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Investigating the Use of an Emotional Intelligence Intervention with Young Elementary Students Receiving Services in a Self-contained Setting for Students with Emotional Disturbance

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INVESTIGATING THE USE OF AN EMOTIONAL INTELLIGENCE INTERVENTION WITH YOUNG ELEMENTARY STUDENTS RECEIVING SERVICES IN A SELF-CONTAINED SETTING FOR STUDENTS WITH EMOTIONAL DISTURBANCE

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A dissertation submitted in partial fulfilment of the requirements for the

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ABSTRACT

While there is a longstanding call for all students to succeed, students receiving special education services under the label of emotional disturbance (ED) are at an increased risk for minimal school and life outcomes, ranging from poor classroom grades and increased expulsion to high rates of incarceration and drug use. Although there are extant interventions, these often rely on extrinsic motivation or are begun after research suggests behaviors have become habit. Because of this, there is a call for earlier intervention that teaches students requisite skills. One such developmentally appropriate practice that has yet to be explored with students receiving services for ED is emotional intelligence. Found to have positive effects with the general population, and correlated with the exact areas identified as common deficits for students with ED, the current study sought to examine the effects of an emotional intelligence intervention on the performance of the youngest students receiving special education services in a self-contained setting for students with emotional disturbance.

The current study employed a multiple probe across participants design to analyze whether there was a functional relationship between the emotional intelligence intervention and student time-on-task and individually operationalized challenging behaviors. Observations occurred during a ten-minute time period and included both a momentary time sample of time-on-task and a frequency count of challenging behaviors. The study took place in a self-contained classroom for students receiving special education services under the ED label on a comprehensive school campus in the southwest United States. Thirty-five probes were completed across eight weeks of school with two maintenance sessions one week and one month after the original conclusion. Additional research questions analyzed the impact of the
intervention on emotional intelligence measures, explored maintenance and generalization
effects, and asked whether teachers and students approved of the intervention.

Visual analysis results reveal that the emotional intelligence intervention did not
demonstrate a strong functional relationship with student demonstration of individually
operationalized challenging behavior, but that these behaviors did decrease marginally across
phases. The measure of time-on-task did reveal a positive functional relationship between the
emotional intelligence intervention for two of the three participants. In addition, two of three
students demonstrated improved scores on measures of emotional intelligence. All students
maintained their intervention levels of improved time-on-task and challenging behavior during
maintenance probes. Generalization was reported across settings with the special education
teacher’s assistant and specialists noting a decrease in challenging behavior of some kind for all
participants who completed the intervention. Social validity measures revealed that the teacher
felt that all behaviors selected were of social import and that there had been at least temporary
reductions in these behaviors. She also indicated that she would continue using the intervention
for all students and would suggest it to colleagues. Conversely, students did not rate the
intervention with high approval, with only one student fully engaged in the holistic intervention
package.
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CHAPTER ONE
INTRODUCTION

Students receiving special education services under the label of emotional disturbance (ED) demonstrate some of the poorest school and life outcomes. The majority score within the bottom two quartiles on standardized exams and earn much lower grades in the classroom (Bradley, Doolittle, & Bartolotta, 2008; Lane, Barton-Arwood, Nelson, & Wehby, 2008; Wagner & Cameto, 2004; Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005). In addition, students with ED are more likely to drop out of school with only around 60% earning a high school diploma or general education diploma (Bradley et al., 2008). Few students with ED seek postsecondary opportunities and those that do are much more likely to enroll in trade schools than liberal arts programs and often do not continue through to completion (Bradley et al., 2008; Morningstar, Trainor, & Murray, 2015; Wagner & Newman, 2012; Zigmond, 2006). Young adults with ED have low rates of employment and are less likely to work full time, receive health benefits, earn minimum wage, obtain raises, or secure promotions (Bradley et al., 2008; Morningstar et al., 2015; Wagner & Cameto, 2004; Wagner & Newman, 2012; Zigmond, 2006). Students with ED also have the highest reported rate of daily smoking, drinking, and marijuana use than any other disability category (Yu, Huang, Newman, & SRI, 2008). Sixty-six percent have had contact with law enforcement by their early twenties, 43% have been arrested at least once, and more than one third had been arrested at least once while still in high school (Bradley et al., 2008; Wagner & Newman, 2012).

While the statistics of the academic and life outcomes for individuals with ED are subpar, there is a continued call to ensure high quality education for all students. Beginning with the publication of A Nation at Risk (National Commission on Excellence in Education, 1983) and
formalizing the push through the passage of No Child Left Behind Act (2001) and again with the Every Student Succeeds Act (2015), the United States has seen an increased focus on providing a rigorous education to all students. Most recently, with *Endrew F. v. Douglas County School District* (2017), the Supreme Court supported a higher standard, holding schools accountable for the reasonable growth of all students, including those with disabilities. Thus, in today’s educational system, teachers are now held accountable for ensuring that all students, even those with the most academic and behavioral challenges, are college- and career-ready.

While education can and should serve as a mediating force, students with ED are often treated with a “wait-to-fail” model (Wagner et al., 2005). This places students with ED two years behind the identification rates of other students with disabilities (Wagner et al., 2005). The longer students are exposed to risk factors, such as those experienced by students with ED, the more likely they are to experience negative outcomes (Walker et al., 1996). Further, it is suggested that behavior patterns are established by the end of elementary school (Dunlap et al., 2006) and that problem behaviors demonstrated early in life are the best predictors for continued and escalated behaviors in the future (Walker et al., 1996).

One possible remedy for the trajectories of students with ED is a focus on earlier intervention (Dunlap et al., 2006). For the general population, longitudinal studies have repeatedly demonstrated that receiving pre-school treatment resulted in higher academic scores, improved social emotional outcomes, and continued attendance through higher education (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Morris, Millenky, Raver, & Jones, 2013; Ou & Reynolds, 2006). For students with ED, such early intervention or early educational exposure can have a drastic impact on challenging behaviors and social skills, the exact areas in which this population struggles (Dunlap et al., 2006).
The field of early childhood has established a pyramid approach to behavior intervention (TACSEI, 2011). This approach encompasses three tiers including the establishment of a positive environment and strong relationships, the instruction of social-emotional skills and competencies, and the completion of a functional behavioral assessment and development of a behavior intervention plan (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003). The most frequently studied and cited component of this behavioral instruction meant for children during the early childhood years falls under this social-emotional skills instruction. Students are taught skills, such as friendship-making and turn-taking, through direct instruction.

On the other hand, current intervention practices for students with ED often take on an opposite approach. Practitioners use a behavioral approach to shape the actions of students through careful antecedent manipulation and consequence application (Cooper, Heron, & Heward, 2007). Students are set up in situations where they are likely to succeed and then are rewarded when they exhibit a positive response. While shown to be effective with this population, the effects of this approach are limited by a reliance on external stimuli, rather than internal motivation, and may not support students once the stimuli are removed (Polsgrove & Smith, 2004). Hence, current intervention practices are not fully meeting the needs of all students. Instead, it is proposed that students with ED, especially those still at the cusp of the early childhood years, may benefit from other interventions that teach requisite skills, thus allowing students to control their own behavior (Polsgrove & Smith, 2004; Lane et al., 2008).

One such strategy found to be effective with the general population, and that falls within the realm of social-emotional competences broached during early childhood, is the construct of emotional intelligence (EI). Interestingly, EI is correlated with success in those same outcomes for which students with ED demonstrate dismal results. For example, Esturgo-Deu and Sala-
Roca (2010) found a negative correlation between primary students’ challenging behaviors and their emotional intelligence. Similarly, Ferrando et al. (2011) established that while IQ has the highest predictive ability on academic performance, when that is held constant, EI correlated significantly with improved academic scores. Finally, Garg, Levin, and Tremblay (2016) found EI to be significantly correlated to students’ successful transition to university life which, in turn, affects freshman year GPA. In all of these categories, students with ED demonstrate difficulty.

While there are emotional intelligence curricula for the general population (e.g. RULER Feeling Words; Bracket, Rivers, Reyes, & Salovey, 2012), the EI construct has been minimally researched with students receiving special education and, even less often, those with the label of emotional disturbance. This study significantly contributes to the research base of emotional intelligence with young children identified as having ED.

**Definition of Terms**

The following terms are used throughout the study. The definitions are consistent with those used in the literature and support a clear understanding of this research.

**Challenging behavior.** Challenging behavior is any non-productive or off-topic behavior engaged in to escape a situation or person or acquire attention from adults or peers. The specific challenging behavior to be counted will be operationally defined per individual student, but each has been selected based on their ability to be quantified via their external manifestations. Such behaviors may include any that are aggressive, impulsive, or disobedient (Kauffman & Landrum, 2012).

**Emotional Disturbance.** Emotional Disturbance (ED) is defined according to the Code of Federal Regulations, Title 34, §300.8(c)(4). This states that a student with the disability label of ED demonstrates an educational deficit not explained by another disability category as well as
difficulty making and maintaining friendships and engaging in inappropriate behavior. In addition, students under this label may have diagnosis of depression and schizophrenia. It does not, however, cover students who are “socially maladjusted” (34 CFR §300.8(c)(4)).

**Emotional Intelligence (EI).** For the purposes of this paper, the researcher has adopted the ability model of emotional intelligence (Mayer & Salovey, 1997). This model proposes that emotional intelligence is comprised of identification or perception of emotions in oneself and others, the understanding that emotions influence thought and drive actions, and that one can regulate emotion and responses (Bracket, Rivers, & Salovey, 2011).

**Externalizing Behaviors.** These encompass any set of behaviors that are exhibited and acted upon outside of one’s own body. Externalizing behaviors include, but are not limited to, acts of aggression, destruction of property, theft, and hyperactive or impulsive behaviors (Furlong, Morrison, & Jimerson, 2004).

**Other staff member.** For the purpose of this study, other staff member may include any general education teacher, specialist instructor, custodian, counselor, or lunch assistant on the school campus with whom the student participant maintains a regular interaction.

**Self-contained classroom.** This term aligns with the federal definition of educational environments wherein a student with a disability remains on the general education campus, but accesses a fully inclusive classroom less than 40% of the day (U.S. Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs, 2017). It is a label applied to what is considered a more restrictive environment, classrooms wherein the students with special needs have access to a smaller student to adult ratio and a smaller class size.
**Self-regulation.** For the purpose of this study, self-regulation aligns with the concept and process of self-control proposed by Polsgrove and Smith (2004). Students respond to external stimuli with socially-acceptable behaviors through the process of self-awareness, active decision-making, and altering behaviors accordingly.

**Social emotional competence.** As defined by the Collaborative for Academic, Social, and Emotional Learning (CASEL), social emotional competence is divided among five competency areas, including self-awareness, self-confidence and self-efficacy, self-management, social awareness and relationship skills, and decision-making (CASEL, 2018; Elias & Weissberg, 2000).

**Special education teacher.** Special education teacher will refer to persons holding the title of “teacher of record” for a given student participant, including those who are not highly qualified or licensed in their field. Substitute teachers will be included under this term if they have accepted a long-term position and intend to maintain the role throughout the duration of the study.

**Special education teacher assistant (SPTAs).** SPTAs are additional adult staff members who are not licensed teachers, but work in the same classroom with the identified student participants. He or she may take on instructional roles as well as administrative tasks around the classroom. Those included in the study will maintain a daily relationship with the student participants.

**Time-on-task.** As all students’ individual externalizing behaviors were incompatible with the concept of time-on-task, they were also monitored on this measure. Time-on-task, is conceptualized as student eyes directed at teach/speaker/activity, hands engaged in teacher-defined task or resting in lap/by sides, and voice off unless engaged by adult.
Statement of the Problem

While there has been a longstanding call to increase educational benefit for all students, the present academic and life outcomes for students with ED remain dismal. With high rates of contact with law enforcement and low rates of graduation, consistent employment, and financial independence, the sense of urgency to address their needs could not be more pronounced.

Early intervention is shown to have dramatic and lasting impact for students facing an array of early childhood adversities, from those associated with poverty to delays related to disabilities (Campbell et al., 2002; Dunlap et al., 2006; Ou & Reynolds, 2006). However, students with ED are highly likely to have delayed identification or go unidentified (Forness et al., 2012; Wagner et al., 2005). This implies that a large number of students are not receiving this mediation that could prevent the possible life trajectory often observed for students with ED.

Current practices for general education early childhood and primary grade levels involve a tiered system for behavior management (Division of Early Childhood, 2007; Hemmeter, Ostrosky, & Corso, 2012). Teachers are to begin by applying classroom management strategies to all students and sequentially work up the hierarchy until they are to complete a functional behavioral assessment. This is often coupled with developing an intervention plan that relies on the use of external reinforcement to shape the child’s behavior. Interventions that deny a student the opportunity to strengthen intrinsic motivation often effect behavior changes that do not generalize or are not maintained after the removal of the reward economy (Polsgrove & Smith, 2004). Thus, these interventions frequently result in temporary behavior changes rather than the development of requisite skills that will support students throughout their school career.
**Purpose of the Study**

The purpose of this research study is to examine the effects of an emotional intelligence intervention on the performance of young elementary students receiving services in a self-contained setting for students with emotional disturbance in the areas of time-on-task, frequencies of challenging behaviors, and emotion knowledge.

**Research Questions**

This study will employ a multiple probe across participants design (Horner & Baer, 1978) to answer the following research questions:

**Research Question 1**

Is there a functional relationship between an emotional intelligence intervention and increased level of self-regulation as indicated by time-on-task and frequency of challenging behavior in young elementary students receiving services in a self-contained setting for students with emotional disturbance and is this effect maintained through the use an emotion check-in application alone?

It is predicted that the implementation of an emotional intelligence intervention will increase the time-on-task and decrease the frequency of challenging behavior for young elementary students receiving services in a self-contained setting for students with emotional disturbance. Because EI is a skill, it is also predicted that this effect will be maintained through the use of a check-in application alone.

**Research Question 2**

Does an emotional intelligence intervention improve emotional intelligence, as indicated by an increased score on the Behavior Assessment System for Children, Second Edition (BASC-2), for young elementary students receiving services in a self-contained setting for students with
emotional disturbance?

It is predicted that an emotional intelligence intervention will lead to increased scores on the emotional intelligence rating scale of young elementary students receiving services in a self-contained setting for students with emotional disturbance.

**Research Question 3**

Do young elementary students receiving services in a self-contained setting for students with emotional disturbance maintain effects once all components of the intervention have been removed?

Because EI is conceptualized as a learned skill, it is predicted that effects of daily emotional intelligence lessons and the use of an emotion log will be maintained after removal of the holistic intervention.

**Research Question 4**

Is there a generalized impact of the emotional intelligence intervention across school settings on the identified behaviors of young elementary students receiving services in a self-contained setting for students with emotional disturbance?

It is predicted that teachers and school staff will report improvement across school settings for young elementary students receiving services in a self-contained setting for students with emotional disturbance.

**Research Question 5**

Do students and teachers report a high level of satisfaction with an emotional intelligence intervention to decrease challenging behaviors and increase time-on-task?

It is predicted that students and teachers will both report a high level of satisfaction with the emotional intelligence intervention.
Significance of the Study

Because students with ED, and those at-risk, continue to demonstrate poor outcomes with- and without early intervention, it is important to explore additional options. Currently, practices rely on extrinsic motivation, failing to address skill deficit. The proposed study is significant to the field because it investigates a potential line of intervention meant to provide such skills but that has yet to be explored with young children identified to receive services in a self-contained setting for students with emotional disturbance. It will analyze the functional relationship between EI and student classroom behavior for this population of students.

Limitations

The limitations of the current study include:

1. This study employs a multiple probe across participants design. As such, the standard critiques of single case research methodology apply (Gast & Ledford, 2014). First, there is a small sample size from which generalization is not suggested. In addition, the use of a separate control group is not included.

2. Specific to a multiple probe design, however, is the fact that it does not incorporate intra-personal replication nor a return to baseline. These components are often cited as increasing validity of the design (Gast & Ledford, 2014). While this design lacks these components and thus may be considered weaker demonstration of experimental effect (Gast & Ledford, 2014), it was purposely selected because the dependent variable, emotional intelligence, is a set of non-reversible skills (Mayer & Salovey, 1997). Thus, any single case design wherein a return to baseline is utilized would not be appropriate for this skillset. In addition, a return to baseline or the removal of an
intervention that is successful may not be ethical or socially agreeable when working with such a vulnerable student population (Gast & Ledford, 2014).

3. Because there is a paucity of research on the area, the field has not yet identified in which of the hierarchical components of emotional intelligence (EI) students with ED may present difficulties. The proposed study incorporates all aspects into one package, but has not included a way to systematically determine EI skills prior to the intervention.

4. The design does not include a way to parcel out the component of the intervention package that was the most successful. However, this was intentional as the researcher felt that it is important to first test a holistic EI intervention to see if there is an effect before systematically identifying which intervention component is most essential for young students identified with, or receiving services for, ED.

5. The school utilized for this study was selected from a convenience sample found in a unique urban district. Because of this, the findings may not generalize to other settings.

6. Because students from this disability category are shown to have the highest between-school transiency and absenteeism rates, it is expected that student daily attendance and ultimate attrition rates may affect the outcomes.

7. This study was conducted with the youngest students identified under, or receiving services for, ED. Because students at this age aren’t commonly labeled with ED, it can be suggested that this intervention was applied to extreme cases. It may not be generalizable to either older students with ED or to other young children
demonstrating challenging behaviors who are not identified as requiring special
education under this label.

**Organization of the Study**

This dissertation is organized into five chapters. Chapter 1 provides an explanation of the
significance and purpose of the study and introduces key vocabulary used throughout. Chapter 2
offers a review of relevant literature, including both current interventions for students with ED as
well as those utilized in the field of early childhood. It then focuses on emotional intelligence
and its potential impact. Chapter 3 includes the research methods and design overview,
including a description of the participants, measures, intervention procedures, and data collection
and analysis. Chapter 4 examines the results of the study while Chapter 5 provides a thorough
discussion of the findings, including limitations and directions for future research.
CHAPTER TWO

LITERATURE REVIEW

Persistent and challenging behaviors, such as those that serve as a defining characteristic of students with emotional disturbance (ED), have been a longstanding cause for concern. Challenging behaviors demonstrated in the youngest students, those in the early childhood classroom, are associated with direct home and classroom effects. These include strained relationships with family members (Doubet & Ostrosky, 2015), peers (Dunlap et al., 2006), and teachers (Vick Whittaker & Jones Harden, 2010). In fact, teachers often cite student behavior as one of the leading causes of burnout and job stress (Aloe, Shisler, Norris, Nickerson, & Rinker, 2014; Westling, 2010). This association to burnout in turn affects the quality of classroom instruction as teacher burnout is linked with decreased student motivation and success (Shen et al., 2015) as well as an increase in punitive measures (Dunlap et al., 2006). In addition, challenged peer and family relations lead to decreased opportunity to engage in positive social interactions and build requisite social skills (Hemmeter, Ostrosky, & Fox, 2006). This can also affect the placement of students into more restrictive environments or expulsion (Perry, Holland, Darling-Kuria, & Nadiv, 2011).

Beyond relational effects, challenging behaviors and their opposite, social emotional competencies, are linked to pre-literacy and pre-mathematics outcomes (Curby, Brown, Bassett, & Denham, 2015; McClelland et al., 2007; Montroy, Bowles, Skibbe, & Foster, 2014; Schmitt, Pratt, & McClelland, 2014). These findings have been extended, revealing that prekindergarten behavior is associated with year-end academic outcomes during that pre-kindergarten year as well as across kindergarten, first, and sixth grade (Denham, Bassett, Zinsser, & Wyatt, 2014; McClelland, Acock, & Morrison, 2006; Ponitz, McClelland, Matthews, & Morrison, 2009;
Sektnan, McClelland, Acock, & Morrison, 2010). In fact, early prosocial skills and behaviors are significantly predictive of high school graduation and the number of years in repeated grades as well as college completion (Jones, Greenberg, & Crowley, 2015; McClelland, Acock, Piccinin, Rhea, & Stallings, 2013).

Social emotional skills and behaviors are also linked to measures outside the academic setting. Jones et al. (2015) found these measures to be related to stable and full-time employment in young adulthood, the likelihood of requiring subsidized housing or receiving public assistance, likelihood of police involvement and incarceration, days spent binge drinking or using marijuana, and the number of years on medications for psychological disorders.

Some of the most comprehensive data longitudinally exists in the analysis of students with disabilities because of the legal requirement to track their data related to the Individuals with Disabilities Education Act. When compared to all students receiving such services, the impact of social emotional competence and challenging behaviors can be seen in the academic and life trajectories followed by students with emotional and behavioral disorders (see Wagner & Newman, 2012).

Thus, the impact of challenging behaviors cannot be denied. Because of this, there has been a longstanding call to build skills and develop practices specifically aimed at shaping these (DEC, 2017; Dunlap et al., 2006; NSCDC, 2008/2012). The intervention researched in this study combines promising practices in the early childhood and special education fields for an intervention meant to best fit the needs of young students receiving services for ED. Therefore, this chapter provides an overview of available interventions meant to impact behavior within the two fields of special education and early childhood. This review begins by investigating the approach to behavior change found in special education for students with ED, with a focus on
cognitive behavior interventions as a promising response to limitations noted for behavioral and social skills approaches. Next, a similar overview is provided for methods used in the field of early childhood. Because early childhood practitioners are expected to utilize a tiered approach, known as the Pyramid Model (TACSEI, 2011), the overview will include a description of that model and will focus more specifically on the second tier of social emotional interventions. After a review of practices in the two fields and an examination of the limitations from both, the discussion will focus on a suggested domain of intervention not previously explored with the target population of young children with ED, emotional intelligence (EI) interventions.

**Current Practices for Behavior Change in Special Education**

Because the current study seeks to support students at the intersection between early childhood and ED, it is essential to discuss current practices to promote behavior change in special education. Experts Rutherford, Quinn, and Mathur (2004) developed a handbook for research on ED and listed suggested interventions and treatments. Included among these are the concepts of wrap-around services and the importance of school- and class-wide management practices as well as the import of having engaging and appropriate academic approaches. Witt, VanDerHeyden, and Gilbertson (2004) expanded this by developing a tiered approach towards ED intervention that begins with an analysis of whether the classroom instruction is engaging and developmentally appropriate and that behavioral expectations are clear and consistent. Acknowledging Bronfenbrenner’s (1994) ecological models of human development and Maslow’s (1943) hierarchy of child need, these strategies can have dramatic impact on student behavior. However, the purpose of the current review is to consider those methods specifically identified for student behavior change in the form of an intervention. Of these, three common practices stand out: behavior modification, social skill instruction, and cognitive behavior
interventions. This section briefly provides an overview of each with specific research-based examples, but given the concerns about behaviorism and social skill training for students with ED, will delve deeper into the last category, cognitive behavior interventions.

**Behavior Modification**

The most common strategy towards changing student behavior is identified as a behavioral approach. This includes the completion of a functional assessment (FBA) to understand the purpose behind the behavior. During an FBA, examiners seek information about environmental effects, antecedents, and consequences that could be maintaining the identified challenging behavior (Gage, Lewis, & Stichter, 2012). These fall into four categories including escape, attention, attainment, and stimulation. Once the behavior is fully understood, the support team, often made up of the student’s special and general educators, guardians, and additional therapists, develop a behavior intervention plan that is individualized to the student’s strengths and areas of needs and that is reflective of this behavioral function. This behavior intervention plan includes both a way to decrease the identified problem behavior as well as increase a replacement behavior (Gage et al., 2012; Meadows & Stevens, 2004). Replacement behaviors are alternate behaviors that serve the same purpose as the original behavior but that are expressed in a more socially appropriate manner. Often they are also incompatible with the original behavior. For example, a child cannot be wandering around the classroom when they are performing the alternate behavior of sitting in their seat. Plans often include altering antecedents and building a reinforcement strategy (Gage et al., 2012).

Gage et al. (2012) completed a meta-analysis of interventions using this behavioral approach in school settings for students with or at-risk of ED. Analyzing 69 studies, they found that behavior interventions reduced targeted behavior for this population by 70% and thus were
determined to be ‘very effective’ (p. 72). However, current research also identifies cautions for this approach when utilized with the population of students receiving special education for ED. Polsgrove and Smith (2004) suggest that students with ED make decisions based on consideration of probable outcome, so the reliance on external reward may limit the generalizability of a behaviorist approach across settings or across a lifespan for this population.

**Social Skills Instruction**

Because the definition of ED includes a deficit in social functioning, some researchers adhere to the belief that behavioral problems are indicative of a lack of appropriate skills or know-how (Gresham, Sugai, & Horner, 2001). For example, if students lack the skill to appropriately make a request, they may manifest this need in the form of a tantrum. Research suggests that inappropriate social skills have been linked to negative student outcomes while changes are associated with improved trajectories (Gresham, 2015). Because of this, social skill training has been suggested as a popular method to effect behavior change for students with ED (Kavale, Mathur, & Mostert, 2004).

Social skills training focuses more on the content (i.e. friendship-making skills or calming techniques) than the method of instruction (Maag, 2006). In fact, there are a variety of instructional practices that can be used to implement social skill instruction. However, one of the most oft-cited methods is the application of *Skillstreaming* (McGinnis, 2012). This model suggests that teachers first model the new skill, allow time for role-play and application of the skill with performance feedback by the teacher, and then application.

Although social skill instruction is endorsed as an evidence-based practice by the What Works Clearinghouse (2013), reviews of meta-analyses offer mixed results. For example, Maag (2006) completed a review of extant literature reviews and meta-analyses of social skills training
for students with ED. Acknowledging numerous methodological issues raised from these reviews, the findings support only modest changes in student behavior as a result of social skills training indicating small or variable effect sizes. On the other hand, Cook et al. (2008) completed a similar analysis of previously published meta-analyses for secondary students with ED. They found an effect size of 0.32, indicating that social skill interventions were at least marginally effective. The most recent review-of-reviews, however suggested that there is strong enough evidence to support social skills instruction as effective interventions for student with and at-risk of ED (Gresham, 2015).

