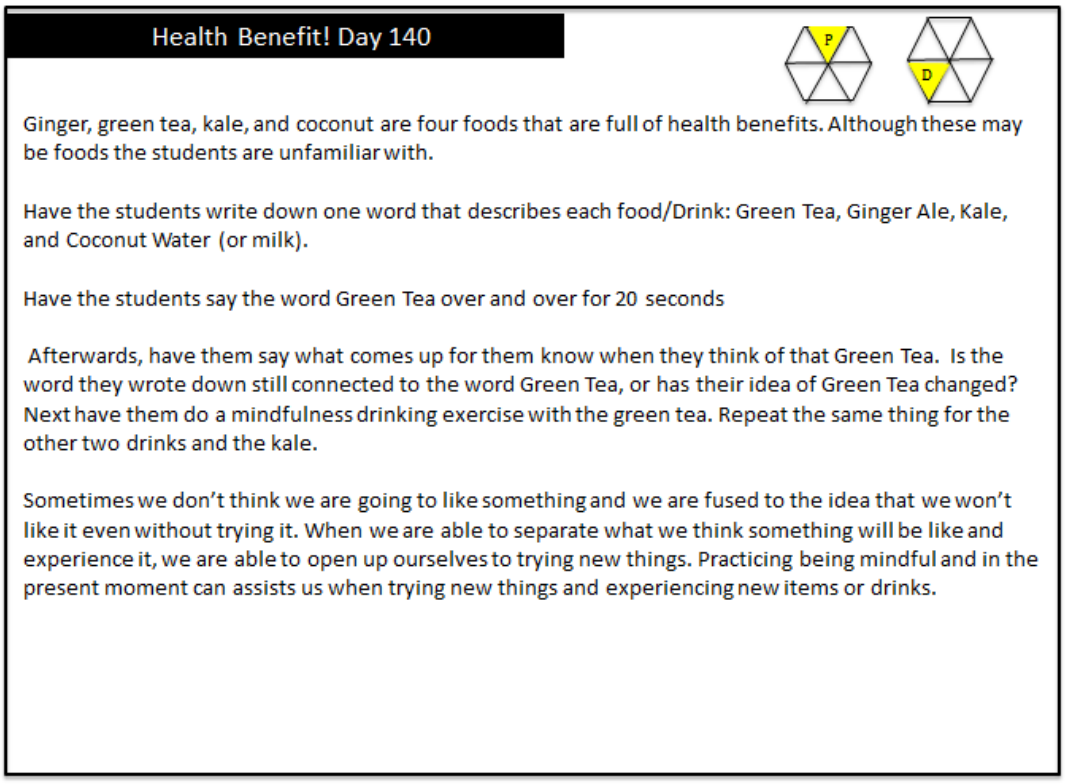

Figure 4. This image is the second page of the lesson on present moment and defusion.