**Cognitive Behavior Interventions**

Current research offers a related, yet distinct, category of interventions that fall under the classification of cognitive behavior interventions (CBI). Like social skill interventions, CBI is not a single method, but a collection of strategies. The focus of CBI reaches beyond altering student behavior through instruction focused on the development of said behavior, and instead turns the discussion inward. CBI strives to change classroom behavior by building understanding and control of thoughts and feelings. It began as a reaction to the first set of suggested interventions for students with ED, the behavioral approach. With the advances made in cognitive and self-regulation research, CBIs adhere to the premise that behavior cannot just be shaped by external influences, but instead is impacted by covert thoughts (Mayer, Van Acker, Lochman, & Gresham, 2009).

CBI has multiple published curricula including Coping Power, Second Step, The Incredible Years, Early Risers, and Fast Track (Mayer et al., 2009). Beyond published programs, CBI also offers individual practices or methods. These fall into five hierarchical categories: goal-setting, self-recording of data or self-monitoring, self-evaluation, self-reinforcement and
self-punishment, and self-instruction (Alberto & Troutman, 2017; Polsgrove & Smith, 2004; Zirpoli, 2015). Of these, the most frequently cited method in literature is self-monitoring. Articles addressing the use of CBI for students with ED are discussed here in chronological order of publication.

Levendoski and Cartledge (2000) conducted a reversal design with an included ‘C’ phase for a period of fading. Participants included four boys between the ages of 9-11 years old identified as having severed emotional disturbance. All subjects received free and reduced lunch indicating a low socioeconomic status. Three identified as Caucasian while one was African American. The purpose of this study was to analyze the effect of a self-monitoring intervention that utilized a prompt card reading, “Am I on task,” shown to the students at an interval of every 10 minutes over a 20-minute observation. They measured the effects on student time-on-task and percent of math problems completed. Levendoski and Cartledge (2000) found that both the on-task and academic performance level increased greatly during the repeated intervention phase. Limitations included that the study was limited in duration and the dependent variable of ‘time-on-task’ was difficult to operationalize.

Kern, Ringdahl, Hilt, & Sterling-Turner (2001) conducted a single case reversal design with 3 elementary-aged boys with or at-risk of ED who were receiving services in a hospital facility for challenging behaviors. The research team gave self-management instruction in sessions of 10-15 minutes one to two times a day. This intervention session included instruction on self-management and the use of the target behavior with modeling of both examples and non-examples. The students were then taught how to record whether they were successfully implementing this behavior on a response sheet. Students were prompted at 1-minutes intervals via a wristwatch. Researchers found improvements in both of the dependent variables, decreases
in the individualized challenging behaviors, as well as increases in the engagement in replacement requests. Limitations of this study included a clinical setting versus one in which they may experience additional variables. In addition, the researchers implemented the intervention as a whole and so could not parcel out the most effective practice for their students.

Harris, Danoff Friedlander, Saddler, Frizzelle, & Graham (2005) utilized a counterbalanced multiple baseline with 6 paired students in third through fifth grades diagnosed with ADHD placed in the general education environment. These students first received self-monitoring for attention via a timer that varied between 10- and 90 seconds. Students would then be asked to log whether or not they had been on task. After this phase, students moved to an intervention that asked students to count the number of times that a spelling word was practiced correctly at the end of the ten-minute period. Their outcome variables included a 3-second momentary time sample of time-on-task during the final 10 minutes of spelling instruction as well as a count of completed spelling assignments. Harris et al. (2005) found that both versions of the self-monitoring intervention increased the level and stability of on-task behavior but the ‘attention’ option saw more correct practice. Future directions included the need for more studies investigating CBIs with this population.

Martin and Thienemann (2005) utilized a group design pilot study with 14 students between the ages of 8 and 14 diagnosed with obsessive compulsive disorders at an outpatient clinic, the majority of whom were female. These students and their parents received a 14-week CBI. Martin and Thienemann (2005) found OCD symptoms and impairment ratings significantly improved while rates of depression decreased. Limitations included that the intervention was implemented in a clinical setting and included only a limited number of participants.
Stahr, Cushing, Lane, and Fox (2006) completed a multiple baseline design across settings with a withdrawal component. The participant included one 9-year-old student with multiple disabilities related to ED, including primarily anxiety and ADHD, receiving services at a self-contained school. The student received a multi-part intervention that included the completion of an FBA, colored cards to request assistance, extinction practices when the cards were not used correctly, and 15-minute intervals of self-monitoring. Stahr et al. (2006) completed 10-minute observations taken randomly throughout language arts and math instruction using 10-second partial interval recording. Visual analysis revealed immediate results with an 89% on-task behavior during language arts and 50% on-task engagement during mathematics. They reported that it helped symptoms of the student’s anxiety, like a decrease in rocking, although this report was anecdotal, rather than quantified. Stahr et al. (2006) suggested the future directions incorporate procedural fidelity data, a more user-friendly method of taking data, and should monitor both on-task as well as academic achievement as well as replication across students.

Axelrod, Zhe, Haugen, and Klein (2009) completed an alternating treatments design reversing from 3- to 10-minute self-monitoring intervals. Participants included four Caucasian adolescent males with ADD and other externalizing disorders per the DSM receiving treatment at a large residential facility for significant behaviors. They measured the effects of the self-monitoring intervention on student time-on-task behavior during homework completion time. In addition, they analyzed the number of incomplete homework assignments. They found that both interventions resulted in an increased time-on-task and number of completed assignments, however could not discriminate between the effects of the two interventions, with a nearly 100% PND between the two interventions. Limitations and future directions included the amount of
support available in the facility, and the lack of a generalization or fading of adult accuracy checks phase.

Hirschfeld-Becker et al. (2010) completed a group design in a research clinic with 57 early childhood students diagnosed with an anxiety disorder. Participants were comprised of 53% females and 80% Caucasian students. Rather than utilize a self-monitoring program, this study implemented a scripted CBI curriculum called Being Brave with the students and their families. Hirschfeld-Becker et al. (2010) measured the effects of this intervention on the rate of clinical improvement of anxiety. Results indicated that 69% of the treatment group were identified as ‘very much improved’ versus only 32% of the control group falling within the same range. In fact, 59% of the treatment group were no longer identified as having an anxiety disorder while only 18% of the control students made that progress. Hirschfeld-Becker et al. (2010) followed up with the participants a year after the intervention and found that 83% of the intervention group were now in the ‘very much improved’ category while 59% were still free from exhibiting anxiety. Hirschfeld-Becker et al. (2010) indicated that future research should analyze the effects of this intervention package on more specific anxiety disorders and utilize more distal measures. In addition, they should include a broader sample and apply the intervention in other settings.

Thompson and Webber (2010) utilized an AB design across 10 middle school students with emotional disturbance receiving special education services in a day school treatment facility. Students identified as predominantly African American males. Researchers applied a check-in system where every 5 minutes students and teachers, separately, tracked whether or not the students were following the five school rules at 30 minute intervals throughout the day. This was followed by a weekly conference. Dependent variables included compliance with school
rules and number of office referrals. All students demonstrated improvement complying with school rules. Thompson and Webber (2011) reported that these results were clinically significant because there was also a marked decrease in office referrals. Future directions include the need to replicate in general education and lesser restrictive environments as well as use randomized, rather than convenience, sampling.

Blood, Johnson, Ridenour, Simmons, and Crouch (2011) utilized another single case A-B-BC design with one 10-year-old boy identified as having ED. Researchers measured the effect of video modeling, then video modeling followed by 2-minute self-monitoring intervals on student time-on-task and frequency of challenging behaviors. Blood et al. (2011) found that the student responded positively to video modeling, but that the combination was more effective. They suggest replicating the study across more settings and to compare the two interventions as separate options. In addition, they suggest allowing the teacher to implement to determine the feasibility of utilizing this intervention with no researcher support.

Hansen, Wills, Kamps, and Greenwood (2014) utilized a single case reversal design across 3 students ranging from 7 to 12 years of age receiving services in self-contained classrooms for ED. The majority of subjects were Caucasian males from a low socioeconomic background. To effect change on time-on-task and frequency of challenging behaviors, students first received a self-monitoring intervention, then moved into self-monitoring supported through the completion of an FBA, then repeated the two phases and finished with a phase of function-based consequences followed by a return to the function-based self-monitoring. Hansen et al. (2014) found that the function-based self-monitoring was the only intervention that increased on-task behaviors and decreased disruptions. The other two phases alone did not. Limitations and future directions included a comparison of teacher and student check-ins as well as
generalizations across settings. In addition, they suggested implementing the study with elementary-aged students.

Denune (2015) utilized a single case ABCBC withdrawal design across 14 middle school students with ED. Participants included students between 12-15 years old who were predominantly African American males at an alternative school for ED. Researchers analyzed the effects of an interdependent group contingency with self-monitoring intervention on student engagement, off-task behaviors, and disruptions. Denune (2015) saw immediate increases in engagement and decreases in off-task behavior with very little overlap. After the addition of self-monitoring, there was little improvement, but the researcher states that this may have been due to a ceiling effect with no room for improvement. Although the addition of self-monitoring saw no immediate effect, there was a positive trend over time. Limitations and future directions include expanding dependent variables to include other targeted behaviors. In addition, the researchers suggest collection more maintenance and generalization data as well as to further research the effect of self-monitoring within a group intervention.

Many similarities emerged from an examination of these articles. First, the research completed with this population and method of behavior-change overwhelmingly employed some form of single case design variation. Only two of the eleven articles implemented a group design, both of which were performed at clinics for specific DSM disorders. The selection of single case designs may be related to both the limited prevalence and availability of students with ED as well as the goodness of fit of a single case research design and behavior change.

An examination of the independent and dependent variable reveals additional commonalities. Most studies included a measure of both time-on-task along with a frequency count of challenging behaviors. In addition, the majority (9) of the interventions were
individual, rather than group-based, and utilized a check-in or self-monitoring system without additional intervention components.

The sample and location of the studies provided additional similarities. Often, the majority of the student sample were African American males. Six of the eleven studies included participants aged 10 or older. In addition, studies were also almost exclusively performed at self-contained schools if not clinics.

Noticeable deviations from the norm include two group designs with students diagnosed with other disorders receiving services at clinics. In addition, there were two articles that specifically mentioned the use of an FBA performed prior to the implementation and aligned with the practices incorporated with the CBI. Finally, two articles mentioned the use of a CBI, but did not disclose what methods and strategies were employed.

Although CBI was repeatedly found effective with the current populations, only two of the identified studies include students within the age range considered early childhood. While it is acknowledged that this limitation could be associated with the reduced prevalence of the ED label with that age, it still invites additional investigation with younger students given the lack of investigation with that population. In addition, because the majority of the studies were completed in self-contained schools or clinics, there is a call to complete research in less restrictive environments, such as on comprehensive campuses.

**Current Practices for Behavior Change in Early Childhood**

While extant practices are prevalent in the field of special education research for students with severe and persistent challenging behaviors, it must be acknowledged that early childhood is a critical stage for the development of social, emotional, and behavioral competencies. Therefore, an overview of practices from the field of early childhood must also be analyzed to
best serve the needs of the youngest students presenting with challenging behaviors. This field strongly supports an approach that includes three tiers of behavioral support, otherwise known as the Pyramid Model (TACSEI, 2011).

**The Pyramid Model**

The early childhood field has adopted a pyramid approach towards challenging behavior. This model was established and promoted by both the Center on the Social and Emotional Foundations for Early Learning (CSEFEL) and the Technical Assistance Center on Social Emotional Intervention (TACSEI), two leading organizations in the field. The pyramid is made up of three tiers. The bottom tier, known as the universal level, focuses on the development of positive relationships with children and families as well as the consideration of the impact of the classroom environment and design (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003; Hemmeter, Ostrosky, & Corso, 2012; Hemmeter, Ostrosky, & Fox, 2006; Powell, Dunlap, & Fox, 2006).

Within the first tier, it is suggested that teachers build relationships with every child in their classroom (Hemmeter et al., 2012; Powell et al., 2006). In addition, teachers are to make structured daily routines, plan for transitions, ensure that every child is aware of and has the skills to follow expectations. Teachers must ensure that the planned classroom instruction is highly engaging and developmentally appropriate (Hemmeter et al., 2012). Additionally, they are to highly structure the environment to encourage growth and development in the classroom (Powell et al., 2006). To do this, Jamison, Forston, and Stanton-Chapman (2012) suggest increasing the proximity of students by implementing a play-buddy or limit the number of centers open at any given time.

Research has shown that this level of primary or universal intervention can actualize behavioral changes. Morris, Millenky, Raver, and Jones (2013) found that when teachers are
trained to develop effective classroom management that reduces negative interaction cycles, classrooms rated higher on their level of emotional support and organization and saw fewer child-peer and child-teacher conflicts. This higher standard of classroom emotional climate via careful environmental design and student–teacher interaction is associated with a positive impact on student conduct (Brackett, Reyes, Rivers, Elbertson, & Salovey, 2011) and higher academic grades (Reyes, Brackett, Rivers, White, & Salovey, 2012).

The secondary tier encompasses social skills instruction and promoting emotional competence (Fox et al., 2003; Powell et al., 2006). One frequent method is to implement social-emotional curricula (Powell et al., 2006). If not a pre-packaged curriculum, teachers can incorporate intentional social skills instruction that meets the behavioral and classroom-readiness skills necessary for their students to success through modeling and the provision of feedback about appropriate behavior (Hemmeter et al., 2012).

The third tier is suggested for those students who continue to demonstrate challenging behaviors after the initial two tiers have been analyzed. At this point, teachers are to complete a functional assessment and, as a team with parents and other caregivers, develop a behavior support plan that is highly individualized to the student. This plan should both decrease challenging behaviors as well as support the increase of a replacement behavior or new skills (Fox et al., 2003; Powell et al., 2006).

**Social and Emotional Learning**

Beyond suggesting the entire Pyramid Model, the most prevalent articles for behavior change in early childhood are related to that second tier of social and emotional learning (SEL). In fact, the What Works Clearinghouse recognizes one branch of SEL, social skills training, as an evidence-based practice that has positive effect on the social-emotional development and

The expert organization on SEL is the Collaborative for Academic, Social, and Emotional Learning (CASEL). This group suggests that SEL skills are divided into five competency areas. The first is self-awareness, which they suggest encompasses the identification of emotions, the development of self-confidence and self-efficacy, and an accurate perception of one’s strengths. A related competency is self-management. This skillset involves controlling one’s impulses and managing stress as well as setting and reaching goals. The next competencies are social awareness and relationship skills. These involve perspicacity and empathy as well as communication and teamwork. The last skillset is decision-making and all of the subcomponents required to effectively carry out the process (CASEL, 2018; Elias & Weissberg, 2000).

Denham, Bassett, Zinnser, & Wyatt (2014) suggest that these skills are actually hierarchical. Completing a partial least squares model with measures taken from preschool students, they found that skills at the bottom or the base levels include self-regulation, social awareness, and emotion knowledge. The more complex skills were decision-making, problem solving, and then relationship skills.

Denham et al. (2012) provided further insight on the SEL skill development of young children. They suggest that students could fall into two groups, those who demonstrated low SEL skills and those who had higher levels. The at-risk group all exhibited low emotion knowledge and self-regulation skills, low prosocial behaviors, and higher aggression. Those scoring higher on the rating of SEL skills demonstrated higher emotion knowledge, self-regulation, problem-solving skills, and social behaviors.
A comprehensive search of available social emotional learning interventions in early childhood revealed 10 labeled curricula. The most researched SEL intervention of the current review was Preschool PATHS with five articles supporting its effect. In the research, this program was often embedded as part of a larger curriculum package called Preschool REDI that incorporated teacher professional development to support the implementation of the PATHS material. Three articles analyzed the effects of PATHS on typically developing low-income preschoolers (Hamre, Pianta, Mashburn, & Downer, 2012; Nix, Bierman, Domitrovich, & Gill, 2013; Nix, Bierman, Heinrichs, Gest, Welsh, & Domitrovich, 2016) while one applied the curriculum to elementary-aged students with disabilities (Kam, Greenberg, & Kusche, 2004).

The PATHS curriculum was designed to be delivered during circle time with the use of puppets, books, and picture cards. There were 36 lessons focused on friendship, emotions, self-control, and problem-solving. After implementation of the PATHS curriculum, preschoolers demonstrated that they were more likely to follow a high-increasing trajectory for social behavior development, follow a low-decreasing for trajectory for aggressive-oppositional behavior, follow high-stable trajectory of learning engagement, and to follow high-stable trajectory of student-teacher closeness (Nix et al., 2016). Children in PATHS classrooms had greater growth in what was identified as social competence during preschool than those in the control group (Hamre et al., 2012). In addition, after the intervention, students had made more growth in vocabulary development, emergent literacy skills, emotional understanding, social problem-solving, and social behavior (Nix et al., 2013). Further, after 1 year, those students who had shown benefit from the PATHS intervention in preschool showed higher reading achievement, social behavior, and learning engagement in Kindergarten (Nix et al., 2013).
When applied to older students with disabilities, the study revealed that teacher ratings of externalizing behaviors for decreased for the intervention group while the scores for the control group increased. Internalizing behaviors increased at a slower rate for the intervention group in comparison to the control. In contrast, depression declined for the intervention group at a faster rate (Kam et al., 2004).

Interestingly all of these studies included randomized control trials with pre-post measures completed by parents and/or teachers, rather than through self-report or direct observation of behavior. In addition, because of the use of control versus intervention groups, rather than a longitudinal study following the same students, many were unable to develop a true causal association.

The second most-cited intervention was labeled as Strong Start (Graves et al., 2017; Gunter, Caldarella, & Korth, 2012; Kramer, Caldarella, Christensen, 2010; Merrell, Juskelis, Tran, & Buchanan, 2008). Students researched included those in preschool through second grade (Graves et al., 2017; Gunter et al., 2012), kindergarten (Kramer et al., 2010), and fifth grade and beyond (Merrell et al., 2008). This curriculum consists of 12 lessons that taught students how to identify emotional responses in themselves through direct instruction, scenarios found in children’s literature, and role-play. The developers included a take-home strategy suggestion for reinforcement of the skills with families. Researchers found significant growth on student behavior (Gunter et al., 2012; Kramer et al., 2010), knowledge of social emotional concepts and coping strategies (Graves et al., 2017; Merrell et al., 2008), and self-regulation (Graves et al., 2017; Gunter et al., 2012).

When analyzing this group of studies, two utilized a control trial (Graves et al., 2017; Gunter et al., 2012), another included a similar format but was identified as a pilot study.
(Merrell, 2008), and the last employed a time-series design that included analysis of the same children over time versus a control group (Kramer et al., 2010). Limitations included the call for more sensitive measures (Graves et al., 2017), including the use of additional measures like direct observation of student behavior (Gunter et al., 2012) or self-reports (Kramer et al., 2010), as well as a validated measure of precise SEL components versus a compilation of many assessments to meet one need (Merrell et al., 2008).

The next most researched curricula yielded two articles per program. These included INSIGHTS (Capella et al., 2015; McCormick, O'Connor, Capella, & McClowry, 2015), Second Step (Brown, Jimerson, Dowdy, Gonzalez, & Stewart, 2012; Espelage, Rose, & Polanin, 2015), and Connecting with Others (Coombs-Richardson, Tolson, & Huang, 2009; Schultz, Coombs-Richardson, Barber, & Wilcox, 2011).

INSIGHTS was described as a SEL intervention for low-income students in kindergarten and first grade that included teacher, parent, and in-class programs (Capella et al., 2015; McCormick et al., 2015). The student component was based on the temperament theory and utilized puppets and video vignettes to teach about emotions and practice problem-solving skills. Both studies utilized school-randomized trials across four years. They found that intervention classes had higher teacher emotional support and relationships than the control group (Capella et al., 2015; McCormick et al., 2015). In addition, their studies revealed that disruptive and off-task behaviors decreased while engagement increased (Capella et al., 2015; McCormick et al., 2015). As with other intervention research articles, both again cited the need for additional measures than teacher-report alone, especially observation (Capella et al., 2015; McCormick et al., 2015).
The Second Step Curriculum was implemented with students in preschool through sixth grade elementary students (Brown et al., 2012; Espelage et al., 2015). This curriculum is labeled as a violence prevention curriculum that includes a range of instructional methods. Each session is to begin with direct instruction and a video presentation and then concludes with role-play or discussion as well as a homework component. Researchers found significant differences between pre- and post-tests on ratings of behaviors and social-emotional skills (Brown et al., 2012) and found that bullying perpetration significantly decreased for the intervention group in comparison to a control (Espelage et al., 2015).

Connecting with Others (Coombs-Richardson et al., 2009; Schultz et al., 2011) was a curriculum comprised of 30 lessons on concepts of self, socialization, problem-solving, and communication, sharing, and empathy. Each lesson utilizes a specific format that begins with direct instruction, and includes either group or independent work that can employ different strategies such as role-playing, storytelling, or cooperative problem-solving. Connecting with Others was analyzed using small sample pre-post intervention studies with preschool children. The researchers found significant effects on depression and adaptability scales (Schultz et al., 2011) and as well as a significant growth in social skills including the categories of concept of self and others, socialization, problem-solving/conflict resolution, communication, sharing, and empathy (Coombs-Richardson et al., 2009). These researchers again cited the need for a better assessment of skills as well as methodological limitations like small sample sizes and a lack of control groups for true causal effects (Coombs-Richardson et al., 2009; Schultz et al., 2011).

Curricula mentioned in only one article apiece include the Unique Minds School Program (Linares et al., 2005), the SELF curriculum (Daunic et al., 2013), Dina the Dinosaur (Webster-Stratton & Reid, 2003), the Making Choices Program (Fraser, Thompson, Day, & Macy, 2014),
and the 4Rs Program (Jones, Brown, & Aber, 2011). Each of these found similar effects and limitations as the previous SEL programs.

In addition to searches completed for the current review, there have been two meta-analyses on the effects of SEL, both of which are considered seminal pieces in the field. The first, Durlak, Weissberg, Dyminicki, Taylor, and Shellinger (2011), analyzed the initial impact of SEL interventions on six immediate student outcomes. This research team compiled 213 studies involving over 270,000 students in kindergarten through twelfth grade. Durlak et al. (2011) reported that the majority of these studies were randomized controlled trials implemented in urban elementary schools. They found that when compared to control groups, students receiving intervention demonstrated improved outcomes in multiple areas: (a) SEL skills, (b) attitudes, (c) social behaviors, (c) conduct problems, (d) levels of emotional distress, and (e) academic performance. Significant effect sizes ranged from 0.22 to 0.87, but typically stayed around a small to medium size of effect. The researchers also highlighted a few key components of effective SEL intervention. First, they offered that implementation by teachers saw improvement in all six outcomes whereas those delivered by non-school staff only improved three outcomes. In addition, they reported that a multicomponent package did not necessarily lead to greater impact than single component programs.

The second important meta-analysis, Taylor, Oberle, Durlak, and Weissberg (2017), analyzed longitudinal results or ‘follow-up’ effects from data collected six months to 18 years after the initial conclusion of the intervention. This research team reviewed 82 studies that included over 97,000 students of the same age range as the first. They also elected to focus on the same six outcome variables, plus an ‘other’ category. With this, Taylor et al. (2017) found that students who had received SEL programming continued to demonstrate significant
positive effects across all variables measured, with effect sizes ranging from 0.13 to 0.33. They emphasized the importance of this finding, highlighting that SEL programming affected both positive and negative student outcomes in beneficial directions. For example, student academic grades improved while punitive actions for conduct issues decreased. In addition, they found that the positive effects were seen consistently across all demographic subgroups. Finally, Taylor et al. (2017) pointed out that the age of participation in SEL programming served as a significant predictor of larger effect sizes. The younger the participation, the greater the longitudinal impact.

When analyzing the research completed on these curricula, all were identified as effective on an assortment of outcome measures, ranging from social-emotional competencies and reduction in problem behavior to improved academic scores. It should also be noted that the majority of studies employed randomized control trials or pre-post assessments. Each of these approaches utilized scores from assessments completed by a parent or teacher, rather than measuring behavior growth through direct observation or social skills through tasks or assessments completed by the participants themselves. Further, the majority of studies were completed in preschools, although some studies identified for this review ranged as high as the end of elementary school while the meta-analyses included students through high school.

These similarities highlight the areas in which additional research should be performed. There is an obvious call for the completion of research using direct behavioral observation, rather than utilizing possibly subjective scores from external evaluators. In addition, there is a continued call for the implementation of SEL practices with students at the older end of the early childhood years. There is also a call to look at the use of SEL curricula for students with
disabilities, especially those on a comprehensive campus or self-contained environment rather than in a protected and inclusive preschool.

Looking across all SEL curricula, it is also apparent that they share similar lesson structure and methods. Many begin with direct instruction, including the use of storybooks and puppets or videos then modeling of the emotion or strategy and subsequent discussion. In fact, numerous articles suggest the use of children’s literature specifically to promote behavior change and support social-emotional development (Elley, 2014; Wang, Couch, Rodriguez, & Lee, 2015). This literature is then followed by student role-play or practice with feedback and other extension strategies. To support this finding, the meta-analysis by Durlak et al. (2011) reported that the most successful programs include interaction opportunities, role-playing, and a set of structured activities. Numerous authors, including Elias and Weissberg (2000), Hemmeter, Ostrosky, and Fox (2006), and Lantieri and Nambiar (2012) have published non-empirical pieces suggesting that teachers include the same steps when attempting to build SEL skills in the classroom.

While similarities are apparent, it should also be noted that each curriculum focused on different ranges of subjects that developers deemed important within the range of social-emotional competencies. Each also varied by lesson and program length. In addition, some programs included more comprehensive packages that provided either family coursework or notes home so that the learning could be applied outside of the classroom.

**Emotional Intelligence**

Emotional intelligence (EI) is a term that was popularized in the 1990’s through Daniel Goleman’s publication of the tradebook of the same name (Goleman, 1995). This concept, however has historical foundation beginning with discussions of intelligence emerging in the
early 1900’s with Weschler and Thorndike and continued to emerge with Gardner’s focus on multiple intelligences during the 1980’s (Brackett, Rivers, & Salovey, 2011; Grewal & Salovey, 2005; Salovey & Mayer, 1990).

There are currently two major conceptualizations of emotional intelligence, the mixed model and the ability model. Bar-On is the name most often associated with the mixed conceptualization. He has defined EI as a trait or characteristic of a person. This form of EI is measured through an emotional quotient inventory, much like a self-reported personality quiz (Brackett et al., 2011).

The other conceptualization, promoted most widely by Mayer and Salovey out of the Yale Center for Emotional Intelligence, acknowledges EI as a standard intelligence (Mayer & Salovey, 1997) that can be honed and developed and measured on performance or task-based assessments, like the Mayer Salovey Caruso Emotional Intelligence Test (Brackett et al., 2011; Bracket & Salovey, 2006; Bracket & Salovey, 2011). This conceptualization views EI as a set of hierarchical skills that include the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth (Mayer & Salovey, 1997). The lowest tier of EI is perception of emotions in self and others. This bottom tier includes the ability to recognize emotions in oneself and in others as well as to express or label these emotions. Moving up the hierarchical model, the next tier includes emotional facilitation of thinking. Mayer and Salovey (1997) explain this as the use of emotions to draw attention to certain information and aids in the judgement of the situation. The next level allows people to label emotions with words as well as the nuances of complex feelings or those that occur simultaneously. The final rung includes the
ability to understand that emotion may impact actions or behaviors and to effectively manage these through detachment or enhancement of the emotion (Mayer & Salovey, 1997).

Other researchers have also attempted to define the ability model. For example, Richburg and Fletcher (2002) have conceptualized a version that includes five domains, including knowing one’s own emotions, managing emotions, motivating oneself, recognizing emotions in others, and handling relations. They claim that this model can be assessed through observation and measured through tasks. Note the similarities in the skill sets, the continued conceptualization as a hierarchical list, and the fact that these skills are measured through ability tasks versus self-report.

This difference in conceptualization between ability versus mixed models is demonstrated through a study performed by Windingstad, McCallum, and Bell (2011). These researchers measured the concurrent validity of the Bar-On Emotional Quotient Inventory, meant for the mixed model, and the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT), from the ability side. They found that there were only moderate correlations and that the test measured different properties, one testing personality traits while the other tested a set of skills.

To further support the hierarchical development of EI skills, Warren, Denham, & Bassett (2008) found that a trajectory similar to that proposed by the ability model is reflected in typical development of emotional skills in children. Through their research, they found that emotional expressions first emerge in infants around 9 months old. They learn how they look and sound in others and use these to guide their behaviors. After 18 months, children begin to understand that their own emotions may be different than what others are experiencing. Between 18-24 months, children begin to label these emotions with words, often beginning with the most basic like happy and sad and then developing more nuanced understandings with emotions like fear.
Around the age of 3, children can begin to label the emotions of others through associated body postures and facial expressions. Some children are able to understand that emotions can lead to behaviors, like crying, around four to five years old. However, it should be noted that they develop this understanding far before they develop the ability to regulate this link.

A similar study performed by Weimer, Sallquist, and Bollnick (2012) confirmed this developmental progression from lower to higher levels of EI based on their age. They found that children tend to acquire the skills of emotion recognition, causation, and emotions based on desire, belief or reminders before they comprehend the idea of people hiding an emotional state or the idea of false belief (Weimer et al., 2012).

Similarly, Shao, Doucet, and Caruso (2014) found implemented as study that compared responses on the MSCEIT across students in China, Japan, India, Argentina, China, and the United States. They found that responses for the lowest level of IE, emotion understanding and labeling of emotions in others was very similar across cultures, however the proportion of shared answers decreased with higher ability model skills and were most different for the tier of emotion regulation.

These articles bolster the ability model proposed by Mayer and Salovey (1997) and others. The first two reveal that a child is not born with EI traits, but instead develops skills over time. Further the natural developmental trajectory matches the hierarchy proposed by that model, in that first identification and labeling of emotions must occur before the understanding that emotions may affect behaviors and eventually can be controlled or self-regulated. While children develop an awareness, their ability to self-regulate is something that continues to develop over an extended period of time, related to the last article. The findings from Shao et al. (2014) reflect that higher order EI skills require an extended process because the variance across
cultures reveals the impact culture has on the development and shaping of those skills. Emotion identification and other early-learned skills are not as greatly impacted by the social environment as would be a later-learned skill, like how to regulate appropriately.

While these historical notions, like ‘multiple intelligences’ have decreased in popularity or have been discredited as a fad, emotional intelligence retains its validity as a sub-component of SEL. In fact, it should be noted that skills like identifying emotions, managing impulses, perspicacity, and problem-solving all fall under both CASEL’s core SEL competencies (2018) and EI.

**Correlational Research**

Twenty-four articles published after the year 2000 were identified as studies revealing the correlation of a component of EI and measures of school and life success. Specifically, nine revealed correlations with the lowest tier, emotion knowledge separate from other EI traits. Twelve discussed self-regulation. Two discussed broader social-emotional functioning and three discussed a combination of EI skills, such that the skills could not be separated into the other categories.

Emotion knowledge or understanding has been correlated with behavioral outcomes. These include greater inhibitory control, sustained attention, and other regulated behaviors (Berzenski & Yates, 2013; Denham, Bassett, Zinsser, & Wyatt, 2014; Rhoades, Greenberg, & Domitrovich, 2009). They also have significantly decreased demonstrations of externalizing and context-inappropriate behavior (Berzenski & Yates, 2013; Locke & Lang, 2016). In addition, students with higher emotion understanding have higher perceived social skills (Rhoades, Greenberg, & Domitrovich, 2009). This includes being more cooperative, demonstrating sympathy, maintaining a prosocial orientation, and being otherwise identified as
socially competent (Curby, Brown, Bassett, & Denham, 2015; Eggum et al., 2011). Further, emotion understanding, when considered in conjunction with cognition abilities, correlates with higher level of moral decision-making as well as observer-rated self-concept (Berzenski & Yates, 2013; Lane, Wellman, Olson, LaBounthy, & Kerr, 2010).

In addition to behavioral outcomes, emotion knowledge is correlated with greater academic achievement. Students with higher emotion knowledge or understanding tend to score higher on preliteracy skills (Curby, Brown, Bassett, & Denham, 2015) and continued academic development (Rhoades, Warren, Domitrovich, & Greenberg, 2011). It is also related to cognitive competence outside of the classroom (Garner & Waajid, 2012).

Regulation is a significant predictor of both school and life outcomes as well. First, it is a predictor of rule violations, academic honors and recognitions, and grade point average (Ivcevic & Brackett, 2014) as well as other aspects of school success (Denham, Bassett, Zinsser, & Wyatt, 2014; Lopes et al., 2012). Further, regulation is correlated with academic achievement, accounting for between 17-28% variance regardless of ethnicity or other risk factors when compared to a matched student demonstrating regulation skills (Sektnan, McClelland, Acock, & Morrison, 2010). These benefits can be seen in math, literacy, and vocabulary scores from preschool on (McClelland et al., 2007; Montroy, Bowles, Skibbe, & Foster, 2014; Ponitz, McClelland, Matthews, & Morrison, 2009). Those who build regulation skills demonstrate greater gains in these areas as well (McClelland et al, 2007; Montroy et al., 2014; Ponitz et al., 2009).

Beyond school outcomes, regulation relates to parents report of greater adaptive skills and displays of appropriate behavior from preschool through adolescence (Dunsmore, Booker, Ollendick, 2013; Garner & Waajid, 2012; Hessler & Katz, 2010; Onchwari & Keengwe, 2011).
Low levels are correlated with higher incident of problem behavior and teacher conflict as well as teacher dependence (Garner, Mahatmya, Moses, & Bolt, 2014; Garner & Waajid, 2012). Specifically during adolescence, regulation is correlated with having fewer sexual partners and decreased use of hard drugs (Hessler & Katz, 2010) as well as lower hostile behavior and higher adaptation to school (Lopes et al., 2012). In addition, it is correlated with increased peer acceptance for girls and improved student-teacher interaction for all (Lopes et al., 2012).

Broader social emotional functioning, including following directions, group work, on-ta-taws, organization, significantly predict reading and math scores between kindergarten and sixth grade as well as the growth rate in reading and math between kindergarten and second grade (McClelland, Acock, & Morrison, 2006). Children with low levels start behind and continue to perform behind their peers, with the gap widening between kindergarten and second grade (McClelland et al., 2006). In addition, they are significantly predictive of high school graduation, college degree completion, stable employment in young adulthood, and full-time employment (Jones, Greenberg, & Crowley, 2015). There is a negative association with the number of years enrolled in special education programs and the number of years of repeated grades through high school, as well as the likelihood of living in subsidized housing or receiving public assistance (Jones et al., 2015). Finally, these skills are significantly predictive of involvement with police and the number of days binge drinking or use of marijuana (Jones et al., 2015).

Finally, emotional intelligence as a whole is significantly correlated with academic success (Barchard, 2003). In addition, there is a positive relation with positive self-concept and a higher sense of purpose (Van Dyke & Elias, 2008). There is also an inverse relation with anxiety (Matthews, Koehn, Abtahi, & Kerns, 2016).
Although it is acknowledged that these studies are correlational, and thus prove neither causality or direction of the relationship, it appears that there is broad support for the impact of EI and its related subskills. Thus, it seems reasonable to investigate whether EI skills can be taught through interventions and whether these have a causal effect on student school and life outcomes. Because of this, the second category of articles, intervention research, is discussed.

**Intervention Research**

Although numerous interventions, including many SEL curricula, touch on emotion regulation or emotion identification, there are relatively few interventions labeled as an EI intervention. In fact, such a search revealed only three programs researched in the United States that mentioned ‘emotional intelligence’ specifically. These include Conscious Discipline (Hoffman, Hutchinson, & Reiss, 2009), The Leader in Me (Wilkens, & Wilmore, 2014), and the RULER Feeling Words Curriculum (Brackett, Reyes, Rivers, Elbertson, & Salovey, 2012; Brackett, Rivers, Reyes, & Salovey, 2012; Hagelskamp, Brackett, Rivers, & Salovey, 2013; Nathanson, Rivers, Flynn, & Brackett, 2015; Reyes, Brackett, Rivers, Elbertson, & Salovey, 2012; Rivers & Brackett, 2011; Rivers, Brackett, Reyes, Elbertson, & Salovey, 2013).

Hoffman et al. (2009) analyzed the effects of school-wide implementation of an EI program called Conscious Discipline (CD). They provided professional development and training on the adopted program then asked 323 pre-kindergarten through 6th grade teachers to complete surveys about their use and perceptions of the effects of CD. The research revealed 3 groups of teacher surveys, a pre-intervention set of surveys, a post-intervention set who used CD, and a post-intervention set who did not use the program. They found that prior to the implementation of CD, all teachers scored low on EI and perceived an unsupportive school climate that was not working towards a common goal. Those teachers who continued not to
utilize CD after the staff development and adoption of the program perceived an improved school climate. Those who did implement the program saw a school improvement and scored higher on EI themselves.

Wilkens and Wilmore (2014) compared 42 schools implementing the Leader in Me Program to a control schools to determine if the program affected language arts and mathematics scores, as well as disciplinary actions. They found no statistically significant difference on academics or discipline between intervention and control groups. They did, however, find a difference between those programs identified as high-quality implementers of the program on both academic outcomes.

The last intervention program, RULER, has been evaluated through numerous empirical studies. Bracket et al. (2012) used a quasi-experimental approach to analyze the effects of the intervention on the academic and social-behavioral outcomes of 273 fourth and fifth grade students. After 30 weeks of the intervention, students in the intervention group had higher year-end grades in language arts as well as higher teacher ratings of social-emotional competence on the BASC.

Both Richburg et al. (2002) and Hagelskamp et al. (2013) completed evaluations of the RULER curriculum on the classroom climate. Richburg used a randomized control trial across 62 schools in New York to determine that teachers who completed a majority of the trainings saw improvement in the emotional climate of the classroom, as determined by an unbiased outside observer’s scores on the CLASS. Hagelskamp et al. (2013) followed this study completed a longitudinal randomized control trial on the same set of schools in New York. They found that intervention classrooms rated significantly higher on emotional support, instructional support, and classroom organization at the end of the second year as well.
Building Emotional Intelligence

It is interesting to note that the articles on the Leader in Me (Wilkens & Wilmore, 2014) and CD (Hoffman et al., 2009) did not detail the intervention to be implemented with students, but were instead focused on a discussion of teacher development around the programs. The articles on the last EI intervention, the RULER Feeling Words Curriculum, included detailed descriptions of the approach. This program is very similar to the SEL curricula reviewed above and has actually been identified as a SEL approach (Nathanson et al., 2015). With this approach, students are taught skills within five areas that align with the ability model of EI: identifying emotions in oneself and others, identifying the causes of the emotions, labelling and then expressing them with increasing complex vocabulary, across settings, and finally regulating these emotions constructively. There is a focus on teaching the emotion vocabulary as well as learning to link causes of emotions with the feeling using a Mood Meter tool (Nathanson et al., 2015). Students are also taught a process to take a pause between the trigger of an emotion and the behavioral reaction and are taught to manage conflict through a particular questions and answer process.

Tomainey, O’Bryon, Rivers, and Shapses (2017) recently expanded on this explanation of the RULER method by writing a practitioner-focused piece on how to apply components of the program, although not the curriculum itself, to the preschool setting. They suggested that teachers of the youngest students use the Mood Meter to help students identify their emotions and causes and that they use children’s literature as a basis for emotion discussion.

This concept of the use of children’s literature to develop emotion understanding has long been a part of a therapeutic treatment called bibliotherapy (Heath, Smith, & Young, 2017; Sullivan & Strang, 2002) and has recently been recommended in numerous research-to-practice
pieces for the development of EI skills (Cooper, 2007; Gallingane & Han, 2015; Hansen & Zambo, 2007; Harper, 2016; Lysaker & Tonge, 2013; McCarthy, 2001; Mercurio & McNamee, 2006; Schickedanz, 2014; Zeece, 2006). The use of books with students as a means to develop EI has been researched with different populations, across contexts, and on different outcomes.

For example, Elley (2014) completed a small pilot study with one class of 17 third grade students. The teacher held morning meetings during which they read a book and role-played about the emotions and responses in the book. Elley (2014) found that there were decreased interruptions during story time and that students demonstrated growth in cooperative learning and positive social-behavioral skills after the intervention.

Further, Wang, Couch, Rodriguez, and Lee (2015) performed a quasi-experimental study with 168 students in third and fourth grades. They examined the effects of a bullying prevention intervention that used literature on bullying, victimization, social-emotional skills and bystander intervention. Wang et al. (2015) found that the intervention group showed significant improvement in prosocial behavior in comparison to the control group. In addition, students reported increased bystander intervention.

Through analysis of the practitioner pieces, an instructional sequence emerged. First, adults should engage in a close read of the children’s literature including a conversation about the story and the images (Doyle & Bramwell, 2006; Hansen & Zambo, 2007; Heath et al., 2017; Lysaker & Tonge, 2013; Milagros-Santos, Fettig, & Shaffer, 2012; Sullivan & Strang, 2002). During this, adults should discuss the meaning of the new emotion words, ask students to model how the emotion looks, use open-ended questions to engage in a discussion about how the book connects to children’s own experiences, and offer additional example of situations that invoke the same emotion (Gallingane & Han, 2015; Hansen & Zambo, 2007; Heath et al., 2017; Lysaker
& Tonge, 2013; Sullivan & Strang, 2002). After this discussion, students should be allowed to explore these emotions through songs, cooperative dramatic play, puppetry, written expression, or role-play (Figueroa-Sanchez, 2008; Gallingane & Han, 2015; Lysaker & Tonge, 2013; Sullivan & Strang, 2002). In addition, the literature should be read repeatedly across days (Gallingage & Han, 2015; Milagros-Santos et al., 2012). Additional literature suggests that beyond an exploration of emotions, there should be a discussion of alternate responses to the emotion (Hansen & Zambo, 2007; Sullivan & Strang, 2002). After the most socially acceptable responses have been identified, children then role-play and practice the use of these strategies (Hansen & Zambo, 2007; Heath et al., 2017; Sullivan & Strang, 2002).

**Emotional Intelligence in Special Education**

It should be noted that most of the SEL and EI programs mentioned above have been researched with students from the general population. There is a growing call, however, for researchers to apply such interventions to the special education population. This call is echoed in the work of Obiakor (2001), Brown and Conroy (2011), Maynard, Monk, and Booker (2011), and Elias (2004). Each state that children with disabilities, including developmental delays (DD; Brown & Conroy, 2011), ED (Maynard et al., 2011; Obiakor, 2001), and learning disabilities (LD; Elias, 2004), demonstrate difficulties in the precise social-emotional skills involved with EI. Based on their expertise, they each suggest EI as a potential, yet unexplored, area for further research.

Although very little intervention research has been performed with students with special needs, there are, however, four articles that do. Those included here analyze the effects of interventions that incorporate any of the EI skills and that were not previously identified or
covered under SEL curricula. In addition, the review includes students with any disability category.

Downs and Strand (2008) completed a single case across multiple subjects design with a control group of sixteen students with developmental disabilities. They sought to analyze the effects of 10 minutes of pull-out instruction on emotion recognition. Dependent variables included emotion recognition and understanding. Downs and Strand (2008) found that the both emotion understanding and emotion recognition was higher for the experimental group and showed steady improvement over the course of the intervention.

Lopata et al. (2015) analyzed the effects of direct instruction on the ability to identify emotions based on facial recognition with 28 children between the ages of 7 and 10 identified as having high functioning autism. They found significant pre-post improvement for social skills as rated on the BASC and an analysis of non-verbal accuracy.

Stichter, O’Connor, Herzog, Lierheimer, and McGhee (2012) implemented a social competence intervention that focused on emotion recognition, among other skills, with twenty students with high functioning autism using a quasi-experimental design. They found that students made significant gains on social responsiveness, cognition, social communication, and behavioral regulation. However, they also found that the ability to label emotional mental states or to label pictures did not improve.

Verden (2012) completed a case study of eight students in a self-contained classroom for ED using read-alouds to develop EI. Analyzing student interviews, field notes, and personal student entries, the study revealed that students were able to share experiences, identify with characters and reflect on their own lives, express themselves, process emotions, and forgive those around them.
While demonstrating the emergence of EI within special education, these articles also serve as a call for continued research in the field. All used assorted elements of EI and various implementation practices with a small student sample. Because of this, very little effect of EI on students with disabilities can actually be identified.

**Conclusion**

This chapter provided a review of the methods used to effect behavior change in the fields of special education and early childhood. Both correlational and intervention literature highlighted the importance of the social-emotional competencies, especially those falling under the category of emotional intelligence (EI), as well as cognitive behavioral interventions (CBI). After reviewing this research, a few key discoveries merit discussion. First, it should be noted that while SEL programming is a current practice utilized in the early childhood field, many of the competencies are related to those identified by the literature as specific deficit areas for students with emotional disturbance (ED). For example, students with ED score poorly on academic outcomes (Bradley, Doolittle, & Bartolotta, 2008; Lane, Barton-Arwood, Nelson, & Wehby, 2008; Wagner & Cameto, 2004; Wagner et al., 2005) while students who have higher emotion understanding and regulation demonstrate improved academic outcomes (Curby et al., 2015; Denham et al., 2014; Lopes et al., 2012; McClelland et al., 2007; Montroy et al., 2014; Ponitz et al., 2009; Rhoades et al., 2011; Sektnan et al., 2010).

In addition, it is interesting to note that many articles referred to SEL interventions as ‘cognitive’ in their description of the interventions. Similarly, some interventions recognized as a CBI include components like anger management and relaxation strategies that fall within the realm of EI intervention. Examples of such cross-overs include Dina the Dinosaur (from the Incredible Years Program), PATHS (a component of Fast Track), and Second Step.
Because of the strong support for both EI and CBI as well as the commonalities noted, it is logical that further research be completed blending the practices of the two fields in EI interventions utilizing CBI components for the youngest students with ED. Any research performed at this intersection, however, must be cognizant of the limitations and recommendations from the precious research performed in both areas. First, numerous articles reviewing SEL curricula noted the need for additional outcomes measures, specifically in the form of behavioral observations. Thus, the study has elected to utilize a single case research design that allows for direct observation of the behavior change. It has also utilized the same measure for emotional intelligence, the BASC. While these studies often called for more sensitive measures of EI or SEL, the BASC remains the only measure to date that is valid for the age of the identified population. Finally, studies often reported the need to be applied to less restrictive environments and across a broader range of students, including those with special needs. This study fills both of these gaps by performing research in a classroom on a general education school campus and by selecting only students identified for special education services under the emotional disturbance category.

In sum, the current research aligns with previous research from the fields of early childhood and ED by blending suggested SEL and CBI interventions. It extends from extant interventions, though, by narrowing SEL skills to a specific competency of EI. It utilizes a newly developed emotional intelligence intervention that has been based on the compilation of methods from extant research and practitioner suggestion. Finally, the study acknowledges limitations and suggestions from previous research to build a strong research design.
CHAPTER THREE
METHODOLOGY

This chapter discusses the research methodology for the study. It includes a presentation of the research questions, experimental design, participants, setting, materials and equipment, experimental procedures, and data analysis. This purpose of this research study was to examine the effects of an emotional intelligence (EI) intervention on the performance of young elementary students receiving services in a self-contained setting for students with emotional disturbance in the areas of time-on-task, frequencies of challenging behaviors, and emotion knowledge. This study was guided by the following questions:

**Research Question 1**

Is there a functional relationship between an emotional intelligence intervention and increased level of self-regulation as indicated by time-on-task and frequency of challenging behavior in young elementary students receiving services in a self-contained setting for students with emotional disturbance and is this effect maintained through the use an emotion check-in application alone?

It is predicted that the implementation of an emotional intelligence intervention will increase the time-on-task and decrease the frequency of challenging behavior for young elementary students receiving services in a self-contained setting for students with emotional disturbance. Because EI is a skill, it is also predicted that this effect will be maintained through the use of a check-in application alone.

**Research Question 2**

Does an emotional intelligence intervention improve emotional intelligence, as indicated by an increased score on the Behavior Assessment System for Children, Second Edition (BASC-
2), for young elementary students receiving services in a self-contained setting for students with emotional disturbance?

It is predicted that an emotional intelligence intervention will lead to increased scores on the emotional intelligence rating scale for young elementary students receiving services in a self-contained setting for students with emotional disturbance.

**Research Question 3**

Do young elementary students receiving services in a self-contained setting for students with emotional disturbance maintain effects once all components of the intervention have been removed?

Because EI is conceptualized as a learned skill, it is predicted that effects of daily emotional intelligence lessons and the use of an emotion log will be maintained after removal of the holistic intervention.

**Research Question 4**

Is there a generalized impact of the emotional intelligence intervention across school settings on the identified behaviors of young elementary students receiving services in a self-contained setting for students with emotional disturbance?

It is predicted that teachers and school staff will report improved challenging behavior (as individually operationalized) across school settings for young elementary students receiving services in a self-contained setting for students with emotional disturbance.

**Research Question 5**

Do students and teachers report a high level of satisfaction with an emotional intelligence intervention to decrease challenging behaviors and increase time-on-task?

It is predicted that students and teachers will both report a high level of satisfaction with
the emotional intelligence intervention.

**Participants**

The researcher aimed to select students between the ages of 5 and 8 years old. This upper limitation is the maximum age of “early childhood” as defined by the National Association for the Education of Young Children (NAEYC; 2009). The lower age limitation aligns with the minimum age of compulsory attendance (National Center for Educational Statistics, 2014) and the standard age of enrollment into kindergarten, often defined as the first grade that students attend formal schooling. While the empirical intent of the research is to add to the conversation at the intersection between early childhood and emotional disturbance (ED), most students receiving special education services before the age of compulsory school attendance fall under the labels of developmental disabilities, autism, and speech and language impairment (U.S. Department of Education, 2017), rather than ED. Because of this, 5 is often the youngest age at which a large enough sample of students with the special education label of ED is likely to be found. Therefore, the sample for this study initially included four students between the ages of 5 and 8 years old who qualified for special education services under the label of emotional disturbance (ED), or who were undergoing re-evaluation, transitioning from developmental delays to an ED label and being served in a self-contained classroom for students with ED.

The participants were selected through a convenience sample of self-contained classrooms in the selected district. In order to solicit participation, the researcher contacted the district’s special education administration for a list of programs and schools. After all potential classrooms were identified, related teachers were solicited for willingness to participate. One teacher and corresponding principal responded with interest, so all student participants were selected from the same classroom. The teacher was solicited for participant recommendations.
according to the selection criteria.

Specifically, in order to participate in the study the students needed to a) be recommended by their teacher b) demonstrate externalizing behaviors that were incompatible with the skill of self-regulation, c) exhibit basic familiarity with and ability to utilize the iPad touch screen to make a selection and d) be given parental consent. Students were excluded from the study if they met the following criteria: a) exhibited behavioral manifestations that were mainly internalizing, such as those demonstrating primarily depression, withdrawal, or anxiety, b) possessed a secondary diagnoses that might have impacted day-to-day behaviors, such as schizophrenia or multiple personality disorders, c) revealed inconsistent medication application or school attendance, d) were unfamiliar with utilizing the touch screen on the iPad to make a selection and d) lacked social proficiency in the English language.

**Student Participants**

Four students met the inclusion criteria for this study and their parents consented for their participation in this study. Table 1 displays student demographic information. Please note that all students have been identified with alphabetical synonyms related to the order of entry into the intervention phase.