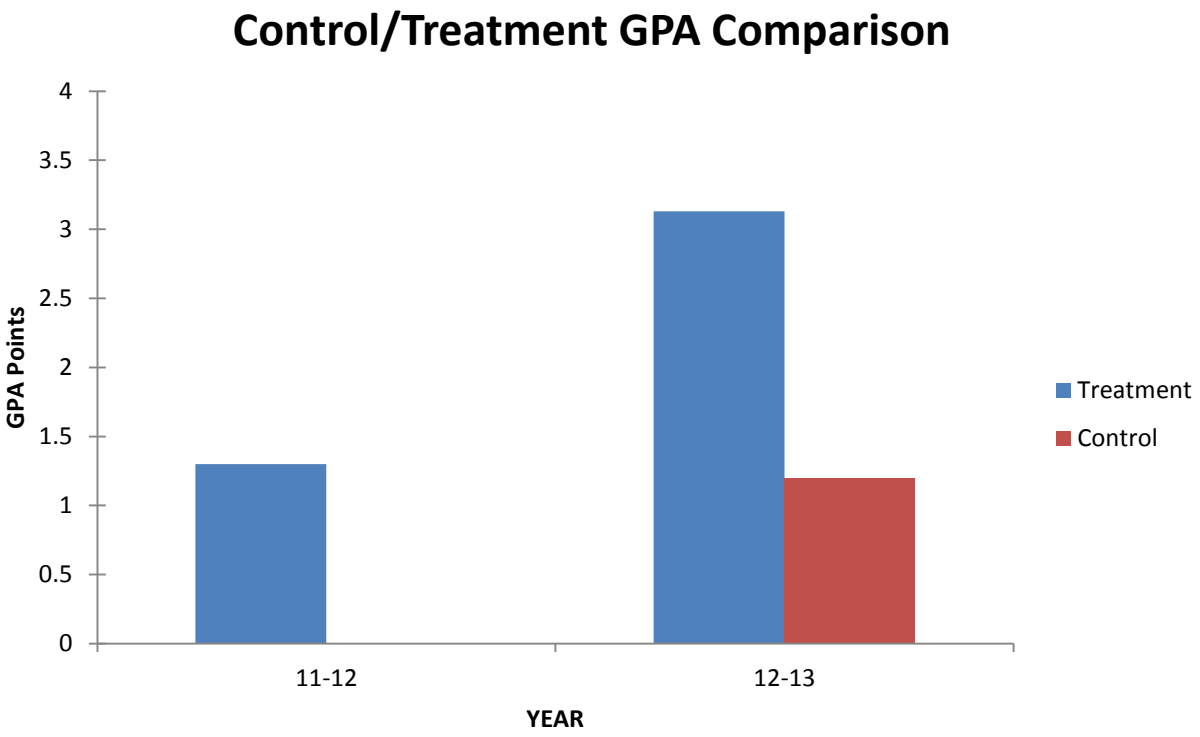

Figure 5. The graph shows the average GPA points earned for both groups. Baseline data was unavailable for control group.

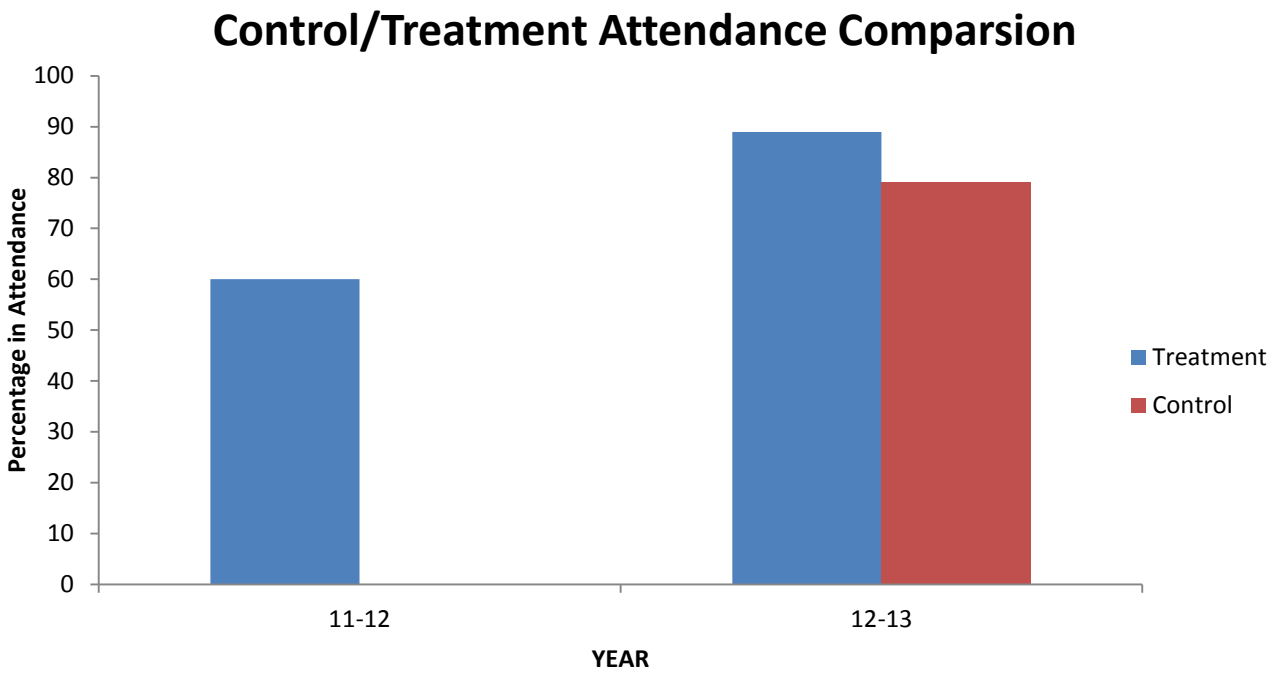

Figure 6. This graph shows the average days in attendance for both groups. Baseline data was unavailable for the control group.