**Adam.** Adam was a Caucasian Kindergarten male aged 5 years 6 months at the start of the school year. He began receiving special education services in March of the previous school year in a self-contained preschool class. He attended three and a half months in that program before being placed in a self-contained classroom for primary students with severe emotional and conduct problems. While still receiving special education services under the label of developmental delay, the teacher indicated that he is up for reevaluation and the label of ED was being considered and was already receiving services in a self-contained setting for students with
ED. His initial BASC-2 scores indicated that he fell within the 99th percentile for the externalizing problems composite score, the 96th percentile for the internalizing problems composite score, the 97th percentile for the school problems composite score, and the 2nd percentile for the adaptive skills composite score. Of critical significance, Adam was at or above the 95th percentile on the subscales of externalizing (e.g. aggression) and internalizing problems (e.g. depression) as well as the behavioral symptoms index. In addition, he scored below the second percentile on the adaptive skills (e.g. study skills) composite. These results indicate clinical areas of emotional and behavioral needs. The Strengths and Difficulties Questionnaire (SDQ) reflected these areas of difficulty, indicating that he fell within the abnormal or very high range of scores on conduct problems, hyperactivity, and total difficulties, especially in the area of externalizing behaviors. After discussion with the teacher and self-contained teacher’s aide coupled with in-class researcher observation, the target behavior was determined to be whining, crying, and complaining operationally defined as a behavior ranging from a moan with lip quivering to crying and screaming while hitting or kicking objects.

Brad. Brad was a second-grade student aged 6 years 11 months who identified as Hispanic / Latino. He began receiving special education services under the label of emotional disturbance sharing his time between a resource and general education environment during first-grade but was placed into a self-contained classroom for primary students with severe emotional and conduct problems halfway through that year. His initial BASC-2 score indicated that he fell within the 92nd percentile for the externalizing problems composite score, the 94th percentile for the internalizing problems composite score, the 86th percentile for the school problems composite score, and the 6th percentile for the adaptive skills composite score. Of critical significance, Brad was at or above the 95th percentile on the overall composite behavioral symptoms index. The
SDQ indicated that Brad demonstrated abnormal or very elevated scores on both conduct problems (e.g. tantrums and fighting) and prosocial issues (e.g. considerate of others). Discussion with teachers and classroom observation allowed for an operational definition of tantrum that included whining, crying, moaning, and refusal to comply with directives or complete work.

**Chris.** Chris was also a second-grade student aged 7 years 10 months. He was labeled as a Caucasian male with emotional disturbance. He began receiving special education services in a self-contained early childhood program under the label of developmental delay. Upon reevaluation, he transitioned from a self-contained Kindergarten program to first grade in a self-contained room for students with severe emotional and conduct problems. His initial BASC-2 scores indicated that he fell within the 94th percentile for the externalizing problems composite score, the 99th percentile for the internalizing problems composite score, the 98th percentile for the school problems composite score, and the 1st percentile for the adaptive skills composite score. Of critical significance, Chris was at or above the 95th percentile on the scales of hyperactivity, depression and somatization, attention and learning problems, atypicality, and withdrawal. In addition, he scored below the 1st percentile on the adaptive skills composite. The SDQ for Chris indicated that he demonstrated abnormal / very high scores for emotion, peer problems, and hyperactivity as well as very low scores on prosocial skills. This placed his total difficulties score within the abnormal / very high range as well. The target behavior was determined to be speaking out of turn. This included speaking during teacher instruction, raising hand but speaking before being called on, and interrupting others by saying “excuse me” and then proceeding with an off-topic comment.

**Dani.** The final participant, Dani, was a female first grade student aged 6 years 10
months. She was originally identified with a specific learning disability but was reevaluated during the first quarter of her Kindergarten year and found to be eligible for special education services under an ED label. Dani received services in a primary self-contained classroom for students with severe emotional and conduct disorders. She also identified as Caucasian. Her initial BASC-2 scores indicated that she fell within the 95th percentile for the externalizing problems composite score, the 75th percentile for the internalizing problems composite score, the 96th percentile for the school problems composite score, and the 3rd percentile for the adaptive skills composite score. Of critical significance, she fell at or above the 95th percentile in the areas of hyperactivity, learning problems, atypicality, and withdrawal. These scores lead to a behavioral symptoms index that fell at the 98th percentile. In addition, she fell below the 3rd percentile on the adaptive skills composite. The SDQ mirrored these findings by indicating that she demonstrated abnormal / very high scores on emotion problems, hyperactivity, and prosocial issues as well as on the total difficulties score. Her individualized behavior was defined as speaking out of turn. This included speaking during teacher instruction to teacher or peers and raising her hand but speaking before being called on. Table 2 displays the BASC 2 scores for all participants.

Because all students’ individual externalizing behaviors were incompatible with the concept of time-on-task, they were also monitored on this measure. On-task behavior was operationally defined as eyes directed at teach/speaker/activity, hands engaged in teacher-defined task or resting in lap/by sides, and voice off unless engaged by adult.

Table 1

<table>
<thead>
<tr>
<th>Student</th>
<th>Gender</th>
<th>Age</th>
<th>Grade</th>
<th>Ethnicity</th>
<th>Special</th>
<th>Behavioral</th>
</tr>
</thead>
</table>

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### Table 2

**BASC-2 Composite Score Percentiles for All Participants at Baseline**

<table>
<thead>
<tr>
<th></th>
<th>Externalizing Problems</th>
<th>Internalizing Problems</th>
<th>School Problems</th>
<th>Adaptive Skills Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam</td>
<td>99</td>
<td>96</td>
<td>97</td>
<td>2</td>
</tr>
<tr>
<td>Brad</td>
<td>92</td>
<td>94</td>
<td>86</td>
<td>6</td>
</tr>
<tr>
<td>Chris</td>
<td>94</td>
<td>99</td>
<td>98</td>
<td>1</td>
</tr>
<tr>
<td>Dani</td>
<td>95</td>
<td>75</td>
<td>96</td>
<td>3</td>
</tr>
</tbody>
</table>

**Teachers, Assistants, and School Staff**

For social validity measures, there were four adults invited to participate: one special education teacher, one special education teachers’ assistant, and two purposefully selected school staff members with whom the student had regular interaction. To meet the original inclusion...
criteria, teachers had to be the teacher of record for a self-contained primary classroom for students with severe emotional and/or conduct disorders and have established daily schedules that allow for observation during the same time daily. Special program teachers’ assistants (SPTAs) were selected based on the criteria that they work in conjunction with the identified students on a daily basis. In addition, school staff members who were not designated as the students’ teacher of record but with whom the students interacted regularly were invited to provide behavioral rating scales as part of the generalization measure. Each student participant had the same four adults completing their social validity or generalization feedback components.

Adult participants were asked to complete an informed consent to participate in the social validity component of the study (See Appendix A and B). Additionally, they were asked to complete a short form about their demographic information (See Appendix C). These participants participated in the completion of a maximum of three social validity/generalization measures. Teacher measures were gathered once during baseline, once halfway through the intervention phase, and once during maintenance or after the completion of the intervention. SPTA and additional staff member surveys were only collected at baseline and after the conclusion of the research study.

Table 3 displays teacher and staff demographic information. The classroom teacher was a female between the ages of 38 and 47. She identified as two or more races. She completed between 10 to 19 years in the teaching field, but indicated that this was her first year teaching a self-contained special education classroom for students with severe emotional and behavioral disorders.

The SPTA was a Caucasian male between the ages of 48 and 57. He had been in the profession and current position for less than 10 years. Classroom duties included daily
behavioral and academic support of all students, including implementing small group centers and maintaining student behaviors during lunches and recess.

The first additional staff member, the school librarian, indicted that she had been a teacher for over 20 years but had held her current position for just over ten. She identified as a Caucasian female between the ages of 58 and 67. The second staff member was the music specialist. She identified as a Caucasian female between the ages of 48 and 57 who had been in the teaching field for between 10 and 20 years.

Table 3

*Teacher and Staff Demographic Information*

<table>
<thead>
<tr>
<th>Title</th>
<th>Gender</th>
<th>Age</th>
<th>Ethnicity</th>
<th>Years of Teaching Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>Female</td>
<td>38-47</td>
<td>Two or more</td>
<td>10-19</td>
</tr>
<tr>
<td>SPTA</td>
<td>Male</td>
<td>48-57</td>
<td>Caucasian</td>
<td>0-9</td>
</tr>
<tr>
<td>Staff</td>
<td>Female</td>
<td>58-67</td>
<td>Caucasian</td>
<td>20-29</td>
</tr>
<tr>
<td>Staff</td>
<td>Female</td>
<td>48-57</td>
<td>Caucasian</td>
<td>10-19</td>
</tr>
</tbody>
</table>

**Setting**

The intervention study took place on a comprehensive elementary school campus in a large Southwestern urban school district. The school selected for this study was identified by the school district as a location for a self-contained special education classroom for students demonstrating severe emotional and behavioral needs. The specific school site was identified as a four-star school (out of 5 possible stars), based on the state report card accountability system. They enrolled nearly 650 students ranging from early childhood to fifth grade. The student population was comprised of 50% students identified as Caucasian, 24% Hispanic, 7% African
American, 7% Asian or Pacific Islander, and 12% listed as two or more races. One hundred percent of the population received free or reduced breakfast and lunch, an indication of low socio-economic status. In addition, 12.5% of students received special education services and 7% were identified as English learners. Finally, according to the new state standards, 65% of students were proficient in English Language Arts and 57% were proficient in mathematics.

The specific classroom with which the researcher worked was designated as a self-contained classroom for students with severe emotional or behavior need for children in grades kindergarten through second grade. This classroom served 10 students and included one licensed special education teacher and two SPTAs. These adults were in charge of delivering academic instruction and maintaining classroom management. Speech and occupational therapists removed students for their allotted therapy times once a week as indicated by the student’s individualized education programs. Towards the end of the research study, a behavior mentor was assigned to the classroom to provide additional support. She supported students as directed by the classroom teacher, but did not independently intervene or provide academic instruction.

The instructional day began at 9:05 a.m. and concluded at 3:21 p.m. daily. Students began their day eating breakfast in the cafeteria and typically returned to the classroom between 9:20 a.m. and 9:30 a.m. At this time, students were directed to sit on the carpet for whole-class social skills instruction. Morning recess was offered between 9:50 a.m. and 10:10 a.m. English Language Arts extended from students’ return from recess until their scheduled lunch time began at 11:20 a.m. This block consisted of whole group phonics instruction and small group rotations by grade level. The afternoon was divided into mathematics instruction and specialist time, including once weekly music, art, physical education, and library times. The morning schedule was found to be the most consistent across days as specialist periods varied by day and Friday
afternoons were often spent in other first grade classrooms participating in hands-on learning activities.

**Experimental Design**

A multiple probe across participants design was utilized to investigate the effects of emotional intelligence (EI) intervention (Horner & Baer, 1978). This design is suggested when a continuous baseline is unnecessary (Shin & Bryant, 2017). Additionally, it was purposely selected because EI is a set of non-reversible skills. Any single case design wherein a return to baseline is utilized would not be appropriate for this skillset. This design provided three demonstrations of experimental effect via participant replication and a staggered implementation of the intervention (Horner et al., 2005). These features increase internal and external validity of the design.

The design employed intermittent probes during baseline with a minimum of five data points per subject (Shin & Bryant, 2017). While the design does not mandate consecutive probe days, the researcher ensured five consecutive days upon start of the study and at least three days of observation in succession prior to a subsequent participant’s move into the intervention phase. See Appendix D for an overview of the study schedule.

**Response Definitions and Measurement Instrumentation**

Student data were collected via video-recordings of the established 10-minute timeframe. Additional quantitative student data, including pre-post EI scores, generalization, and social validity scores, were collected with the following materials.

**Target Behaviors**

This study included target behaviors that were identified as externalizing. Kauffman and Landrum (2012) explain that these are aggressive, impulsive, or disobedient behaviors acted
outwardly. Each student demonstrated different forms of externalizing behaviors that were incompatible with the concept of self-regulation and could therefore benefit from a self-regulation intervention. The targeted behaviors were operationalized and defined for each student, based on student need as determined by direct observation by the researcher and as confirmed by teachers.

For all students, the first measured behavior was identified as time-on-task. This was operationally defined as student eyes directed at teach, speaker, or activity with hands engaged in task or resting in student laps or by sides. Voices were off unless engaged by an adult leading. If the teacher or adult continued to give tokens or praise students during a behavior that seemed to fall outside of this definition, such behavior was considered on-task as well. Examples of these alternatives included students standing near the teacher rubbing her arm with eyes directed at her, or sucking their thumbs while sitting.

The target challenging behavior for Adam and Brad was whining and tantrumming. A behavior ranging from a moan with lip quivering to crying and screaming while hitting or kicking objects was recorded as whining or tantrumming. Additional behaviors that resulted in refusal to comply with directives or complete work were also recorded. Examples include students saying ‘aw man’ and leaning their chair away from the activity table or crawling under a table and banging their head on the wall. Behaviors were not recorded if the student did not make a verbal or visual demonstration described above and continued to remain engaged in the predetermined activity.

For Chris and Dani, the target challenging behavior was determined to be speaking out of turn. This included speaking during teacher instruction without raising a hand. Speech could be directed at teacher, peers, or self. Speaking out of turn also included raising hands but speaking
before being called on. Chris’s behavior was also recorded when he would interject by saying “excuse me” and then proceed with an off-topic comment. Behaviors that were not recorded when the teacher was expecting whole-class or choral responses or when teacher accepted comments and provided tokens or verbal praise to any class member to call out answers.

**Behavior Assessment System for Children, Second Edition (BASC-2)**

Current EI measures have not been normed on students as young as the target population for this study (i.e. *Mayer-Salovey-Caruso Emotional Intelligence Test*; Brackett, Rivers, & Salovey, 2011; Rivers, Brackett, Reyes, Mayer, Caruso, & Salovey, 2012; and the *Bar-On-Parker Emotional Quotient Inventory: Youth Version*; Bar-On & Parker, 2000). Because of this, the researcher elected to analyze the growth in this precept through a pre- and post-intervention completion of the teacher-reported BASC-2. The BASC-2 is intended to measure the social and emotional competencies of children (Reynolds & Kamphaus, 2004), but as discussed in Chapter 2, this broader set of skills encompasses EI. In addition, the BASC-2 has been used by other researchers to measure the effectiveness of EI interventions (see Brackett, Rivers, Reyes, & Salovey, 2012).

The BASC-2 (Reynolds & Kamphaus, 2004) consists of 139 four-point Likert-scale questions asking teachers to indicate the frequency of a described behavior, ranging from was never to always present. The developers indicate that the BASC-2 should take about 30 minutes to complete per student (Reynolds & Kamphaus, 2004). The BASC-2 provides both a T-score and percentile ranks on 15 individual subscales as well as 5 composite scales. The BASC-2 grading protocol also indicates whether a particular score is significantly higher or lower than the student’s mean score and denotes whether a student has critical behaviors that should be considered but that do not fall within any of the subscales.
**Strengths and Difficulties Questionnaire (SDQ)**

In addition to the BASC-2, the SDQ was also utilized to measure the social-emotional and behavioral competencies, thus students’ broad EI. The SDQ is a no cost 25-question survey to be completed by either teachers or parents. This measure looks at behaviors and emotions of students between the ages of 4 and 16 years old. Each question is formatted with a 3-point Likert scale of not true, somewhat true, and certainly true. Questions measure teacher and parents’ perceptions in the categories of student emotionality, hyperactivity, relationships, and prosocial as well as externalizing behaviors (Goodman, 2005). This assessment was given during pre-and post-intervention meetings with teachers. A sample form is included in Appendix E.

**Video Recordings**

Using the built-in video recording feature, the interventionist used an iPad Pro to capture student behavior. Students were accustomed to administration and other observers carrying an iPad during their observations of the classroom teacher making it the ideal tool in this setting. Video recordings consisted of 10 minutes per student per probe day and were analyzed using 15-second momentary time sampling as well as a frequency count for time-on-task.

**Social Validity Surveys**

Social Validity surveys were developed based on the recommended components by Horner et al. (2005). These surveys examined whether the student behavior selected was initially important and showed growth from the intervention as well as whether the intervention was easily implemented and deemed worthwhile. To support the concept of socially meaningful behavioral change, the surveys incorporated social validity procedures from Stanton-Chapman and Brown (2015). Teachers were shown two video clips of their respective student, one taken during baseline and one taken during the intervention phase. They were asked to identify during
which phase they believed each video clip was taken. See Appendices F and G for samples of pre-, mid- and post-intervention forms.

**Generalization Surveys**

Generalization surveys were completed by the classroom SPTA and two specialists at the school with whom the students interacted on a weekly basis. The researcher-developed surveys consisted of the same social validity questions asked of the classroom teacher that dealt with noticeable behavior change. These questions included a combination of likert ratings and fill-in-the-blank short answer responses. They did not include any questions related to the acceptability of the intervention or the video clips of changed behavior. See Appendix H for the pre- and post-intervention forms.

**Intervention**

The intervention for this study was developed using a combination of the instructional components commonly found in SEL curricula for early childhood as identified in Chapter 2 and methods developed to more specifically support emotional intelligence. During a pull-out intervention time, the researcher and student began with a shared read-aloud of a published children’s book, focusing on the emotion felt by the main character. This was followed by discussion of a time the student participant had felt a similar emotion, what he or she had done in response to the feeling, and alternative actions to be utilized the next time the student experienced the same emotion. Upon return to class, the student was asked to complete an emotional intelligence check-in during which the student logged their current emotion and the reason behind the feeling in an iPad app before returning to their regularly scheduled classroom activity. Thus, the intervention consisted of two sets of materials: children’s trade books and the Yale Center for Emotional Intelligence’s (CEI) MoodMeter App.
**Children’s Literature**

During daily intervention, trade books were selected based on student preference. Prior to the start of the study, the researcher built a set of books that included one of the four identified emotions to be taught during the intervention. See Appendix I for the list. Examples include *Stuck with the Blooz, Angry Arthur,* and *Polly Molly Woof Woof.* The researcher ensured that each of the four emotion categories was selected at least once by manipulating which picture books were available each day and allowing the student to select from only those that included the focus emotion.

**MoodMeter App**

The Yale Center for Emotional Intelligence MoodMeter App followed the RULER steps for building emotional intelligence (Bracket et al., 2012). It allowed the user to log their emotion on a coordinate plane, with each of the four sections associated with a different range of emotions. The x-axis related to how positive or negative the feeling was while the y-axis was correlated with the amount of energy expressed. For example, an emotion term associated with the first quadrant might be “excited” while the third quadrant would include “depressed.” See Appendix J for an explanation and clarification image from the developers and Appendix K for approval to use the application as part of the intervention. To log an emotion, the user was to select from a number of emotion labels on that coordinate plane. After selecting the emotion, the application asked the user to enter the reason for their selection in a textbox. The user was provided the option to either type or dictate their response. Although the app was not yet part of the daily school life, the classroom teacher utilized iPads regularly in the classroom setting. The app cost $2, so was a feasible option.
Procedures

The study took place over 34 probe days spread across eight educational weeks. These days excluded weekends and student vacation days, such as Winter Break or staff development. These were followed by an additional probe day that served as a maintenance point one week after the conclusion of the study. The study consisted of five phases: pre-research preparation, baseline, intervention (BC), intervention (C), and maintenance. Each phase consisted of at least five data points per participant, and 20% of the recordings in each phase were cross-analyzed for interobserver agreement, meeting the What Works Clearinghouse (WWC) evidence standards (Kratochwill et al., 2010).

Pre-Research Preparation

Before beginning the intervention study, the researcher obtained permission from the university and school district institutional review boards (IRB). The researcher also met with the director of the self-contained programs for students with emotional and behavioral needs who identified possible research sites. After approval was obtained from both IRBs, principals and teachers were solicited for participation.

Participant recruitment. The interested teacher identified was asked to sign a consent form and complete a demographic questionnaire. See Appendix A for consent and Appendix C for the questionnaire.

Teachers then assisted with the identification of potential research participants according to the characteristics and limitations set a priori. Letters of interest were sent to all possible participants. These letters asked parents to indicate their interest in learning more about a possible research study and to provide contact information (See Appendix L). After receiving returned interest forms, the researcher called home using the contact information provided to
introduce herself and the study. During the phone call, the researcher introduced herself, described the study, and discussed all potential risks and benefits. If parents or guardians verbally consented over the phone, consent and permission forms were sent home in the students’ backpack or made available for pickup at the school site, depending on parental preference. Please see Appendix M for permission form. The researcher allowed a wait period of two days before placing a follow-up phone call during which the parents had the option to request another set of consent forms or to be removed from the list of potential participants. An additional wait period of two days with no response was allowed before the student was removed from the list of potential participants. Upon identification and signed consent to participate from parents, students were given a written assent form. Please see Appendix N for assent. At this time, teachers also completed the BASC-2, SDQ, and pre-intervention social validity measures for the selected student participants that received permission and given consent.

Next, the special program teachers’ assistant (SPTA) and the librarian and music specialists were identified. After providing consent, they were asked to fill out the personal demographic information form. They were also asked to complete the baseline survey for each student participant.

**Interobserver agreement.** An additional doctoral student was trained for interobserver agreement at this time. The inter-observer and principal investigator met to operationally define the target behavior for each participant. They then trained with sample videos of the students to 100% agreement for time-on-task and identification of individualized challenging behaviors.

**Scheduling and behavior definition.** In addition, the observation and intervention schedule was developed based on the classroom’s daily schedule. Morning observations were found to be the most consistent because the afternoon often included scheduled time for special
classes, such as art and music, as well as time for collaboration with general education peers.

Once identified and permission / consent acquired, a scatterplot assessment was used to identify times during which student participants were most likely to demonstrate their target behaviors (see Appendix O for a sample scatterplot assessment form). It was suggested that the morning was the most stable schedule, so a scatterplot of behaviors during the morning session of class was completed for all participants over the course of the first two months of school. It was determined that Adam demonstrated the individually identified behavior most often during the 10-10:30 block, Brad between 10:30-11, Chris from 9:30-10, and Dani from 11-11:30. A half-hour block allowed for variation within the classroom schedule. For example, morning recess often ran from 9:50-10:15, plus or minus five minutes in each direction. Similarly, small group, during which a given student was most likely to demonstrate their behavior, varied daily from a start time at 10:20 to 10:45, depending on the teacher’s plans for the day. The researcher observed and recorded the behavior for one 10-minute interval during this 30-minute timeframe according to instructional activity each probe day across baseline, intervention, and maintenance.

The researcher developed a basic definition for each student’s individualized target behavior from the baseline surveys provided by teachers and additional staff members. During the completion of scatterplot observations, the researcher was able to further operationalize specific characteristics of each behavior and refine the definitions.

**Book identification.** During this phase, the researcher developed a list of possible books from which the student could select daily intervention reading. Under the direction of a specialized children’s literature librarian, the researcher completed a comprehensive search of the Children’s Literature Comprehensive Database with subject headings aligning with MoodMeter colored vocabulary terms. Additional limiters included interest level of grades K-2
and having an award or recognition. This search identified four picture books under the category of sadness fiction, six under the heading of quietude or serenity fiction, three for happiness, and six for anger fiction. This was then approved by three higher education experts in the areas of early childhood, special education, and children’s literature based on age and content appropriateness. Please see Appendix I for the list.

**Baseline**

Baseline data were collected as a gauge of typical classroom behavior for the study participants. The teacher was directed to continue classroom instruction and behavior management as usual. All observations were video-recorded for each participant during these identified times in their classroom for a total of 10 minutes. The researcher utilized both a 15-second fixed interval momentary time sample to establish the percent of time-on-task as well as event recording for a frequency count of individually operationalized “challenging” behavior. Momentary time sampling was selected because it is the recommended recording procedure for behaviors that are continuous, such as time-on-task (Cooper, Heron & Heward, 2007), and offers a more accurate representation of true behaviors (Gast & Ledford, 2014). Event recording is the simplest measure to record the occurrence of a discrete behavior (Gast & Ledford, 2014).

The first five baseline sessions were all completed during the same five consecutive days of class for every participant, establishing a pattern that could be used to predict future performance (Gast & Ledford, 2014). After the five baseline sessions, the first student entered intervention and the remaining participants moved into a baseline probe. These probes were randomized by the researcher blindly selecting a piece of paper on which was written either the word yes or no. The paper would then be replaced and redrawn for the next date. The researcher ensured that every student had no more than two days of probing or two days without probing in
a row by automatically including a day of probe where necessary. Each student completed an additional three consecutive days of probing prior to moving into Phase BC. Adam completed only the initial five consecutive days of baseline. Brad completed a total of eight baseline probes, the initial five and a subsequent consecutive three. Chris completed a total of 10 probes. Dani completed 13 baseline probes.

**Intervention Phase 1 (BC)**

The second phase (BC) consisted of implementation of the entire packaged intervention. Once a student was identified to move into the intervention phase, the student completed this training for eight days. This quantity was selected to allow for at least two sessions of each of the four emotion categories identified. The delivery of the intervention occurred just before the pre-identified timeframe during which students were most likely to exhibit their individual behaviors and was approved by the classroom teacher as an acceptable time for the students to be removed from classroom instruction. It took place in a classroom on the school campus designated for use by additional therapists for special education services, including services like occupational and physical therapies. Each session was held for no more than 15 minutes out of the student’s classroom after which the student would return to the classroom, complete the MoodMeter log based on their current emotions, and return to classroom instruction. The behavioral observation began in the students’ classroom immediately after the in-class emotion log was complete. Each probe day included 10 minutes of video-recorded observation per child and was analyzed using a 15-second fixed interval momentary time sample and event recording of individualized challenging behavior.

During the first session, the student was introduced to the app using a model similar to *Skillstreaming* (McGinnis, 2012). First, the researcher defined the skill “log my emotion.” Next,
the researcher modeled the skill using a think-aloud. The student then performed the task with feedback from the researcher. The final step included the student independently demonstrating the skill with a think aloud, as the researcher had done initially. Please refer to Appendix P for a task analysis and procedural fidelity checklist. Because the interventionist was always present during the use of the iPad application, full mastery of the procedures by the student was not required.

After this introduction, the first and subsequent sessions focused on developing Emotional Intelligence (EI) skills, following the recommendations from Tominey, O’Bryon, Rivers, and Shapses (2017) for the implementation of EI in the early childhood classroom. Each session developed skills through read-alouds. Although students were invited to select books of their choice from among a predetermined set, the researcher used the same protocol for each book to establish procedural fidelity. The researcher introduced the book with title, author, and illustrator. She then read the book aloud, incorporating pre-determined questions. Refer to Appendix Q for the fidelity checklist and list of questions to be asked during the read-aloud. Once a character who was experiencing the target emotion was identified, the researcher and student used the MoodMeter to log the emotion by discussing a label and reason for that emotion. The researcher then asked the student to reflect on a time they felt a similar emotion, how they typically respond, and to brainstorm additional ways in which they could respond that may be more socially appropriate or more likely to result in the students’ desired outcome. Possible alternatives were brainstormed by student and researcher. After this, they role-played the student’s identified scenario in which the emotion is typically felt, using the student’s newly identified strategy instead.

Each intervention session focused on one of four different emotions that aligned with the
four major sections of the *MoodMeter* (Yale Center for Emotional Intelligence, n.d.). Emotions selected for this study were sad, angry, calm, and excited. While each student focused on the same four emotions, individualization of SEL interventions, and thus EI interventions, is highly important (Garner, Mahatmya, Brown, & Vessely, 2014). Because of this, the intervention included components that allowed for individualization. For example, each student was allowed to select the book that aligned with the researcher-determined emotion but that piqued their interest, rather than the researching allowing for only one particular book to be read per emotion. In addition, the roleplay and discussion components of the intervention were entirely based on the student responses and student-researcher relationship. For example, if the researcher had seen the student demonstrate anger the previous day, she might have brought up that demonstration as a possible example of a time when the student ‘got angry.’

After completion of the 15-minute intervention session, the student was asked to return to their classroom. Throughout the BC intervention phase, the student was prompted by the researcher to log their emotion at the beginning of the in-class observation session. He or she did this by first selecting a colored box labeled with an emotion words. The student then logged the antecedent, behaviors, and consequences in a section labeled, “I am feeling ___ because.” If students demonstrated low writing ability, they were allowed to dictate responses for the researcher to type into the log. The application includes a voice-record option, however the feature was unavailable consistently throughout intervention due to application updates. When the log was completed, the student gave the iPad to the interventionist before returning to classroom instruction. The iPads used required researcher passcode to open the screen and were consistently secured in the MoodMeter application via the guided access feature. See Appendix R for a complete step-by-step intervention procedure.
The researcher served as the primary interventionist. This increased the potential for bias. To remain objective, the researcher kept an intervention log in which she chronicled the complexities of serving dual roles and recorded all schedule and procedural abnormalities such as fire drills and special events. This log also contained information related to student behavior during the intervention session. If there was a session during which a student demonstrated behaviors that stalled or prevented completion of the intervention (see Brad), the researcher recorded management strategies utilized in an attempt at standardization across all participants.

The BC phase began for Adam after the initial five baseline probes. Subsequent participants moved into the BC phase after the previous student had completed at least five days of their BC intervention. Brad moved into Phase BC on Day 11 of the study. Chris moved into Phase BC on Day 16. Dani began intervention on Day 23 of the study. It should be noted that complete Phase BC data were collected only for Students A through C. Dani received intervention, but because of schedule changes, there was no time for behavioral observations to be completed for 10 minutes after the intervention.

**Intervention Phase 2 (C)**

After the students completed 8 days of read-aloud intervention or demonstrated resistance for three consecutive days, students were moved into a “technology-alone” phase during which they completed the daily emotion log using the same procedures mentioned previously. The purpose of Phase C was to serve as a reduction in researcher involvement and transition towards implementation feasible in the classroom alone. During this phase, students remained in their classroom and conducted business as usual, but were prompted daily to log their emotions just prior to the identified time-frame during which “problem” behavior was likely to occur for each student. The 10-minute video-recorded observation again began immediately upon completion.
of this emotion log. The researcher again utilized both a 15-second fixed interval momentary time sample as well as event recording. This phase returned to a probe procedure, but the logging of emotions occurred daily, even if students were not having their behavior recorded. All participants had a minimum of five days in this phase. It should be noted that Phase C data was not taken for Dani because she was unable to complete Phase BC. Adam moved into Phase C on Day 14 of the study and completed 13 Phase C probes. Brad moved into Phase C on Day 22 of the study and completed seven probes. Chris moved into Phase C on Day 32 of the study and completed five consecutive Phase C probes. Again, fidelity of intervention was recorded via the iPad application’s log.

**Maintenance**

During the maintenance phase, the teacher was directed to return to business as usual with no use of EI read-alouds or *MoodMeter* logging. The researcher completed two maintenance probes at exactly one week and one month after the conclusion of the C Phase. The maintenance probe took place in the same classroom in which the baseline and intervention phases occurred and included video-recorded observations during the previously-identified target behavior time for 10 minutes and was analyzed using both a 15-second fixed interval momentary time sample and event recording.

**Data Analysis**

Line graphs were created with this data using the Microsoft Excel program (Deochand, Costello, & Fuqua, 2015). Visual analysis was completed looking at the graphed data for level, trend, variability, overlap, immediacy of effect and consistency across similar phases (Gast & Ledford, 2014; Horner et al., 2005; Kratochwill et al., 2010). The primary dependent measures were the percent of time-on-task and the frequency of “challenging behaviors” as individualized
to match the specific behavior of each student. Experimental control was demonstrated by completing the study with three participants, as the fourth was lost toattrition. Effect sizes were calculated using the percent of non-overlapping data point values (PND; Gast & Ledford, 2014).

**Interobserver Agreement**

An additional doctoral student with experience collecting behavioral data was selected as a blinded observer to provide interobserver agreement (IOA). This observer cross-analyzed 20% of all video-recorded data for each condition and across each participant, meeting the What Works Clearinghouse (WWC) evidence standards (Kratochwill et al., 2010). Prior to the completion of this analysis, the researcher and additional student trained to 100% agreement. Videos to be cross-analyzed were randomly selected using the following procedure. Each recording from each student and each separate phase was given a number. For example, Adam had five days of baseline, so each video was labeled 1 through 5. Twenty percent of five videos in the Baseline phase resulted in one video being selected for cross-analysis. For Adam, a random number generator produced a number between 1 through 5, selecting the first Baseline phase video. This procedure was repeated for each phase across all students, resulting in a total of 14 videos cross-analyzed. Interobserver agreement was calculated by [total number of agreements / (number of summed agreements and disagreements)] multiplied by 100 (Gast & Ledford, 2014).

**Social Validity**

Two facets of social validity were included in this study. One component included whether the intervention was effective at changing a socially important behavior while the other considered whether the intervention was practical and worth continued use in the classroom (Horner et al., 2005).
To determine whether there was a meaningful behavior change, teachers participated in three social validity probes: once during baseline, once mid-intervention, and once post-intervention. During the pre- and post- intervention meetings, teachers completed the Behavior Assessment System for Children (BASC-2; Reynolds & Kamphaus, 2004), the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2005), and the research-made social validity surveys. See Appendices F and G for samples of these measures.

During the mid- and post-intervention probes, teachers were also shown two randomly selected video clips of the classroom behavior demonstrated by their respective children, one from baseline and one from intervention (Stanton-Chapman & Brown, 2015). They were then asked to indicate which video clip they believed was from baseline or intervention and whether they noticed a behavior change.

The second part of social validity analyzed whether the teacher found the intervention easy to use and worth-while. This data was taken during the same mid- and post-intervention surveys and was included on the same form. Teachers were asked if the intervention was feasible in the classroom, quick and easy to use, whether they would be likely to continue its use after the study has finished, and whether they would recommend it to their colleagues.

Student approval of the intervention was measured by the researcher’s log. If students willingly participated in the intervention with little need for redirection and prompting, it was assumed that they found the intervention acceptable. Similarly, if they refused to participate in all or part of the intervention, this was documented in the research log and indicated disapproval.

**Generalization**

The classroom aide and additional staff members were asked to participate in the completion of the researcher-made surveys to see whether a broader behavioral generalization
occurred. These probes occurred during baseline and after the final intervention phase. See Appendix H for surveys.

**Procedural Fidelity**

Two measurements of treatment fidelity were included, one for the B component of the intervention and one for C. The researcher developed procedural fidelity checklists to ensure that the pull-out interventions were completed with fidelity. One was developed for the first day with introduction to the application. A separate checklist was developed for subsequent intervention days during which the interventionist and student did not repeat the introduction to the application. Please refer to Appendices P and Q for the checklists. Twenty percent of these video recordings from the pull-out interventions were analyzed in relation to the procedural fidelity checklist. All Phase BC videos were labeled with a number between 1 and 23. Because 20% of 23 is 4.6, the researcher opted to have five video recordings analyzed by an impartial outside reviewer. A random number generator selected videos 6, 7, 11, 16, and 21. Procedural fidelity was then calculated by scoring the checklist. If a component was completed during the video recording, the analyst indicated so on the checklist. All marks were then divided by the total number of possible intervention components to calculate the percentage.

In addition, The iPad-based application (C) offered a log that included information on the following: a) when a person has entered data, b) the mood terms they selected, and c) what they indicated was the reason behind the emotion. This feature of the app served as a permanent product recording that was used to document procedural fidelity of the intervention utilized by the student in class (Briesch & Daniels, 2013; Gast & Ledford, 2014). If the student successfully completed the procedures identified above, then the log would contain a complete data point with one emotion and one explanation for each day, including those on which there was no
behavior probe.
CHAPTER FOUR

RESULTS

This purpose of this research study was to examine the effects of an emotional intelligence intervention on the performance of young students receiving services in a self-contained setting for students with emotional disturbance in the areas of time-on-task, frequencies of challenging behaviors, and emotion knowledge. This chapter presents the findings from a multiple probe across participants design (Horner & Baer, 1978) and is organized according to the order of the original research questions.

Research Question 1

The first research question addressed with this study asked whether there was a functional relationship between an emotional intelligence intervention and an increased level of self-regulation as indicated by time-on-task and frequency of challenging behavior in young elementary students receiving services in a self-contained setting for students with emotional disturbance as well as whether this effect was maintained through the use an emotion check-in application alone. It was predicted that the implementation of an emotional intelligence intervention would increase the time-on-task and decrease the frequency of challenging behavior for young elementary students receiving services in a self-contained setting for students with emotional disturbance. Because EI is a skill, it was also predicted that this effect would be maintained through the use of a check-in application alone.

To determine the effect of the intervention in response to Research Question 1, data were analyzed via visual analysis. This method consisted of an examination of both within-condition and between-condition variables. Within each phase, a researcher can discuss the condition length, level, trend, and variability. The length includes a count of all data days or probes. The
current study includes both a measure of phase mean and median. However, Gast and Ledford (2014) suggest that the median should be given more weight as it decreases the influence of potential outliers. To determine phase variability, the stability envelope has been calculated according to the “80%-25%” criteria proposed by Gast and Ledford (2014, p. 180). The stability envelope allows data to be considered level if 80% of the data fall within plus or minus .25 percent of the median for the baseline phase. This range around the median is then applied to all other phases for a given student. The trend has been calculated using the excel method described by Deochand, Costello, and Fuqua (2015).

Across adjacent phases it is possible to discuss immediacy of effect and level change, change in trend direction, and the percent of non-overlapping data. The absolute level change allows for a discussion of abrupt change between phases that is immediately significant while the relative level change offers a closer look at a possible delayed effect. A change in trend direction allows for a determination of the reliability of the effect and indicates the true impact of the intervention. The percent of non-overlapping data points values (PND; Gast & Ledford, 2014) reveals the amount of similarity between two phases and thus permits a discussion of efficacy or impact of the intervention. PND is calculated by finding the range of data in the first phase, counting the number of data points that fall outside this range from the second phase, dividing that by the total number of data points in the second phase then multiplying by 100.

Data in response to Research Question 1 are presented according to behavior, first with a discussion of time-on-task across participants followed with the frequency of challenging behavior. All discussion includes the phases of baseline (A), combined intervention (BC) and application-only intervention (C).

Adam: Time-on-task
Figure 1 graphically displays the data for student time-on-task. Table 4 provides a summary of the visual analysis variables for Adam and percent of time-on-task.

For Adam, within-condition analysis reveals the duration of Phase A (baseline) was 5 data points. The median level of baseline data fell at 42.5. The level mean fell at 38.5. The level values ranged from 17.5 to 47.5. The stability envelope was calculated to be +/- 10.63 with values falling between 31.87 and 53.13. For Adam, 80% of baseline data fell within this envelope, thus Baseline is considered stable. The relative level change was -10, indicating that there is a delayed deterioration of the behavior. The absolute level change was -27.5, again indicating deterioration of behavior. Baseline shows a decelerating trend with the equation of $y = -4.75x + 52.75$.

For Adam, the duration of Phase BC was 8 data points. The median level fell at 80. The level mean fell at 75.94. The level values ranged from 52.5 to 95. The stability envelope was calculated to be +/- 10.63 with values falling between 69.37 and 90.63. For Adam, 37.5% of data fell within this envelope, thus Phase BC is considered variable. The relative level change was -1.25, indicating that there is a delayed deterioration of the behavior. The absolute level change was 40, indicating improving behavior. Phase BC shows an accelerating trend with the equation of $y = 2.2321x + 54.732$.

For Adam, the duration of Phase C was 13 data points. The median level fell at 82.5. The level mean fell at 80.58. The level values ranged from 55 to 100. The stability envelope was calculated to be +/- 10.63 with values falling between 69.95 and 91.21. For Adam, 53.8% of data fell within this envelope, thus Phase C is considered variable. The relative level change was -7.5, indicating that there is a delayed deterioration of the behavior. The absolute level change was -22.5, again indicating deterioration of behavior. Phase C shows a zero-accelerating trend
with the equation of $y = -0.5106x + 92.832$.

For Adam, adjacent condition analysis between Phase A (Baseline) to Phase BC reveals a change in trend direction from negative to positive, indicating positive effect of intervention. The absolute level change was $+35$, indicating an immediate positive effect. The relative level change was $47.5$, indicating a delayed positive effect. The median level change was $37.5$. The mean level change was $37.44$. With these four measures, a large positive impact of beginning the intervention was immediately demonstrated and continued over time. The percent of non-overlapping data from Phase A (Baseline) to Phase BC was 100%. This indicates that the intervention was highly effective.

Adjacent condition analysis between Phase BC to Phase C reveals a change in trend direction from positive to zero-celerating, indicating that the effect of intervention was maintained with removal of the pull-out component. The absolute level change was $0$. This indicates no immediate change. The relative level change was $8.75$, indicating a delayed positive effect. The median level change was $2.5$. The mean level change was $4.64$. With these four measures, the impact of removing the complete intervention was not immediately felt, but the C-only component continued to effect a positive behavior change. The percent of non-overlapping data from Phase BC to Phase C was 15%. This indicates the effects of the holistic BC intervention were maintained during the C-alone phase.

In summary, while variability of Phases BC and C should be recognized, visual analysis of all other variables for Adam reveal a positive functional relationship between time-on-task and the intervention. Specifically, there was an immediate impact of the intervention for student percent of time-on-task and the intervention continued to see improvement in the behavior over time. Analysis of trend reveals that Adam showed deceleration of time-on-task during baseline.
This trend was corrected by the implementation of the holistic intervention and improvements were maintained during the C-alone component. The phase levels indicate large effects of the intervention with minimal overlap between intervention phases and baseline.

Table 4

*Summary of Visual Analysis Variables for Adam: Time-on-task*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>BC Phase</th>
<th>C Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>5</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Level Median</td>
<td>42.5</td>
<td>80</td>
<td>82.5</td>
</tr>
<tr>
<td>Level Mean</td>
<td>38.5</td>
<td>75.94</td>
<td>80.58</td>
</tr>
<tr>
<td>Level Range</td>
<td>17.5 – 47.5</td>
<td>52.5 – 95</td>
<td>55 – 100</td>
</tr>
<tr>
<td>Stability Envelope</td>
<td>31.87 – 53.13</td>
<td>69.37 – 90.63</td>
<td>69.95 – 91.21</td>
</tr>
<tr>
<td>Percent within envelope</td>
<td>80%</td>
<td>37.5%</td>
<td>53.8%</td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>-10</td>
<td>-1.25</td>
<td>-7.5</td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>-27.5</td>
<td>40</td>
<td>-22.5</td>
</tr>
<tr>
<td>Trend</td>
<td>$y = -4.75x + 52.75$</td>
<td>$y = 2.2321x +$</td>
<td>$y = -0.5106x +$</td>
</tr>
<tr>
<td></td>
<td>54.732</td>
<td>92.832</td>
<td></td>
</tr>
<tr>
<td><strong>Between Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trend Direction Change</td>
<td>- to +</td>
<td>+ to 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Absolute Level Change</td>
<td>Relative Level Change</td>
<td>Median Level Change</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------</td>
<td>-----------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td></td>
<td>+35</td>
<td>+47.5</td>
<td>+37.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+8.75</td>
<td>+2.5</td>
</tr>
</tbody>
</table>

**Brad: Time-on-task**

Figure 1 graphically displays the data for student time-on-task. Table 5 provides a summary of the visual analysis variables for Brad and percent of time-on-task.

For Brad, within-condition analysis reveals the duration of Phase A (Baseline) was 8 data points. The median level fell at 88.75. The level mean fell at 74.06. The level values ranged from 20 to 100. The stability envelope was calculated to be +/- 22.19 with values falling between 66.56 and 100. For Brad, 75% of baseline data fell within this envelope, thus Phase A (Baseline) is considered variable. The relative level change was 18.75. The absolute level change was 7.5, both indicating an improvement of behavior but high level variability. Phase A shows a zero-celerating trend with the equation of \( y = 0.4953x + 71.462 \).

For Brad, the duration of Phase BC was 7 data points. After two repeated days of refusal by the student to participate in the pull-out intervention, a phase change was implemented so that the student could remain in-class to participate in the Phase C intervention. This premature phase change resulted in a reduced number of Phase B data points. The median level of data fell at 82.5. The level mean fell at 71.79. The level values ranged from 10 to 95. The stability envelope was calculated to be +/- 22.19 with values falling between 60.31 and 100. For Brad, 86% of data fell within this envelope, thus Phase BC is considered stable. The relative level
change was 20 and the absolute level change was 15, again indicating improvement of behavior. Phase BC shows an accelerating trend with the equation of $y = 5.1786x - 5.8929$.

For Brad, the duration of Phase C was 7 data points. The median level of data fell at 77.5. The level mean fell at 76.43. The level values ranged from 42.5 to 100. The stability envelope was calculated to be $+/- 22.19$ with values falling between 65.88 and 89.13. For Brad, 71% of data fell within this envelope, thus Phase C is considered variable. The relative level change was 15 and the absolute level change was 25, again indicating improvement of behavior as well as variability. Phase C shows a zero-celerating trend with the equation of $y = 0.0037x + 76.321$.

For Brad, adjacent condition analysis between Phase A (Baseline) to Phase BC reveals a change in trend direction from zero-celerating to accelerating, indicating positive effect of intervention. The absolute level change was -30. This indicates an immediate negative change. The relative level change was -32.5, indicating a delayed negative effect. The median level change was -6.25. The mean level change was -2.27. With these four measures, the impact of beginning the intervention was immediately negatively felt and a delayed negative effect was seen over time. The percent of non-overlapping data from Phase A (Baseline) to Phase BC was 14%. This indicates great overlap of on-task behavior between baseline and intervention and indicates that the intervention was not effective.

For Brad, adjacent condition analysis between Phase BC to Phase C reveals a change in trend direction from accelerating to zero-celerating, indicating maintained effect of intervention with the removal of the pull-out Phase BC component. The absolute level change was -7.5. This indicates an immediate negative change. The relative level change was -5, indicating a delayed negative effect. The median level change was -5. The mean level change was 4.64. With these
four measures, the impact of beginning the intervention was immediately felt but data between mean and median are inconsistent. The percent of non-overlapping data from Phase BC to Phase C was 14%. This indicates great overlap of on-task behavior between baseline and intervention and indicates that the intervention was not effective.

In summary, visual analysis of data for Brad does not reveal a functional relationship between time-on-task and the intervention. Specifically, Brad demonstrated highly variable percents of time-on-task across all phases. There was an immediate negative effect on behavior when Brad transitioned between phases, with an improvement in behavior over time within each phase. Even with this improvement, it appears that student behavior ‘returned to normal,’ rather than improving due to an intervention effect. This ‘return to normal’ is reflected in the low percent of non-overlapping data.
Table 5

*Summary of Visual Analysis Variables for Brad: Time-on-task*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>BC Phase</th>
<th>C Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Level Median</td>
<td>88.75</td>
<td>82.5</td>
<td>77.5</td>
</tr>
<tr>
<td>Level Mean</td>
<td>74.06</td>
<td>71.79</td>
<td>76.43</td>
</tr>
<tr>
<td>Level Range</td>
<td>20 – 100</td>
<td>10 – 95</td>
<td>42.5 – 100</td>
</tr>
<tr>
<td>Stability Envelope</td>
<td>66.56 – 100</td>
<td>60.31 – 100</td>
<td>65.88 – 89.13</td>
</tr>
<tr>
<td></td>
<td>(+/- 22.19)</td>
<td>(+/- 22.19)</td>
<td>(+/- 22.19)</td>
</tr>
<tr>
<td>Percent within envelope</td>
<td>75% variable</td>
<td>86% stable</td>
<td>71% variable</td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>18.75 improving</td>
<td>20 improving</td>
<td>15 improving</td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>7.5 improving</td>
<td>15 improving</td>
<td>25 improving</td>
</tr>
<tr>
<td>Trend</td>
<td>$y = 0.4953x +$</td>
<td>$y = 5.1786x -$</td>
<td>$y = 0.0037x +$</td>
</tr>
<tr>
<td></td>
<td>71.462.</td>
<td>5.8929</td>
<td>76.321</td>
</tr>
<tr>
<td><strong>Between Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trend Direction Change</td>
<td>0 to +</td>
<td>+ to 0</td>
<td></td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>-30</td>
<td>-7.5</td>
<td></td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>-32.5</td>
<td>-5</td>
<td></td>
</tr>
<tr>
<td>Median Level Change</td>
<td>-6.25</td>
<td>-5</td>
<td></td>
</tr>
<tr>
<td>Mean level Change</td>
<td>-2.27</td>
<td>4.64</td>
<td></td>
</tr>
<tr>
<td>Percent Non-Overlap</td>
<td>14%</td>
<td>14%</td>
<td></td>
</tr>
</tbody>
</table>
Chris: Time-on-task

Figure 1 graphically displays the data for student time-on-task. Table 6 provides a summary of the visual analysis variables for Chris and time-on-task.

For Chris, within-condition analysis reveals the duration of Phase A (Baseline) was 10 data points. The median level of data fell at 47.5. The level mean fell at 48.75. The level values ranged from 20 to 65. The stability envelope was calculated to be +/- 11.88 with values falling between 35.63 and 59.38. For Chris, 60% of baseline data fell within this envelope, thus Phase A is considered variable. The relative level change was 2.5 and the absolute level change was 17.5. This indicates that the variability was not extreme, but that there was a slight improvement of behavior over time. Phase A shows a zero-accelerating trend with the equation of \( y = -0.0203x + 48.9 \).

For Chris, the duration of Phase BC was 8 data points. The median level of data fell at 80. The level mean fell at 76.35. The level values ranged from 29.6 to 97.5. The stability envelope was calculated to be +/- 11.8 with values falling between 68.12 and 91.88. For Chris, 63% of data fell within this envelope, thus Phase BC is considered variable. The relative level change was 11.7 indicating that there is a delayed improvement of the behavior. The absolute level change was 14.2, again indicating improvement of behavior. Phase BC shows an accelerating trend with the equation of \( y = 1.3675x + 45.582 \).

For Chris, the duration of Phase C was 5 data points. The median level of data fell at 70. The level mean fell at 65.2. The level values ranged from 50 to 80. The stability envelope was calculated to be +/- 11.88 with values falling between 58.12 and 81.88. For Chris, 60% of data fell within this envelope, thus Phase C is considered variable. The relative level change was -3, indicating that there is a delayed deterioration of the behavior. The absolute level change was
14.2 indicating improvement of behavior. Phase C shows a zero-celerating trend with the equation of \( y = -0.7x + 86.9 \).

For Chris, adjacent condition analysis between Phase A (Baseline) to Phase BC reveals a change in trend direction from zero-celerating to accelerating, indicating positive effect of intervention. The absolute level change was 5.6. This indicates an immediate positive change. The relative level change was 21.95, indicating a delayed positive effect. The median level change was 32.5. The mean level change was 27.6. With these four measures, the impact of beginning the intervention was immediately felt and continued across time. The percent of non-overlapping data from Phase A (Baseline) to Phase C was 87.5%. This shows minimal overlap and indicates a moderately effective intervention.

For Chris, adjacent condition analysis between Phase BC to Phase C reveals a change in trend direction from accelerating to zero-celerating, indicating maintained effect of intervention. The absolute level change was -13.8, indicating an immediate negative change in behavior. The relative level change was -20.65, indicating a delayed negative effect. The median level change was -10. The mean level change was -11.15. With these four measures, the impact of beginning the intervention was not immediately felt but revealed deterioration of the behavior. The percent of non-overlapping data from Phase BC to Phase C was 0%. This indicates the behavior was maintained when the holistic intervention package was reduced to C-alone.