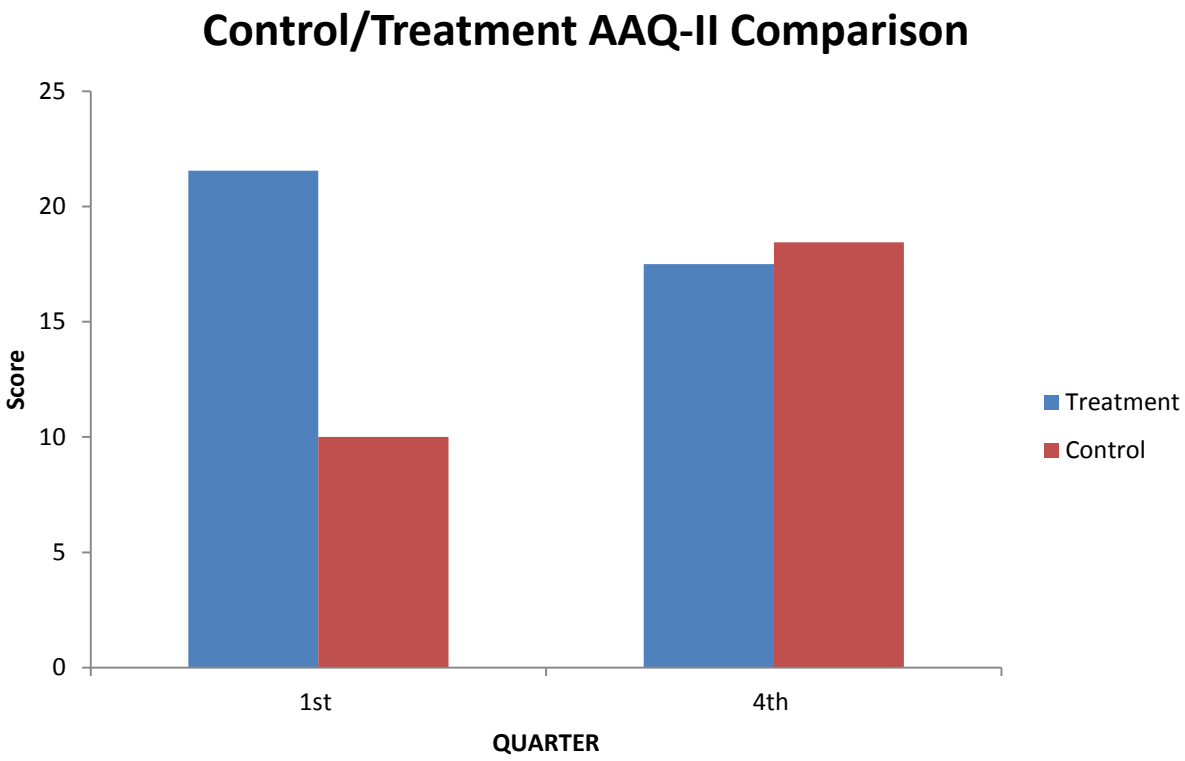

Figure 7. The graph shows pretest-posttest scores for both groups on AAQ-2 measure. Lower scores represent more psychological flexibility.