In summary, the data for Chris reveal a guarded functional relationship between time-on-task and the intervention. Specifically, when reviewing the changes between Phases A and BC, there is a small immediate change in level. When considered with a much larger relative level change and a change in trend direction, it can be suggested that the BC intervention effected a positive change in time-on-task. While the intervention effects appear to be maintained as the
trend direction moves from accelerating to zero-celerating between Phases BC and C, the negative level changes suggest that the effects of the intervention were reduced by a transition into the C-only phase. Levels, however, never fully returned to baseline. Thus, it can be suggested that a functional relation existed between the complete intervention package and time-on-task, but that this effect may not have been fully maintained with the transition into a less-invasive format.
### Table 6

*Summary of Visual Analysis Variables for Chris: Time-on-task*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>BC Phase</th>
<th>C Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>10</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Level Median</td>
<td>47.5</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>Level Mean</td>
<td>48.75</td>
<td>76.35</td>
<td>65.2</td>
</tr>
<tr>
<td>Level Range</td>
<td>20 – 65</td>
<td>29.6 – 97.5</td>
<td>50 – 80</td>
</tr>
<tr>
<td>Stability Envelope</td>
<td>35.62 – 59.38</td>
<td>68.12 – 91.88</td>
<td>58.12 – 81.88</td>
</tr>
<tr>
<td></td>
<td>(+/- 11.88)</td>
<td>(+/- 11.88)</td>
<td>(+/- 11.88)</td>
</tr>
<tr>
<td>Percent within envelope</td>
<td>60% variable</td>
<td>63% variable</td>
<td>60% variable</td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>2.5 improving</td>
<td>11.7 improving</td>
<td>-3 deteriorating</td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>17.5 improving</td>
<td>14.2 improving</td>
<td>14.2 improving</td>
</tr>
<tr>
<td>Trend</td>
<td>$y = -0.0203x + 48.9$</td>
<td>$y = 1.3675x + 45.582$</td>
<td>$y = -0.7x + 86.9$.</td>
</tr>
<tr>
<td><strong>Between Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trend Direction Change</td>
<td>0 to +</td>
<td>+ to 0</td>
<td></td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>5.6</td>
<td>-13.8</td>
<td></td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>21.95</td>
<td>-20.65</td>
<td></td>
</tr>
<tr>
<td>Median Level Change</td>
<td>32.5</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>Mean Level Change</td>
<td>27.6</td>
<td>-11.15</td>
<td></td>
</tr>
<tr>
<td>Percent Non-Overlap</td>
<td>87.5%</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
Dani: Time-on-task

Because Dani was lost to attrition, Figure 1 displays baseline time-on-task data only. See Table 7 for a summary of visual analysis variables for Dani and time-on-task. The subsequent discussion can include only within-phase measures. The duration of Phase A (Baseline) was 13 data points. The median level of data fell at 77.5. The level mean fell at 71.66. The level values ranged from 12.5 to 100. The stability envelope was calculated to be +/- 19.38 with values falling between 58.12 and 96.88. For Dani, 62% of baseline data fell within this envelope, thus Phase A is considered variable. The relative level change was 8.75 and the absolute level change was 40. This indicates variability and improvement of behavior over time. Phase A shows a zero-celerating trend with the equation of $y = 0.9181x + 61.767$. 
Table 7

*Summary of Visual Analysis Variables for Dani: Time-on-task*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length</strong></td>
<td>13</td>
</tr>
<tr>
<td><strong>Level Median</strong></td>
<td>77.5</td>
</tr>
<tr>
<td><strong>Level Mean</strong></td>
<td>71.66</td>
</tr>
<tr>
<td><strong>Level Range</strong></td>
<td>12.5 – 100</td>
</tr>
<tr>
<td><strong>Stability Envelope</strong></td>
<td>58.12 – 96.88 (+/- 19.38)</td>
</tr>
<tr>
<td><strong>Percent within envelope</strong></td>
<td>62%</td>
</tr>
<tr>
<td><strong>Relative Level Change</strong></td>
<td>8.75</td>
</tr>
<tr>
<td><strong>Absolute Level Change</strong></td>
<td>40</td>
</tr>
<tr>
<td><strong>Trend</strong></td>
<td>$y = 0.9181x + 61.767$</td>
</tr>
</tbody>
</table>

**Summary of Time-on-task**

In conclusion, an analysis of the change in trends compared across like phases revealed a positive functional relation between the intervention on the percent of time-on-task for all students. Each shift from Phase A (baseline) to Phase BC reveals a change from either decelerating or zero-celerating data to an accelerating trend. This positive behavior change is then maintained across the shift from Phase BC to C as the trend shifts from accelerating to
decelerating. There is not continued improvement, but the change that was made was maintained with a lesser invasive intervention.

These results should be viewed with reserve, however, because of the noted variability of phases across participants. Of all phases, only two were identified as stable according to the “80-25” rule (Gast & Ledford, 2014). In addition, a discussion of level change reveals individual impacts of the intervention. Adam saw an improvement in behavior upon implementing the combined BC intervention as well as starting the C-alone intervention, as indicated by level change. This effectiveness of the intervention was mirrored in his high PND between Phase A (Baseline) and Phase BC. Similarly, Chris saw immediate level change indicating improvement upon transitioning from Baseline to Phase BC and also demonstrated high PND between the intervention phases. The effectiveness of the intervention and behavioral improvement, though, was not fully maintained when transitioning from the combined BC intervention to C-alone. Finally, Brad showed immediate negative effects on behavior when transitioning between phases, but his behavior then corrected and improved over time within each phase. This is reflected in low PND, demonstrating that each phase was very similar to the adjacent phases indicating low intervention effect.
Figure 1. Time-on-task

Note. Participant graphs are included in the order in which they began Phase BC.
Adam: Challenging Behavior

Figure 2 displays the data for the frequency of individualized challenging behaviors during a ten-minute observation probe. Note that the y-axis ranges from 0-20 as the most frequent demonstration of behavior across all students was 18 times. Table 8 provides a summary of the visual analysis variables for Adam and frequency of challenging behavior.

For Adam, within-condition analysis reveals the duration of Phase A (baseline) was 5 data points. The median level of baseline data fell at 2. The level mean fell at 2.4. The level values ranged from 1 to 5. The stability envelope was calculated to be +/- 0.5 with values falling between 1.5 and 2.5. For Adam, 60% of baseline data fell within this envelope, thus Baseline is considered variable. The relative level change was -1 while the absolute level change was 1. Baseline shows a slight decelerating trend with the equation of \( y = -0.1x + 2.7 \).

For Adam, the duration of Phase BC was 8 data points. The median level of data fell at 0.5. The level mean fell at 0.88. The level values ranged from 0 to 3. The stability envelope was calculated to be +/- 0.5 with values falling between 0 and 1. For Adam, 75% of data fell within this envelope, thus Phase BC is considered variable. The relative level change was -0.5 and the absolute level change was -3, both indicating improvement of behavior. Phase BC shows a slight decelerating trend with the equation of \( y = -0.2262x + 3.0238 \).

For Adam, the duration of Phase C was 13 data points. The median level of data fell at 0. The level mean fell at 0.69. The level values ranged from 0 to 5. The stability envelope was calculated to be +/- 0.5 with values falling between 0 and 0.5. For Adam, 85% of data fell within this envelope, thus Phase C is considered stable. The relative and absolute level changes were 0, indicating that the behavior across the phase was stable. Phase C shows a zero-celerating trend with the equation of \( y = 0.0745x - 1.0949 \).
For Adam, adjacent condition analysis between Phase A (Baseline) to Phase BC reveals no change in trend direction, remaining slightly decelerating across phases, suggesting little intervention effect but improving behavior. The absolute level change was 1 while the relative level change was -1. The median level change was -1.5. The mean level change was -1.52. With these four measures, the immediate impact of the intervention saw a spike in behaviors, but the intervention decreased the frequency of challenging behaviors over time. The percent of non-overlapping data from Phase A (Baseline) to Phase BC was 40. This indicates that the intervention was not highly effective, but had an impact.

For Adam, adjacent condition analysis between Phase BC to Phase C reveals a change in trend direction from decelerating to zero-celerating, indicating maintained effect of intervention. The absolute level change was 0 while the relative level change was -0.5, indicating a delayed positive effect. The median level change was -0.5. The mean level change was -0.19. With these four measures, the impact of beginning the intervention was not immediately felt but behavior was marginally improved over time. The percent of non-overlapping data from Phase BC to Phase C was 15%. This indicates that there was overlap or similarity between the two intervention phases.

In summary, the data for Adam reveal a functional relationship between frequency of challenging behavior and the intervention. Specifically, the combined intervention saw a reduction of challenging behavior, as demonstrated by a steeper slope and relative level change across the phase. This decreased level of behavior was maintained when the student entered the c-only phase, as indicated by the decreased PND and continued low frequency level.
### Table 8

*Summary of Visual Analysis Variables for Adam: Challenging Behavior*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>BC Phase</th>
<th>C Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>5</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Level Median</td>
<td>2</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Level Mean</td>
<td>2.4</td>
<td>0.88</td>
<td>0.69</td>
</tr>
<tr>
<td>Level Range</td>
<td>1 – 5</td>
<td>0 – 3</td>
<td>0 – 5</td>
</tr>
<tr>
<td>Stability Envelope</td>
<td>1.5 – 2.5</td>
<td>0 - 1</td>
<td>0 – 0.5</td>
</tr>
<tr>
<td></td>
<td>(+/- 0.5)</td>
<td>(+/- 0.5)</td>
<td>(+/-0.5)</td>
</tr>
<tr>
<td>Percent within envelope</td>
<td>60%</td>
<td>75%</td>
<td>85%</td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>-1</td>
<td>-0.5</td>
<td>0</td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>1</td>
<td>-3</td>
<td>0</td>
</tr>
<tr>
<td>Trend</td>
<td>y = -0.1x + 2.7</td>
<td>y = -0.2262x +</td>
<td>y = 0.0745x -</td>
</tr>
<tr>
<td></td>
<td>3.0238</td>
<td>1.0949</td>
<td></td>
</tr>
<tr>
<td><strong>Between Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trend Direction Change</td>
<td>- to -</td>
<td>- to 0</td>
<td></td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>+1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>-1</td>
<td>-0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Median Level Change</td>
<td>Mean Level Change</td>
<td>Percent Non-Overlap</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------</td>
<td>-------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td></td>
<td>-1.5</td>
<td>-1.52</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>-0.5</td>
<td>-0.19</td>
<td>15%</td>
</tr>
</tbody>
</table>

**Brad: Challenging Behavior**

Figure 2 graphically displays the data for frequency of individualized student challenging behavior. Table 9 provides a summary of the visual analysis variables for Brad and the frequency of challenging behavior.

For Brad, within-condition analysis reveals the duration of Phase A (Baseline) was 8 data points. The median level of data fell at 1. The level mean fell at 3.13. The difference between mean and median reveal the presence of outlying data (see probe day 3). The level values ranged from 0 to 17. The stability envelope was calculated to be +/- 0.25 with values falling between 0.75 and 1.25. For Brad, 38% of data fell within this envelope, thus Phase A (Baseline) is considered variable. The relative level change was 0.5 and the absolute level change was 1, both indicating deterioration of behavior. Phase A (Baseline) shows a decelerating trend with the equation of \( y = -0.2547x + 4.4623 \).

For Brad, the duration of Phase BC was 7 data points, again condensed due to the individual student requirement of phase change. The median level of data fell at 0. The level mean fell at 0. The level values ranged from 0 to 3. The stability envelope was calculated to be +/- 0.25 with values falling between 0 and 0.25. For Brad, 86% of data fell within this envelope, thus Phase BC is considered stable. The relative and absolute level changes were 0 indicating stability of behavior. Phase BC shows a decelerating trend with the equation of \( y = -0.2857x + 4.7143 \).
For Brad, the duration of Phase C was 7 data points. The median level of data fell at 0. The level mean fell at 1. The level values ranged from 0 to 4. The stability envelope was calculated to be +/- 0.25 with values falling between 0 and 0.25. For Brad, 57% of data fell within this envelope, thus Phase C is considered variable. The relative and absolute level changes were 0, indicating stability of behavior. Phase C shows a zero-celerating trend with the equation of \( y = -0.0734x + 3.1063 \).

For Brad, adjacent condition analysis between Phase A (Baseline) to Phase BC reveals a continued decelerating trend, indicating minimal effect of intervention. The absolute level change was 1. This indicates an immediate negative change in behavior. The relative level change was -1.5 indicating a delayed positive effect over time. The median level change was -1. The mean level change was -2.7. With these four measures, the immediate behavior deteriorated, but improved over time. The percent of non-overlapping data from Phase A (Baseline) to Phase BC was 0%. This indicates similarity between phases.

For Brad, adjacent condition analysis between Phase BC to Phase C reveals a change in trend direction from decelerating to zero-celerating indicating maintained intervention effect. The absolute, relative, and median level changes were 0. The mean level change was 0.57. With these four measures, the impact of the C-only intervention was minimal. The percent of non-overlapping data from Phase BC to Phase C was 14%. This indicates that the phases were similar.

In summary, the data for Brad reveal a functional relationship between the intervention and frequency of challenging behavior during the transition from Baseline to Phase BC. The variability and frequency levels of behavior decreased with the installment of the intervention. These effects, however, were not maintained during the transition to the C-alone phase.
Table 9

*Summary of Visual Analysis Variables for Brad: Challenging Behavior*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>BC Phase</th>
<th>C Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Level Median</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Level Mean</td>
<td>3.13</td>
<td>0.43</td>
<td>1</td>
</tr>
<tr>
<td>Level Range</td>
<td>0 – 17</td>
<td>0 – 3</td>
<td>0 – 4</td>
</tr>
<tr>
<td>Stability Envelope</td>
<td>0.75 – 1.25</td>
<td>0 – 0.25</td>
<td>0 – 0.25</td>
</tr>
<tr>
<td></td>
<td>(+/-0.25)</td>
<td>(+/-0.25)</td>
<td>(+/-0.25)</td>
</tr>
<tr>
<td>Percent within envelope</td>
<td>38%</td>
<td>86%</td>
<td>57%</td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>deteriorating</td>
<td>stable</td>
<td>stable</td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>deteriorating</td>
<td>improving</td>
<td>stable</td>
</tr>
<tr>
<td>Trend</td>
<td>y = -0.2547x +</td>
<td>y = -0.2857x +</td>
<td>y = -0.0734x +</td>
</tr>
<tr>
<td></td>
<td>4.4623</td>
<td>4.7143</td>
<td>3.1063</td>
</tr>
<tr>
<td><strong>Between Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trend Direction Change</td>
<td>- to -</td>
<td>- to 0</td>
<td></td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>-1.5</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Median Level Change</td>
<td>-1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
Mean Level Change  
-2.7  0.57

Percent Non-Overlap  
0%  14%

**Chris: Challenging Behavior**

Figure 2 graphically displays the data for frequency of individualized student challenging behavior. Table 10 provides a summary of the visual analysis variables for Chris and frequency of challenging behavior.

For Chris, within-condition analysis reveals the duration of Phase A (Baseline) was 10 data points. The median level of data fell at 5. The level mean fell at 4.8. The level values ranged from 0 to 10. The stability envelope was calculated to be +/- 1.25 with values falling between 3.75 and 6.25. For Chris, 30% of data fell within this envelope, thus Phase A (Baseline) is considered variable. The relative level change was -6 and the absolute level change was -3. These indicated improvement of behavior. Phase A (Baseline) shows a decelerating trend with the equation of $y = -0.3539x + 7.4188$.

For Chris, the duration of Phase BC was 8 data points. The median level of data fell at 2.5. The level mean fell at 2.25. The level values ranged from 0 to 5. The stability envelope was calculated to be +/- 1.25 with values falling between 1.25 and 3.75. For Brad, 38% of data fell within this envelope, thus Phase BC is considered variable. The relative level change was -2 and the absolute level change was -1, both indicating improvement of behavior. Phase BC shows a zero-celerating trend with the equation of $y = -0.0635x + 3.6786$.

For Chris, the duration of Phase C was 5 data points. The median level of data fell at 2. The level mean fell at 2.4. The level values ranged from 1 to 5. The stability envelope was calculated to be +/- 1.25 with values falling between 0.75 and 3.25. For Chris, 80% of data fell
within this envelope, thus Phase C is considered stable. The relative level change was -0.5 and the absolute level change was 1. Phase C shows a true zero-celerating trend with the equation of $y = 2.4$.

For Chris, adjacent condition analysis between Phase A (Baseline) to Phase BC reveals a change in trend direction from decelerating to zero-celerating, indicating little effect of intervention. The absolute level change was -1. This indicates an immediate positive change in behavior. The relative level change was 2. The median level change was -2.5. The mean level change was -2.55. With these four measures, the impact of beginning the intervention was immediately felt and the intervention showed improved behavior. The percent of non-overlapping data from Phase A (Baseline) to Phase BC was 0%. This indicates similarity between phases.

For Chris, adjacent condition analysis between Phase BC to Phase C reveals no change in trend direction as both remain zero-celerating. The absolute level change was -1. The relative level change was 1. The median level change was -0.5. The mean level change was 0.15. With these four measures, the impact of beginning the intervention unclear. The percent of non-overlapping data from Phase BC to Phase C was 0%, indicating similarity across phases.

In summary, the data for Chris reveal immediate effects of intervention phase changes. This effect, however, is not maintained across the phase. Similarly, the improving trend across baseline and large amount of overlapping data suggest that there was no functional relation between the intervention and a reduction in the frequency of challenging behavior for Chris.
Table 10

*Summary of Visual Analysis Variables for Chris: Challenging Behavior*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>BC Phase</th>
<th>C Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>10</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Level Median</td>
<td>5</td>
<td>2.5</td>
<td>2</td>
</tr>
<tr>
<td>Level Mean</td>
<td>4.8</td>
<td>2.25</td>
<td>2.4</td>
</tr>
<tr>
<td>Level Range</td>
<td>0 – 10</td>
<td>0 – 5</td>
<td>1 – 5</td>
</tr>
<tr>
<td>Stability Envelope</td>
<td>3.75 – 6.25</td>
<td>1.25 – 3.75</td>
<td>0.75 – 3.25</td>
</tr>
<tr>
<td></td>
<td>(+/-1.25)</td>
<td>(+/-1.25)</td>
<td>(+/-1.25)</td>
</tr>
<tr>
<td>Percent within envelope</td>
<td>30% variable</td>
<td>38% variable</td>
<td>80% stable</td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>-6 improving</td>
<td>-2 improving</td>
<td>-0.5 improving</td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>-3 improving</td>
<td>-1 improving</td>
<td>1 deteriorating</td>
</tr>
<tr>
<td>Trend</td>
<td>y = -0.3539x +</td>
<td>y = -0.0635x +</td>
<td>y = 2.4</td>
</tr>
<tr>
<td></td>
<td>7.4188</td>
<td>3.6786</td>
<td></td>
</tr>
<tr>
<td><strong>Between Condition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trend Direction Change</td>
<td>- to 0</td>
<td>0 to 0</td>
<td></td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>-1</td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Median Level Change</td>
<td>-2.5</td>
<td>-0.5</td>
<td></td>
</tr>
<tr>
<td>Mean Level Change</td>
<td>-2.55</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>Percent Non-Overlap</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>
Dani: Challenging Behavior

Figure 2 displays the frequency of challenging behavior for baseline probes. Table 11 provides a summary of the visual analysis variables during baseline for Dani. For Dani, within-condition analysis reveals the duration of Phase A (Baseline) was 13 data points. The median level of data fell at 5. The level mean fell at 3.85. The level values ranged from 0 to 7. The stability envelope was calculated to be +/- 1.25 with values falling between 3.75 and 6.25. For Dani, 54% of data fell within this envelope, thus Phase A (Baseline) is considered variable. The relative level change was 1 and the absolute level change was -6. Phase A (Baseline) shows a zero-celerating trend of $y = -0.0187x + 4.048$. 
Table 11

*Summary of Visual Analysis Variables for Dani: Challenging Behavior*

<table>
<thead>
<tr>
<th>Within Condition</th>
<th>Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>13</td>
</tr>
<tr>
<td>Level Median</td>
<td>5</td>
</tr>
<tr>
<td>Level Mean</td>
<td>3.85</td>
</tr>
<tr>
<td>Level Range</td>
<td>0 – 7</td>
</tr>
<tr>
<td>Stability Envelope</td>
<td>3.75 – 6.25</td>
</tr>
<tr>
<td>(+/- 1.25)</td>
<td></td>
</tr>
<tr>
<td>Percent within envelope</td>
<td>54%</td>
</tr>
<tr>
<td>Relative Level Change</td>
<td>1</td>
</tr>
<tr>
<td>Absolute Level Change</td>
<td>-6</td>
</tr>
<tr>
<td>Trend</td>
<td>y = -0.0187x + 4.048</td>
</tr>
</tbody>
</table>

**Summary of Challenging Behavior**

Challenging behavior results were similar across all three participants. All show that they do not return to baseline level frequencies of challenging behavior, however there is great overlap across phases and slow decelerations over time. This lends itself to the question of true intervention effect, or merely decreases in challenging behavior associated with maturation. In addition, both Adam and Brad demonstrate floor effects during at least one of the intervention
phases and Chris demonstrates great variability. Because of these questions that arise from visual analysis, it can be determined that there was no functional relation between the intervention and the frequency of challenging behavior.
Figure 2. Challenging Behaviors

Note. Research participant graphs are included in the order in which they began Phase BC.
Research Question 2

The second research question asks if an emotional intelligence intervention improves emotional intelligence, as indicated by an increased score on the Behavior Assessment System for Children, Second Edition (BASC-2) for young elementary students receiving services in a self-contained setting for students with emotional disturbance. It was predicted that an EI intervention would lead to increased scores on the EI rating scales for young elementary students receiving services in a self-contained setting for students with emotional disturbance.

Behavior Assessment System for Children, Second Edition

Table 12 includes the pre-and post-intervention BASC-2 composite scores for all participants while Table 13 includes specific comparisons across time of all subscales falling at or above the 90th percentile for participants. At Baseline, Adam fell at or above the 90th percentile on the hyperactivity, aggression, conduct problems, depression, somatization, attention, atypicality, and withdrawal scales. Specifically, his overall behavioral symptoms index was at the 99th percentile. He demonstrated significantly high levels (at p = .05) of aggression and somatization in comparison to his averages. Similarly, he demonstrated significantly low levels of anxiety and learning problems. When compared, Adam exhibited significantly more externalizing behavior problems than internalizing or school problems (at p = .01).

Post-intervention, Adam fell at or above the 90th percentile on the hyperactivity, aggression, conduct problems, depression, somatization, attention, atypicality, and withdrawal scales, the same as during Baseline. His overall behavioral symptoms index remained at the 99th percentile. He continued to demonstrate significantly high levels (at p = .05) of aggression and depression in comparison to his averages. Somatization was no longer significant. He demonstrated significantly low levels of conduct, attention, and atypicality. When compared,
Adam continued to demonstrate significantly more externalizing than school problems, but the difference between externalizing and internalizing decreased to nonsignificance. Instead, internalizing became a more significant issue than school problems (at p = .01).

At Baseline, Brad fell at or above the 90th percentile on hyperactivity, aggression, depression, and attention problems. Specifically, his overall behavioral symptoms index was at the 97th percentile. He demonstrated significantly high levels (at p = .05) of depression and significantly low levels of conduct problems, anxiety, somatization, learning problems, and withdrawal in comparison to his own averages. When compared, there were no significant differences between externalizing, internalizing, and school problems scores.

Post-intervention, Brad fell at or above the 90th percentile on the aggression and depression scales. His overall behavioral symptom index decreased to the 87th percentile. He no longer demonstrated significantly low levels of somatization, withdrawal, or conduct problems (at p = .05), but received the same score as baseline for anxiety, depression, and learning problems. In addition, the difference between externalizing and internalizing problems grew to significant as did the difference between internalizing and school problems at the p = .01 level.

At Baseline, Chris fell at or above the 90th percentile on the hyperactivity, aggression, depression, somatization, attention, learning, atypicality, and withdrawal scales. Specifically, his overall behavioral symptoms index fell within the 99th percentile. Specifically, he scored significantly (at p = .05) low on hyperactivity, aggression, conduct, anxiety, and attention problems and significantly higher on his depression scale in comparison to his averages. In addition, the internalizing score was significantly higher than externalizing and school problems (at p = .01).
Post-intervention, Chris fell at or above the 90th percentile on the depression, somatization, learning, and withdrawal scales. Scores on hyperactivity, attention, and atypicality fell below the 90th percentile rank after intervention. The behavioral symptoms index lowered from the 99th to 98th percentile. Many significant comparisons to personal averages changed, with some no longer significant but new categories finding significance. However, the comparisons between externalizing, internalizing, and school problems remained the same.

Table 12

*BASC-2 Composite Score Percentiles for All Participants*

<table>
<thead>
<tr>
<th>Externalizing Problems</th>
<th>Internalizing Problems</th>
<th>School Problems</th>
<th>Adaptive Skills Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Adam</td>
<td>99</td>
<td>99</td>
<td>96</td>
</tr>
<tr>
<td>Brad</td>
<td>92</td>
<td>85</td>
<td>94</td>
</tr>
<tr>
<td>Chris</td>
<td>94</td>
<td>84</td>
<td>99</td>
</tr>
</tbody>
</table>
Table 13

Pre-Post BASC-2 Comparisons

<table>
<thead>
<tr>
<th>Student Pseudonym</th>
<th>90th percentile baseline</th>
<th>90th percentile post-test</th>
<th>Reductions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam</td>
<td>Hyperactivity, aggression, conduct, depression, somatization, attention, atypicality, withdrawal, behavioral symptom index</td>
<td>Hyperactivity, aggression, conduct, depression, somatization, attention, atypicality, withdrawal, behavioral symptom index</td>
<td>none</td>
</tr>
<tr>
<td>Brad</td>
<td>Hyperactivity, aggression, depression, attention, behavioral symptom index</td>
<td>Aggression, depression, attention, behavioral symptom index</td>
<td>Hyperactivity, depression, attention, behavioral symptoms index</td>
</tr>
<tr>
<td>Chris</td>
<td>Hyperactivity, aggression, depression, somatization, attention, learning, atypicality, withdrawal, behavioral symptom index</td>
<td>Depression, somatization, learning, withdrawal scales, behavioral symptoms index</td>
<td>Hyperactivity, aggression, attention, atypicality</td>
</tr>
</tbody>
</table>

Strengths and Difficulties Questionnaire

Table 14 shows student pre- and post-intervention scores on the Strengths and Difficulties Questionnaire (SDQ). Baseline SDQ data reveal that Adam demonstrated abnormal
/ very high levels of conduct problems, hyperactivity, and total difficulties, especially in the externalizing realm. His post-intervention data revealed abnormal / very high levels in the same categories, however the conduct and total difficulties scores decreased.

During baseline, Brad demonstrated abnormal / very high (or low) levels of hyperactivity and prosocial problems categories. Post-intervention data showed an increase in conduct problems to abnormal / very high ranges. However, they also revealed a decrease in hyperactivity and prosocial scores from abnormal / very high or low to the normal / close to average and borderline / slightly raised ranges respectively. The overall total difficulties calculation moved from the abnormal / high range to the borderline / slightly raised range.

Baseline SDQ for Chris demonstrated abnormal / very high levels for emotion problems, hyperactivity, peer problems, and abnormal / very low levels for prosocial scores. His total difficulties range was also in the abnormal / very high range, with a large quantity of both externalizing and internalizing problems. Post-intervention data revealed abnormal / very high or low levels for emotion problems, prosocial scores, and total difficulties. All other categories saw reduced scores or improvement.

Table 14

<table>
<thead>
<tr>
<th></th>
<th>Total Difficulties</th>
<th>Emotional Problems</th>
<th>Conduct Problems</th>
<th>Hyperactivity Problems</th>
<th>Peer Problems</th>
<th>Prosocial Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
</tr>
<tr>
<td>Adam</td>
<td>23*</td>
<td>20*</td>
<td>2</td>
<td>1</td>
<td>7*</td>
<td>5*</td>
</tr>
<tr>
<td>Brad</td>
<td>17</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>6*</td>
</tr>
<tr>
<td>Chris</td>
<td>31*</td>
<td>25*</td>
<td>9*</td>
<td>9*</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Note. Scores in the abnormal or very high/lowlow score range have been indicated by an asterisk.
Summary of Results for Research Question 2

An analysis of the SDQ in conjunction with BASC-2 scores revealed very little change for Adam before and after the intervention. Brad and Chris, however, demonstrated improved scores. Brad’s BASC-2 scores showed nearly 10 percentile point drops for both externalizing and internalizing problems scores, and over a 30 percentile drop on the school problems composite. In addition, he saw notable reductions on the hyperactivity and attention scales. A similar trend was found on Brad’s SDQ, with a decrease in hyperactivity and on the overall total difficulties calculation. Chris saw a nearly 10 percentile point drop on the externalizing composite and reductions in the subsets of hyperactivity, aggression, attention, and atypicality scales of the BASC-2. Similarly, post-intervention revealed improvements in the areas of hyperactivity and peer problems subcomponents of the SDQ. Thus, the measures of emotional intelligence utilized for study revealed an improved score for two of the three completing participants.

Research Question 3

The third research question examines whether young elementary students receiving services in a self-contained setting for students with emotional disturbance maintain effects once all components of the intervention have been removed. Because EI is conceptualized as a learned skill, it is predicted that effects of daily emotional intelligence lessons and the use of an emotion log will be maintained after removal of the holistic intervention. This question was measured through two follow-up probe days performed at one week and one month after completion of the final Phase C day. The final maintenance probe for Chris was collected two school days after that of Adam and Brad because of student absence.
**Time-on-task**

Figure 1 shows the maintenance data for time-on-task of each student. Data for Phase C from Adam included the range from 55 to 100 with a median of 82.5. His maintenance probes fell at 80 and 90, both within the overall range of the adjacent phase. Phase C for Brad included a range from 42.5 to 100 with a median of 77.5. His maintenance data points fell at 62.5 and 80, both within the overall range of the adjacent phase. Data for Phase C from Chris included the range from 50 to 80 with a median of 70. The maintenance data for Chris fell at 77.5 and 87.5, the first point falling within the same range while the second saw an improvement in behavior above the level of the adjacent phase. Thus, visual analysis reveals maintenance levels of time-on-task similar to adjacent phases for all participants.

**Challenging Behavior**

Figure 2 represents the frequency count of challenging behavior for each student and includes the maintenance data points. Data for Phase C from Adam included the range from 0 to 5 with a median of 0. His maintenance probes fell at 0 and 2, both within the overall range of the adjacent phase. Phase C for Brad included a range from 0 to 4 with a median of 0. His maintenance data points fell at 2 and 1, both within the overall range of the adjacent phase. Data for Phase C from Chris included the range from 1 to 5 with a median of 2. The maintenance data for Chris fell at 1 and 3, both within the overall range of the adjacent phase. Thus, visual analysis reveals maintenance levels of challenging behavior similar to adjacent phases for all participants.

**Research Question 4**

The fourth research question asked whether there was a generalized impact of the emotional intelligence intervention across school settings on the identified behaviors of young
elementary students receiving services in a self-contained setting. This question was analyzed based on survey responses completed by the classroom SPTA and two specialists at the school with whom the students interacted on a weekly basis. It was predicted that school staff would report improvement across school settings for young elementary students labeled with emotional disturbance. Table 15 presents the results from the three staff members survey responses from baseline and after intervention across the three participants.
Table 15  
*Staff Ratings of Behavior Pre- and Post- Intervention*

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>SPTA</th>
<th>Pre</th>
<th>Post</th>
<th>Specialist 1</th>
<th>Pre</th>
<th>Post</th>
<th>Specialist 2</th>
<th>Pre</th>
<th>Post</th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severity</td>
<td>4</td>
<td>3.5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concern</td>
<td>4</td>
<td>3.5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
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<td></td>
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</tr>
<tr>
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<td>2-3 x a</td>
<td>3 x per</td>
<td>2 x per</td>
<td>1 x per</td>
<td>1 x per</td>
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</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severity</td>
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<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Concern</td>
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<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>3 – 5 x a</td>
<td>1 x a week</td>
<td>1-2 x per</td>
<td>2 x a</td>
<td>2 x a</td>
<td>1 x per</td>
<td></td>
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<td>Noted</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<tr>
<td>Difference</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chris</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severity</td>
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<td>3</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concern</td>
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<td>4</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td></td>
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<td>1 x per</td>
<td>3 x per</td>
<td></td>
<td></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>Difference</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
The SPTA reported that he had sometimes noticed a difference in Adam’s behavior, and improved his rating from a 4 out of 5 to 3.5 out of 5 on the severity scale. Adam decreased the frequency of his individualized behavior, reducing from daily engagement to 2-3 times a week. The SPTA also decreased his concern from a 4 out of 5 to 3.5 out of 5.

The first specialist reported that she had not noticed a difference Adam’s behavior and selected a concerned level of 5 out of 5 during both pre- and post surveys, but changed the severity ranking from a 5 out of 5 to a 4 out of 5. Similarly, during baseline, the specialist indicated that Adam engaged in his individualized behavior 3 times per 50-minute period but after the intervention, Adam engaged in it only twice a week.

The second specialist reported that she had noticed a difference in Adam’s behavior and decreased the severity rating from a 4 out of 5 to a 3 out of 5 after the intervention. While reducing the severity level and stating that she had noticed a change, the second specialist indicated that Adam continued to engage in his individualized behavior once per class and maintained her level of concern by selecting 4 out of 5 on both the pre- and post-surveys.

In sum, the three staff members felt that the behavior was ‘seriously disturbing’ during baseline but reduced this score after intervention. While two staff indicated that they had not noticed a behavior change, their reported frequencies decreased from pre- to post intervention. The other specialist indicated that she had seen a behavior change, however her score remained
constant at once per session. All staff members felt that the behavior was socially important both before and after the intervention.

**Brad.** The SPTA reported that he noticed a difference in the behavior, and improved his rating from a 3 out of 5 to a 2 out of 5 on the severity scale. Brad also decreased the frequency, engaging in his individualized behavior 3 to 5 times a week or more during baseline and reducing it to around once a week after the intervention. The SPTA also decreased his level of concern from a 3 out of 5 to a 2 out of 5.

The first specialist reported that she had noticed a difference in Brad’s behavior, and decreased the severity rating from a 3 out of 5 to a 2 out of 5 on the severity scale. Before intervention, Brad engaged in his individualized behavior 1 to 2 times a 50-minute period but after the intervention, this was decreased to twice a month. The first specialist also decreased her level of concern from a 3 out of 5 to a 2 out of 5.

The second specialist reported that she had noticed a difference in the behavior but maintained a selection of a 2 out of 5 on the severity scale. Brad reduced his frequency from two engagements in his individualized behavior twice per 50-minute period to once. The second specialist also decreased her level of concern a 2 out of 5 to a 1 out of 5.

In sum, the three staff members indicated that they had noticed a difference in the challenging behavior after intervention. Two decreased their frequency approximation and their severity rankings. The second specialist continued to rank the behavior as a 2, but increased the number of times demonstrated to once per class session. All three decreased their concern with Brad’s behavior by one indicator point after intervention.

**Chris.** The SPTA reported that he had and had not noticed a difference in the behavior, indicating that some days were better than others. He continued to rank Chris’s behavior as a 3
out of 5 on the severity scale across surveys however indicated that Chris had engaged in his individualized behavior several times a day but only demonstrated the behavior a few times a week after the intervention. The SPTA did increase his level of concern from a 3 out of 5 to a 3.5 out of 5.

The first specialist reported that she had noticed a difference in the behavior and reduced his severity scale rank from a 4 out of 5 to a 2 out of 5. She also indicated that Chris had engaged in his individualized behavior 3 times per 50-minute period before intervention but only once a month after. The first specialist also decreased her level of concern from a 4 out of 5 to a 1 out of 5.

The second specialist reported that she had also noticed a difference in the behavior and decreased his severity rank from a 4 out of 5 to a 3 out of 5. This was contradicted by her frequency ratings, stating that Chris had originally engaged in his challenging behavior once per 50-minute period but demonstrated the behavior at least 3 times per period after the intervention. The second specialist maintained a concerned level of 4 out of 5 across surveys.

In sum, all staff members felt that Chris’s behavior was severe during baseline. This was mirrored by a high reported frequency rate across settings at that time. Specialists indicated greater concern with the behavior during baseline and subsequently noted that they had seen a difference in the behavior after intervention, decreasing its severity to a 2 or 3 rating. In addition, two staff members indicated a decreased frequency of the behavior. However, two staff members also increased their level of concern with the behavior after intervention.

**Research Question 5**

The fifth research question explored whether students and teachers reported a high level of satisfaction with an emotional intelligence intervention to decrease challenging behaviors and
increase time-on-task. This question encompassed two facets of social validity for the teacher, whether there was a meaningful change in a behavior that was socially important and whether the intervention itself was acceptable. Student satisfaction was measured through willingness to participate and engage in the intervention. It was predicted that students and teachers would both report a high level of satisfaction with the emotional intelligence intervention.

**Teacher Reports of Meaningful Behavior Change and Social Import of Behavior**

Table 15 includes the results from the teacher rating scales for each student at baseline, mid-intervention, and post-intervention. Questions included examined the severity of the behavior, whether the behavior was of concern, the frequency of occurrence, and whether there was a noted difference in the behavior between baseline and the indicated time. An additional question asked the teacher to view video clips and identify whether they came from baseline or the indicated intervention phase. This was meant to serve as a blinded indication of true behavior change.

**Adam.** The teacher slightly decreased the severity rating of Adam’s individualized behavior from baseline to mid-intervention, but maintained this mid-score after the intervention was completed. Across all phases, she indicated that the behavior was of great concern. The teacher explained that Adam engaged in his behavior three to five times daily during the baseline and mid-intervention surveys, but indicated that the frequency increased to between 5 to 8 times daily on the post-intervention survey. After Phase BC, the teacher had indicated that she had noticed a behavior change, but by the end of Phase C the teacher indicated that there had been only a slight change in behavior. The teacher was, however, able to successfully indicate which video clip was recorded during baseline versus Phase BC and Phase C.
**Brad.** During baseline, the teacher ranked Brad’s behavior as highly disturbing but desescalated the severity rank to a 3 out of 5 at mid-intervention. This rank remained stable after intervention. During both the baseline and mid-intervention surveys, the teacher indicated that the behavior was of great concern. Upon completion of the final survey, she was no longer as concerned about the behavior, ranking it a 3 of 5. The frequency of Brad’s challenging behavior decreased from 5 to 10 times a day to no more than 5 times a day on the mid-intervention survey. It decreased again from mid- to post-intervention, with the frequency dropping to between 1 and 2 times a day. Both the mid- and post-intervention surveys indicated that the teacher had noticed a behavior change. The teacher was also able to successfully identify which video clip was recorded during baseline versus Phase BC and Phase C.

**Chris.** The teacher originally ranked Chris’s behavior as highly disturbing, but decreased this score at mid-intervention and maintained the lower severity level on the post-intervention survey. During baseline and mid-intervention, the teacher indicated that the behavior was of great concern. This score decreased after the intervention was complete. The frequency of Chris’s individual behavior steadily decreased from daily to twice a week at mid-intervention and 1-2 times per week after the completion of the study. The teacher also consistently indicated that there had been a behavior change across phases. However, while the teacher was able to correctly identify the pre-and post-BC Phase video clips, she was unable to successfully label the video clips shown during the post-intervention survey.
Table 16

**Teacher Social Validity Scores**

<table>
<thead>
<tr>
<th>Student Pseudonym</th>
<th>Baseline Severity</th>
<th>Baseline Concern</th>
<th>Baseline Frequency</th>
<th>Mid-Intervention Severity</th>
<th>Mid-Intervention Concern</th>
<th>Mid-Intervention Frequency</th>
<th>Post-Intervention Severity</th>
<th>Post-Intervention Concern</th>
<th>Post-Intervention Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam</td>
<td>5</td>
<td>5</td>
<td>3-5 x daily</td>
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<td>5</td>
<td>5-8 x daily</td>
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<td>4</td>
<td></td>
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<tr>
<td>Concern</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
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<td></td>
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<td>Order of Video Clips</td>
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<td></td>
<td></td>
<td></td>
<td>Correct</td>
</tr>
<tr>
<td>Brad</td>
<td>5</td>
<td>5</td>
<td>10 x daily</td>
<td>3</td>
<td>3</td>
<td>1-2 x daily</td>
<td>3</td>
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<tr>
<td>Concern</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<td>Yes</td>
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<tr>
<td>Order of Video Clips</td>
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<td></td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td>Chris</td>
<td>5</td>
<td>4</td>
<td>Daily</td>
<td>3</td>
<td>3</td>
<td>1-2 x per week</td>
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<tr>
<td>Concern</td>
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</tbody>
</table>

*Note.* Numerical scores selected from a likert range of 1 to 5, with 1 being the lowest and 5 highest level of severity or concern.

**Teacher Report of Acceptability of Intervention**

The second aspect of social validity was whether the intervention was acceptable. On the same social validity surveys, the teacher was asked whether she would utilize the intervention.
and recommend it to colleagues. Anecdotal statements recorded in the research log provided additional insight into this facet of social validity. Overwhelmingly, the surveys revealed that the teacher would continue using the intervention for all students and would recommend it to others. She indicated that the procedures were acceptable for both Phase BC and C. To bolster this finding, the researcher log also indicates that after intervention had concluded, the teacher asked for the procedures to implement the intervention with an additional student for whom it had not yet been implemented. It should be noted that the teacher did suggest that the intervention changed behavior for Adam for a limited time, only 30-60 minutes after logging. According to the researcher log, the teacher asked if it would be possible for Adam to use the check-in application more frequently throughout the day.

**Student Social Validity**

Student approval of the intervention was demonstrated through the completion of the daily interventions and their willingness to engage, as recorded in the research log. These student social validity measures presented a mixed result. According to the research log, Adam willingly participated in both pull-out and in-class components of the intervention. The permanent product record, or MoodMeter log, revealed that he inputted an emotion and cause for every intervention day. Brad refused to attend or complete the pull-out intervention on four of eleven days attempted. The permanent product record indicated that he was willing to complete the in-class check-in every day during Phase C. Chris willingly left the classroom, however implementation of the intervention was often abbreviated as he sometimes refused to engage in role-play or select an emotion on the log other than ‘bored’ and did not indicate the cause. It should be noted, however, that Chris began to engage in role-play and change his affect during the last three days of the pull-out intervention.
Summary of Social Validity Findings

After reviewing all data, the hypothesis can be confirmed for teacher satisfaction, but cannot be for students. Overwhelmingly, the teacher noticed a meaningful behavior change across students on behaviors that were highly significant. She successfully identified pre- and post-intervention student behaviors on 5 out of 6 surveys. In addition, the teacher indicated that the procedures were acceptable and that she would be interested in both continuing and sharing the intervention with colleagues. The students, however, demonstrated mixed approval with neither phase being preferred over another nor willingly engaging in the entire intervention.

Interobserver Agreement

Twenty percent of all behavioral recordings were cross-analyzed for interobserver agreement. Results reveal 82.4% agreement. This is an acceptable amount of agreement (Gast & Ledford, 2014).

Procedural Fidelity

Two measures of treatment fidelity were included, one for the B component of the intervention (children’s literature read-aloud) and one for C (daily MoodMeter check-in). The review of video-recordings from the B component indicate that, on average, the procedural protocol was followed with 84% accuracy. The C intervention was completed with 100% fidelity.

Attrition

The study began with four participants in a single self-contained classroom for students with severe emotional or behavioral disorders. While there had been a discussion with the classroom teacher to ensure that the class schedule was the most stable during the hours of intervention, as the study progressed, a shift in the timing occurred. Dani was able to complete
the Phase BC pull-out intervention at the beginning of the 30-minute timeframe during which she was most likely to demonstrate her challenging behavior. However, for the first two days of Phase BC, an ‘inclement weather’ schedule was called school-wide resulting in the class transitioning for lunch 10 minutes earlier than expected leaving no time for behavioral observation after the pull-out. Day 3 of Phase BC allowed for the ten-minute observation but the subsequent 3 days included mandated state testing in the computer lab which resulted in transition from the lab to classroom then lunch occurring during the 10 minutes required for behavioral observation. Because of three repeated days without behavioral data, attrition was called and the recording of intervention stopped. For ethical reasons, the student was still provided with the remaining days of BC Phase pull-out intervention. Having lost the student to attrition, her data points have been included in the original sample discussion as well as for baseline, but there are no Phase BC, C, maintenance, generalization, or post-intervention scores.
CHAPTER FIVE

DISCUSSION

Students with emotional disturbance (ED) demonstrate reduced academic and life outcomes. They generally receive low standardized test scores and classroom grades and are at an elevated likelihood of bullying behavior, disciplinary exclusion, and drop-out. In addition, less than half enroll in post-secondary institutions and most demonstrate low rates of employment. Those who are employed often earn minimum wage and are less likely to be financially independent than their same age peers.

While best- and promising practices have been identified to combat these outcomes, longitudinal research indicates that students with ED continue to realize the same poor outcomes. Thus, the current interventions in practice, such as a behavioral approach, can be assumed not to be meeting the needs of all students in this category. Instead, it is suggested that a cognitive or skills-based approach be utilized to address the perceived limitations of external stimuli in longstanding behavior change. The promise of such practices has been highlighted in recent literature. In addition, many researchers (e.g. Dunlap et al., 2006) call for earlier intervention. Upon review of the evidence-based practices utilized with students during these early childhood years (birth through 8), one clear set of interventions emerges, those focusing on social-emotional learning (SEL). Practices utilized to teach such often also fall within the range of cognitive, skills-based approaches.

Extant literature has analyzed the effects of cognitive behavior interventions (CBI) for students with ED and SEL for young children, but no literature yet exists that combines both practices for the intersectional population of young children with ED. Thus, this research study sought to merge the two fields by focusing on a specific subset of SEL, emotional intelligence,
provided through an intervention that relies on the use of cognitive strategies to shape behavior
taught using methods that align with early childhood practices. The purpose of this study was to
examine the effects of an emotional intelligence intervention on the performance of young
students receiving special education in a self-contained classroom for students with emotional
disturbance in the areas of time-on-task, frequency of challenging behaviors, and emotion
knowledge. Data was collected via a multiple baseline, with multiple probes, across participants
to analyze the following five research questions:

1: Is there a functional relationship between an emotional intelligence intervention and
increased level of self-regulation as indicated by time-on-task and frequency of disruptive
behavior in young elementary students receiving services in a self-contained setting for
students with emotional disturbance?

2: Does an emotional intelligence (EI) intervention improve emotional intelligence, as
indicated by an increased score on an emotional intelligence rating scale, for young
elementary students receiving services in a self-contained setting for students with
emotional disturbance?

3: Do young elementary students receiving services in a self-contained setting for
students with emotional disturbance maintain the effects of an emotional intelligence
intervention through the use an emotion check-in application alone?

4: Is there a generalized impact of the emotional intelligence intervention across school
settings on the behaviors young elementary students receiving services in a self-contained
setting for students with emotional disturbance?

5: Do students and teachers report a high level of satisfaction with an emotional
intelligence intervention?
The discussion that follows includes a summary of findings as they relate to current literature, limitations of the current study, recommendations for future research, practical implications, and conclusions.

**Research Question 1**

Is there a functional relationship between an emotional intelligence intervention and increased level of self-regulation as indicated by time-on-task and frequency of disruptive behavior in young elementary students receiving services in a self-contained setting for students with emotional disturbance?

It was expected that the implementation of an emotional intelligence (EI) intervention would increase the time-on-task and decrease the frequency of disruptive behavior for young elementary students receiving services in a self-contained setting for students with emotional disturbance (ED). Because EI is a skill, it was also predicted that this effect will be maintained through the use of a check-in application alone. Visual analysis and the calculation of effects revealed mixed results across dependent variables and between participants.

As evidenced by the great amount of overlap between phases, the intervention did not demonstrate a strong functional relationship with student demonstrations of individualized challenging behaviors, including tantrumming, whining, and interruptions. However, all participants’ data reveal a slow decelerating trend suggesting intervention effect. While seemingly positive, these results must be viewed with caution because this gradual reduction of behavior may be accounted for by maturation, rather than a true causal relation to the intervention (Kratochwill et al., 2010). The inability to discern between intervention effect and maturation may be related to low base rates of problem behavior (Bierman & Welsh, 1997).
The measure of time-on-task revealed mixed results across participants, however offers promising support for the intervention. There was a positive functional relation between the intervention and time-on-task for Adam. As intervention continued, Adam increased the duration of time spent engaged in classroom activities. This effect was seen immediately upon implementation of the intervention and continued across slow withdrawal of intervention components. It was even maintained after complete removal of the intervention.

There was also a functional relation between time-on-task and the intervention for Chris. During the shift into the combined BC phase, the effects were seen immediately and were maintained with a continued accelerating trend. As the intervention was removed during the transition to C-only, there was decrease in time-on-task and a shift towards a gradual decelerating trend. While the overall level of time-on-task remained above baseline, the trend suggests that the effects of the intervention would not be maintained. The maintenance probes, however, revealed an immediate level change towards the BC phase levels, indicating that the intervention had in fact improved time-on-task overall from baseline and was maintained.

The demonstration of a decrease in challenging behaviors and increased time-on-task align with existing single case literature performed to demonstrate the effect of cognitive behavior modifications on students with emotional or behavioral delays. In a similar study, Blood et al. (2011), analyzed the effects of combined video-modeling and self-monitoring via an iPad touch for a 10-year-old with ED. Denune (2015) utilized a withdrawal design to analyze the effects of a group contingency intervention with self-monitoring on 14 middle school students with ED. Hansen et al. (2014) looked at the effects of a functionally-based reward contingency combined with self-monitoring for 3 students with ED in a self-contained program. Kamps, Conklin, and Wills (2015) looked at the same variables while using a whole class group
contingency combined with individual self-monitoring. Finally, Wills and Mason (2014) looked at the use of a self-monitoring application for two high school freshman boys demonstrating disruptive behaviors. As with the current research, all of these published studies found an increase in time-on-task and a decrease in the frequency of disruptive behaviors.

The results from the current study also align with the findings from the early childhood field as well. Interestingly, very few studies analyzed the effect of SEL interventions on classroom behavior. The studies that do look at intervention effect on behavior do not rely on direct observation and measures of student behavior. Instead, all studies utilized teacher report methods including published and researcher-developed rating scales. For example, McCormick, O’Conner, Capella, and McClowry (2015) found that disruptive and off-task behaviors decreased according to behavior inventories completed by the teacher before and after the intervention. Similarly, Nix et al. (2016) found that young children engaged in the Preschool REDI intervention were more likely to decrease aggressive or oppositional behavior and to increase learning engagement on assorted scales.

If looking at behavior at all, other SEL research has looked at broader categories, such as social behaviors and skills. For example, Kramer, Calderella, and Christensen (2010) found a significant difference between pre- and posttest scores on the School Social Behavior Scale and Social Skills Rating Systems. Coombs-Richardson, Myran, and Tonelson (2009) found a large increase in ‘social skills behaviors’ after implementation of the Connecting with Others curriculum. Many of the SEL studies cited the limitation of a lack of direct measure of behavioral impact. The current research has expanded upon extant studies by incorporating such a direct measure by utilizing external observation of classroom behavior as the primary data source.
Brad’s data reveal such variability and overlap between phases that a true functional relation could not be determined. While there was a functional relation between the intervention and time-on-task for the other two participants, there was also a slight dissimilarity even between the remaining two students’ data seen during the transition from the combined BC intervention to the C-alone intervention. These combined differences indicate a limitation of the overall effectiveness of the intervention.

Although this finding was unexpected, the lack of entirely positive results may be related to different ideas grounded in extant literature. First, it should be noted that the intervention was developed as a holistic package, incorporating all hierarchical skills of EI. Because EI has never been studied with this population before, there was no way to determine with which aspect of emotional intelligence young students with ED might demonstrate the greatest difficulty and need. In addition, all other literature related to specifically EI interventions has been performed with a comprehensive intervention as well (see Brackett, Reyes, Rivers, Elbertson, & Salovey, 2012; Brackett, Rivers, Reyes, & Salovey, 2012; Hagelskamp, Brackett, Rivers, & Salovey, 2013; Reyes, Brackett, Rivers, Elbertson, & Salovey, 2012; Rivers, Brackett, Reyes, Elbertson, & Salovey, 2013). Because of this packaged intervention, though, the variability of results may be linked to differing skills and needs among participants. Adam was a Kindergarten student who had received very little early childhood instruction. It can be assumed, then, that he may have had very little prior exposure to SEL curricula while the older students had spent some time in early childhood special education settings where they may have been exposed to such. While the true extent of prior exposure to SEL interventions is unknown, Kazdin (2009) suggests that older children, in general, show more mixed responses to treatment when compared to younger students.
Second, a lack of findings may be related to a lack of prior understanding of EI with this population. Dunsmore, Booker, and Ollendick (2013) propose that instead of developing missing skills, EI instruction may lead to more calculated children that know how to use their skills to manipulate situations in their favor. Because of this, and as reflected in other skill-training literature on students with ED, skill instruction may not be the best route.