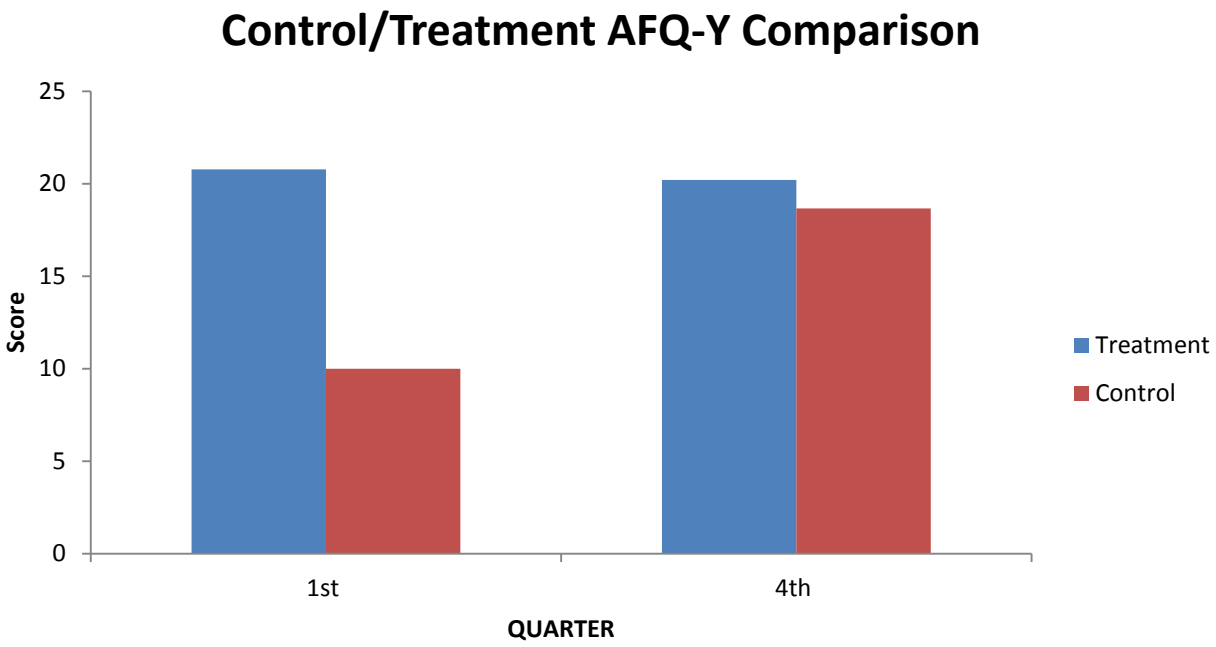

Figure 8. The graph depicts pretest-posttest scores on AFQ-Y for both groups. Lower scores represent more psychological flexibility.

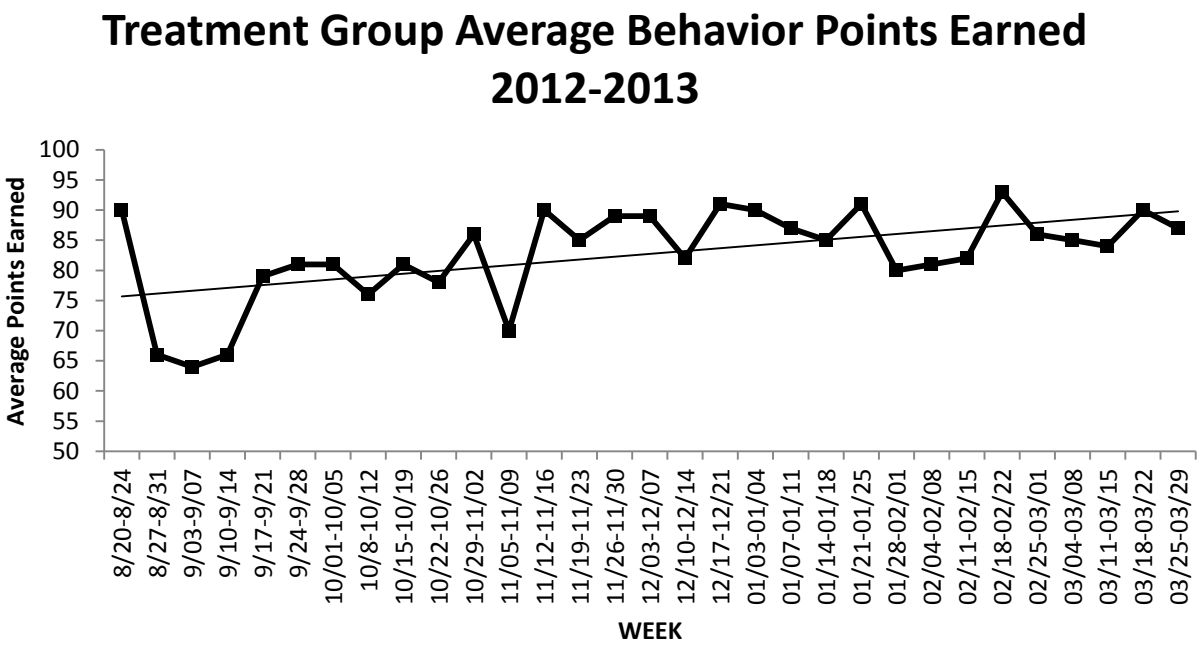

Figure 9. The scatterplot shows the average number of weekly points earned in treatment group.

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VITA

Graduate School

Southern Illinois University

Keely D. Sabaini

Kdsabaini@gmail.com

University of Missouri-St. Louis

Bachelor of Arts, Psychology, May 2008

Title:

Evaluating the Impact of Acceptance and Commitment Therapy on Children with Emotional and Behavioral Disorders

Major Professor: Mark R. Dixon