Finally, a comprehensive meta-analysis on SEL intervention research revealed that interventions given in-class and by school staff effect more results than pull-out interventions implemented by non-staff members (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). While the interventionist attempted to establish herself as a class fixture from the start of the school year by coming to the open house and volunteering in class at least three times a week prior to the start of the intervention, she was still not an employee of the school nor was the BC-intervention provided in a classroom with which the students had familiarity. Bierman & Welsh (1997), suggest, though, that interventions impacting internalizing and externalizing behaviors, specifically, should be more intensive and implemented with individuals or in small groups.

**Research Question 2**

**Does an emotional intelligence intervention improve emotional intelligence, as indicated by an increased score on the Behavior Assessment System for Children, Second Edition (BASC-2), for young elementary students receiving services in a self-contained setting for students with emotional disturbance?**

It was expected that an EI intervention would lead to increased scores on the EI rating scales for young elementary students receiving services in a self-contained setting for students with emotional disturbance. Previous research on the development of EI measures (Rivers et al., 2012) and studies on the effects of EI interventions have used the BASC in relation to EI (see
Brackett, Rivers, Reyes, & Salovey, 2012). However, the latter research utilized a quasi-experimental design that included a control and intervention group and thus was able to run statistical analyses on the pre- and posttest BASC scores. Brackett et al. (2012) found significantly higher adaptability scores and lower scores on school problems between control and intervention groups, but did not note significant changes on the BASC composite scores of externalizing and internalizing problems between groups. Pre- and posttest comparison for the intervention group alone did, however, indicate deterioration or increasing scores over time in externalizing and internalizing problems.

While statistical analyses could not be run for the current study, a summary of findings reveal little to no change for Adam, but improvements in the average scores on at least three BASC-2 subscales for the other two participants. Interestingly, the scales for which the two students demonstrated improvement included those specifically targeted by the intervention. Just as direct observation measured time-on-task and externalizing challenging behaviors, so the BASC-2 scores revealed improvements on related hyperactivity and attention scales.

Similar analyses were performed for the SDQ. Again, there were minimal differences noted for Student A over time. However, the other two participants saw improvements on two subscales.

The results from the current study run counter to the one previous study that utilized the BASC as a measure for an EI intervention. The results from the current study indicate minimal but apparent improvement on these measures, rather than the previously noted declines (Brackett et al., 2012). These findings suggest marginally positive effect of the intervention, thus supporting the original hypothesis, even if not quantitatively significant.
These findings should be guarded. First and foremost, the tools used fall under a broader category of measures of social and emotional skills. Extant options specific to EI [e.g. the EQ-i:YV (Bar-On & Parker, 2000) and the MSCEIT (Brackett, Rivers, Salovey, 2011)] have not been normed on children as young as the target population. Beyond the slight mismatch of measurement selection and intended variable, previous literature from the broader SEL intervention research that has utilized the BASC (e.g. Graves et al., 2017) suggests that this tool may not be intended for use as a monitoring tool, although the associated users’ guides make no mention of this limitation specifically. Other research has echoed this call for more sensitive measures and identify a need for the development of a proximal EI measurement for young children (Denham, Ferrier, Howarth, Herndon, & Bassett, 2016; Nathanson, Rivers, Flynn, & Brackett, 2015). Thus, the present study aligns with and adds to an existing call for such a measure.

**Research Question 3**

**Do young elementary students receiving services in a self-contained setting for students with emotional disturbance maintain effects once all components of the intervention have been removed?**

It was expected that effects of an emotional intelligence intervention would be maintained after removal. Visual analysis revealed that all students maintained their intervention levels of improved time-on-task and challenging behavior.

These findings support the conceptualization of emotional intelligence as a skill that can be taught and improved (e.g. Mayer & Salovey, 1997). Often behaviors such as time-on-task and incidences of challenging behaviors are considered reversible and thought to return to baseline levels when an intervention is removed (Gast & Ledford, 2014). A maintained level of
behavior with the removal of the intervention suggests that the true dependent variable may have been a non-reversible behavior or skill. Similar maintenance results are found with SEL interventions. Durlak, Weissberg, Dymnicki, Taylor, and Schellinger (2011) found that 33 of the studies included in their meta-analysis included follow up data, all of which showed that results were maintained. This held true across all outcome measures, ranging from social-emotional and behavioral skills to academic effects.

The results of the current study are also in line with findings from CBI research. Using self-monitoring cards with students with ED, Levendoski and Cartledge (2000) found that levels of time-on-task were maintained without intervention. Bialas and Boon (2010) and Shogren Lang, Machalicek, Rispoli, and O’Reilly, (2011) demonstrate similar results.

**Research Question 4**

Is there a generalized impact of the emotional intelligence intervention across school settings on the identified behaviors of young elementary students receiving services in a self-contained setting for students with emotional disturbance?

It was hypothesized that school staff would report improvement across school settings for young elementary students receiving services in a self-contained setting for students with emotional disturbance. Within the classroom and across generalization settings, the SPTA and specialists reported a decrease in challenging behavior of some kind for all participants who completed the intervention. For all students, all participants suggested they had seen a decrease in the challenging behavior at some point. For other measures, at least two staff members per student marked that they decreased their ratings of the ‘disturbingness’ of the behavior or recorded a decreased frequency. So, while not all students consistently scored lower across all
survey questions, each student saw at least one indicator of a change in classroom behavior across settings and at least two staff members noted each of these decreases.

These results mirror findings from previous SEL literature. Domitrovich et al. (2010) found that effects from Preschool PATHS curriculum generalized across settings into a different center areas within the classroom. Other SEL studies, though, identify the need for a measure of generalization as a limitation and direction for future research (e.g. Merrell, Juskelis, Tran, & Buchanan, 2008). This is also true with CBI literature and even more prevalent among single case research designs (e.g. Axelrod et al., 2009; Bialas & Boon, 2010; Denune, 2015; Hansen et al., 2014; Stahr et al., 2006; Wills & Mason, 2014). Noting these calls, the current study implemented a survey measure. Future research, however, should include an actual behavioral observation across settings to eliminate potential teacher bias.

**Research Question 5**

**Do students and teachers report a high level of satisfaction with an emotional intelligence intervention to decrease challenging behaviors and increase time-on-task?**

It was expected that students and teachers would both report a high level of satisfaction with the emotional intelligence intervention. This research question revealed mixed results. The teacher indicated that all behaviors selected were of social import and stated that she had seen at least temporary reductions in behaviors that she associated with the application of the intervention. The teacher also indicated that she would continue using the intervention for all students and would suggest it to colleagues, actually asking for the intervention procedures upon completion of the study. Conversely, students did not rate the intervention with such high approval. The youngest of the group participated fully 100% of the time while the older students demonstrated withdrawal or refusal when asked to participate.
The findings expand on current SEL literature, as the majority of all SEL research has excluded a social validity measurement. In fact, only four included any measure of social validity and these only looked at whether the teachers felt that the intervention was appropriate (Graves et al., 2017; Gunter, Caldarella, & Korth, 2012; Kramer, Caldarella, & Christensen, 2010; Linares et al., 2005).

While research on cognitive behavior interventions (CBIs) using single case research designs much more frequently rely on measures of social validity, these often only included teacher indicators. Thus, the current study also expands on CBI literature to include a measure of student-intervention goodness of fit. The results from the current study are in line with most CBI literature, as most teachers have found the implementation of CBIs to be acceptable and behavior change meaningful (Axelrod et al., 2009; Bialas & Boon, 2010; Briesch & Daniels, 2013; Denune, 2015; Hansen et al., 2014; Hoff, 2012; Shogren et al., 2011; Wills & Mason, 2014). Of the CBIs that included student social validity scores, both were taken via surveys. Blood et al. (2011) revealed that while teachers indicated that they liked the intervention and found it successful, students had different reactions while Levendoski and Cartledge (2000) indicated that students liked self-monitoring. Thus, the current study’s measure of student reaction to the intervention recorded via research log expands possibilities for future studies.

It should be noted, though, that while the current study is applauded for innovative inclusion of both teacher- and student social validity measures, Hawkins (1991) and other researchers have suggested that consumer opinion is not necessarily the best measure of merit. They claim that the measure is less credible than a professional’s judgement (Hawkins, 1991). While their hesitation is merited, a central focus of this research design was the practicality and real-world application. This is evidenced by the transition from intrusive researcher-
implemented pull-out interventions to teacher-implemented push-in intervention. Thus, a measure of social validity or ‘real world merit’ was highly important for the aims of the current research.

**Limitations**

While the current research study demonstrates promise as a teacher-approved and potentially impactful intervention for classroom behavior, there are still a number of limitations that must be recognized. First, this study employs a multiple probe across participants design (Horner & Baer, 1978). As such, the standard critiques of this research methodology apply (Gast & Ledford, 2014). These include the use of a very small sample, lack of intra-personal replication or return to baseline, limited generalizability, and possible maturation effects.

Another limitation is participant variability among the sample selected. The participants used came from a convenience sample of willing and available students in the local district. While the original inclusion criteria established a call for students with externalizing behaviors, the BASC-2 and SDQ results reveal that the study participants also demonstrated high levels of internalizing issues as well. In fact, for some participants, lack of engagement, otherwise called withdrawal which is classified as an internalizing behavior, should have been their targeted ‘challenging’ behavior. The external behavior that was selected for the study was not as important to the teacher as the internalized option.

It should also be noted that this study was conducted with the youngest students identified to receive special education under the label of ED. Because students at this age aren’t commonly identified, it may be suggested that this intervention was applied to extreme cases. In either case, the results may not be generalizable to a seemingly similar set of students, or to
either older students with ED or to other young children demonstrating challenging behaviors who are not identified as requiring special education under this label.

The short duration of the intervention presents as another possible limitation. In line with single case research, the study was designed to be a short-duration intervention. However, the majority of SEL research has explored the effect of year-long or multi-year implementation of interventions. While single case research cites the importance of the immediacy of effect on student behavior, EI is part of the social-emotional skillset and thus may take longer to develop or fully effect student outcomes.

In an effort to alleviate undue burden on teachers, the study was designed to be implemented with the researcher as interventionist. This however, poses another set of possible limitations. An attempt to assuage these limitations, the researcher kept a research journal and completed fidelity checks. However, with these two protective measures, it is still possible that bias affected the implementation and/or results. Because the researcher used professional judgement to gauge the student engagement and/or direction the intervention should go each day, she did not adhere 100% to the pre-determined procedures. For example, if she deemed that there were no alternate behaviors required for a ‘calm happy’ emotion, this component of the procedure was left out. This use of what has been identified as ‘professional judgement’ may also be seen a lack of fidelity to the intervention and may have altered the effect of the intervention on student outcomes.

As noted above, the BASC and SDQ are not measures of emotional intelligence, but rather are meant to measure those broader SEL skills that encompass EI. While utilized in other research involving emotional intelligence interventions, there is a call for a more specific
measure of EI for this age and population. Similarly, it is unclear whether either measure selected is sensitive enough to serve as a pre-post measure to be utilized after only 2-3 months.

Because there is a paucity of research on the area, the field has not yet identified in which of the hierarchical components of emotional intelligence (EI) students with ED may present difficulties. The proposed study incorporates all hierarchical components of the skill into one intervention, but has not included a way to systematically determine EI skills prior to the intervention. In addition, there has been no previous research on whether students with ED lack these skills. The current research required an assumption based on the strong correlational research around EI indicating that students with stronger EI skills demonstrate superior outcomes on which students with ED frequently perform poorly.

Just as the research could not parcel out EI skill deficits, the design also did not include a way to parcel out the component of the intervention package that was the most successful. While this was purposeful, as the researcher felt that it is important to first test a holistic EI intervention to see if there is an effect before systematically identifying which intervention component is most essential for students with ED, it does identify another limitation.

The demonstrations of challenging behavior were quite low and variable across all participants during the 10 minutes of daily observation. Behavioral data from the classroom revealed that there were often demonstrations of the targeted challenging behavior outside of the observation periods, even on days that the participant may have appeared 100% on-task or have demonstrated no incident of behavior during the study observation session. While the researcher attempted to identify the time each student was most likely to engage in their behavior, students are human and thus vary in their day-to-day behaviors. In addition, antecedent triggers may
present themselves across the school day as classroom schedules often vary based on special events or weather.

Finally, generalization measures were limited to specialist report gathered through a likert-format survey taken once before and once after intervention for each participant. While the inclusion of the generalization measure is a strength of the design, it relies solely on the opinions of two teachers, rather than on an objective outside observer providing an observed behavioral measure in those generalized locations.

**Future Research Directions**

Future research should include replication of the current single case study. Researchers should adhere to strict participant selection criteria, rather than allow a convenience sample, and attempt to include at least five participants for greater demonstrations of effect. During this replication, researchers should also strive to improve procedural fidelity by perfecting the procedure checklists and/or adhering more closely. Additional components to consider for future studies include a parent generalization survey as well as behavioral observations of this generalization as well as more maintenance probes included.

Future research could also move beyond replication and include an examination across student behaviors to determine on which the intervention demonstrates the greatest effect. In addition, researchers should focus attention to participant age within the early childhood years to see if the practices are more effective with older or younger students. As the current study took place on a comprehensive campus but in a self-contained setting, it is recommended that researchers also expand across settings. Finally, like other SEL research, future studies should be conducted across other outcome measures including academics. Previous SEL research has
included academic measures because typically time-on-task is only valued if it increases the time spent engaged with academics.

If a larger sample size were available, future research should strive to utilize a pre-post quasi-experimental design that implemented the intervention across a school year, as has been completed for all EI intervention research performed with the general education population. This would allow for the inclusion of a broader set of dependent variables, including improved academics and other more distal measures.

This study promotes a call to further research emotional intelligence among the student population with emotional and behavioral disorders. It would be beneficial to determine if skill delays exist, or if students with ED have these skills, but elect not to utilize them as has been shown with other skill-based interventions for this population. Further, it would be interesting to see what subskills of EI students with ED demonstrate to better hone an intervention.

Additional thoughts for future research options include utilizing a design that would allow for comparisons of the component parts of the current EI intervention. Such a study would compare the literature only, check-in only, and combination options. Other ideas involve looking at the behaviors across whole days, rather than those caught during the 10 minutes of observation, utilizing the teacher as interventionist, and analyzing the feasibility of removing researcher support or interference. It may also be interesting to see if the emotion color logged (yellow, green, blue, or red) is associated with demonstrations of challenging behavior during the subsequent period of observation. Finally, as has been the call with a number of EI researchers, this study again highlights the need for a more sensitive measure of EI to be used as a probe and measure of the hierarchical skills of EI with the target age of early childhood.
Conclusions and Practical Implications

The hunt for best practices serving the needs of the youngest children presenting with the most serious emotional and behavioral needs remains and presents itself as an area ripe for research. Although there are extant interventions in both the ED and ECE fields, early childhood teachers continue to cite challenging behaviors as an area for concern, even citing them as the reason for burnout or leaving the classroom (Quesenberry, Hemmeter, & Ostrosky, 2011; Schultz, Coombs-Richardson, Barber, & Wilcox, 2011). This study expanded on previous research by developing an intervention based on the theory of emotional intelligence using approaches found from both the fields of early childhood and special education for students with ED. It demonstrates the possibility of intersectional research and highlights the need thereof.

The current study also exposes an interesting discussion that must be held moving forward: the benefits of early identification for special education versus improved teacher preparation of all early childhood practitioners. There are some in the field who feel that early identification leads to improved access to specialists and highly trained professionals who would best be able to meet the needs, and thus change the trajectories, for the youngest students with ED. The opposition, though, suggests that early labeling actually sets students on the path for diminished outcomes. They cite the stigma of the label in general as well as the possible ties to racial or socio-economic disparities seen in the over- and underrepresentation of students within this category. Proponents of this opinion propose that labeling leads only to negative trajectories, and instead support the concept of universal pre-k with higher professional standards for teachers. They suggest that providing universal pre-k would alleviate any social or racial disparities related to school readiness, and thus weed out many unnecessary or false special education identifications. Instead of labeling earlier, the option may be giving ECE teachers the
skills often associated with special education or ED specialists that would shape behavior of their students more successfully.

Finally, the results reveal that emotional intelligence is an area that should be further explored among students with ED. As noted previously, there is little research on whether students with ED demonstrate aptitude with skills along the EI hierarchy. If students with ED have these skills, further research can inform the debate of whether skill instruction is beneficial for students within this disability category. If they do not have the skills, and because the correlational research aligns so well with improvements in the areas for which students with ED demonstrate delays, it suggests that EI interventions may be a direction ripe for additional exploration.

In conclusion, this study served as small example of the potential of an EI intervention for young children with emotional and behavioral disorders. It revealed that there is a paucity of intervention research aiming to support the needs of this population and highlights the importance of continued research in this area. Interventions that can successfully shape student behaviors at an early age have the greatest potential to alter their trajectories and avoid dismal school and life outcomes.
APPENDIX A

TEACHER INFORMED CONSENT FORMS
INFORMED CONSENT
Department of Educational and Clinical Studies

TITLE OF STUDY: Emotional Intelligence Intervention for Young Children with Emotional and Behavioral Disorders

INVESTIGATOR(S): Tracy Spies, Ph.D., Cori More, Ph.D, and Kristin L. Withey, M.Ed.
For questions or concerns about the study, you may contact Kristin Withey at kristin.withey@unlv.edu.

Additional questions may be addressed to Drs. Tracy Spies and Cori More at tracy.spies@unlv.edu or cori.more@unlv.edu or contact the department at 702-895-3205.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794 or via email at IRB@unlv.edu.

Purpose of the Study
You are invited to participate in a research study. The purpose of this study is to determine whether there is a functional relationship between the use of an emotional intelligence intervention and an increase in on-task / decrease in challenging behavior. In addition, it looks to answer whether there is social significance of this intervention on students’ abilities to function in the school environments.

Participants
You are being asked to participate in the study because you fit this criteria: primary SEC classroom teacher of students labeled with emotional disturbance.

Procedures
If you volunteer to participate in this study, you will be asked to do the following:
1) Assess the acceptability and behavioral impact of the intervention at three intervals: a) during baseline, b) mid-intervention, and c) post-intervention. Prior to the completion of the mid- and final surveys, you will be shown random video clips of your student, one from the baseline and one towards the end of intervention condition. You will then be asked to complete a 5-question 3-point Likert scale survey (3 = agree; 2 = neutral; 1 = disagree). Example questions include the following: a) were the behaviors changes

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significant to merit use of the intervention, and c) how likely are they to continue using the intervention.
2) Complete a pre- and post-intervention student rating on the BASC-3 and Strengths and Difficulties Questionnaire.
3) Complete a teacher demographic questionnaire

As a courtesy, the research team would like to inform you of additional time involvements required if you consent to participate. These include:
1) Identification of students who matches the study participant criteria (see attached)
2) Work with the researcher to define the focus behavior in terms that are comprehensible to all involved
3) Allow the researcher, Kristin Withey, into your class to video-record your student for up to five observations a week for a total of 10 minutes per observation day during the time at which the identified student is most likely to exhibit their target behavior.
4) Allow the researcher, Kristin Withey, to remove the student for daily 15-minute intervention sessions at the time slot that best meets the student and teacher needs, most likely during standard class intervention time.
5) During the C phase of this study, the pull-out intervention will stop and the classroom teacher will be asked to present the student with the iPad log once daily, at the designated time during which challenging behavior is most likely to occur.

**Benefits of Participation**
There may/may not be direct benefits to you as a participant in this study. However, we hope to build a research base supporting an additional easy-to-use behavior intervention for teachers in the field to alleviate challenging behavior. Should the research be successful, the research team will offer professional development / instructions / guidance on the continued use of the intervention should you so choose.

**Risks of Participation**
There are risks involved in all research studies. This study may include only minimal risks. There will be a time requirement involved in completing the three social validity measures and student rating scales. Additionally, the demographic questionnaire will ask for minimally invasive personal information, such as years teaching and ethnicity. Finally, there may be minimal there may be initial excitement from students at the presence of a researcher.

**Cost /Compensation**
There will not be financial cost to you to participate in this study. However, there are time costs you must be aware of. The study will take around 90 minutes total of your time. Before intervention begins, you will be asked to complete a 5-minute demographic questionnaire. In addition, you will be asked to complete three social validity probes: once during baseline, once mid-intervention, and once post-intervention (15 minutes each). Finally, you will be asked to complete one BASC-3 and Strengths and Difficulties questionnaire pre- and post intervention (20 minutes each time). Please see table for clear explanation.

#1110441-2, Expiration: 09-30-2018
<table>
<thead>
<tr>
<th>Pre-intervention</th>
<th>Mid-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic Questionnaire</td>
<td>Social Validity Questionnaire</td>
<td>BASC-3 and SDQ Social Validity Questionnaire</td>
</tr>
<tr>
<td>BASC-3 and SDQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Validity Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 min</td>
<td>15 min</td>
<td>25 min</td>
</tr>
</tbody>
</table>

In addition, the intervention phases will include 50 minutes of researcher presence in your class each week.

You will not be financially compensated for your time, but the researcher will offer professional development / instructions / guidance on the continued use of the intervention should you so choose.

**Confidentiality**
All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time the information gathered will be deleted from all files and the computer trash will be securely emptied.

**Voluntary Participation**
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with UNLV. You are encouraged to ask questions about this study at the beginning or any time during the research study.

**Participant Consent:**
I have read the above information and agree to participate in this study. I have been able to ask questions about the research study. I am at least 18 years of age. A copy of this form has been given to me.

______________________________  __________________________
Signature of Participant       Date

______________________________
Participant Name (Please Print)

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APPENDIX B

STAFF INFORMED CONSENT
TITLE OF STUDY: Emotional Intelligence Intervention for Young Children with Emotional and Behavioral Disorders

INVESTIGATOR(S): Tracy Spies, Ph.D., Cori More, Ph.D, and Kristin L. Withey, M.Ed.

For questions or concerns about the study, you may contact Kristin Withey at kristin.withey@unlv.edu.

Additional questions may be addressed to Drs. Tracy Spies and Cori More at tracy.spies@unlv.edu or cori.more@unlv.edu or contact the department at 702-895-3205.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794 or via email at IRB@unlv.edu.

Purpose of the Study
You are invited to participate in a research study. The purpose of this study is to determine whether there is a functional relationship between the use of an emotional intelligence intervention and an increase in on-task / decrease in challenging behavior. In addition, it looks to answer whether there is social significance of this iPad-based intervention on students’ abilities to function in the school environments.

Participants
You are being asked to participate in the study because you fit this criteria: SPTA or other staff member working in conjunction with a primary student labeled with emotional disturbance.

Procedures
If you volunteer to participate in this study, you may be asked to do the following:
1) Complete a demographic questionnaire
2) Assess the acceptability and behavioral impact of the intervention at three intervals: a) during baseline, b) mid-intervention, and c) post-intervention. Prior to the completion of the mid- and final surveys, you will be shown random video clips of your student, one from the baseline and one towards the end of intervention condition. You will then be asked to complete a 5-question 3-point Likert scale survey (3 = agree; 2 = neutral; 1 = disagree). Example questions include the following: a) were the behaviors changes significant to merit use of the intervention, and c) how likely are they to continue using the intervention.

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Benefits of Participation
There may/may not be direct benefits to you as a participant in this study. However, we hope to build a research base to support an additional easy-to-use intervention for teachers in the field to alleviate challenging behavior.

Risks of Participation
There are risks involved in all research studies. This study may include only minimal risks. There will be a time requirement involved in completing the three social validity measurements. Additionally, the research team will ask minimally invasive demographic information like years in the profession and current position. There will be no questions asked that could incriminate or lead to identification of the disaggregated responses.

Cost/Compensation
There will not be financial cost to you to participate in this study. The study will take 50-minutes total of your time: the completion of one pre-, mid- and post-intervention social validity form (15 minutes each) and the demographic information form (5 minutes).

Confidentiality
All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time the information gathered will be deleted from all files and the computer trash will be securely emptied.

Voluntary Participation
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with UNLV. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Participant Consent:
I have read the above information and agree to participate in this study. I have been able to ask questions about the research study. I am at least 18 years of age. A copy of this form has been given to me.

Signature of Participant ___________________________ Date ___________________________

Participant Name (Please Print) ___________________________

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APPENDIX C

STAFF DEMOGRAPHIC QUESTIONNAIRE
• Select your age
  o Below 18
  o 18-27
  o 28-37
  o 38-47
  o 48-57
  o 58-67
  o 68 and above

• Select your gender
  o Male
  o Female
  o Other / No Answer

• What is your identified race?
  o Caucasian / White
  o African American / Black
  o Hispanic / Latino
  o Asian
  o American Indian or Alaska Native
  o Native Hawaiian or Other Pacific Islander
  o Two or more races

• What is your job title? (fill in the blank)

• How many years have you been teaching or working in your current profession?
  o 0-4
  o 5-9
  o 10-19
  o 20-29
  o 30-39
  o 40 and above

• How many years have you been teaching or working at your current school?
  o 0-4
  o 5-9
  o 10-19
  o 20-29
  o 30-39
  o 40 and above
APPENDIX D

OVERVIEW OF STUDY SCHEDULE
### Timeline of Study

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-intervention Phase</td>
<td>Recruitment, consent/assent, pre-intervention surveys, scatterplot assessment and behaviors, operationalized, interrater training</td>
<td>Aug 9 – Nov 14</td>
</tr>
<tr>
<td>Baseline</td>
<td>Five consecutive observations for all participants then probe. Business as usual.</td>
<td>11/15 11/15 11/15 11/15</td>
</tr>
<tr>
<td>Thanksgiving Break</td>
<td>No school for staff and students</td>
<td>11/18 – 11/26</td>
</tr>
<tr>
<td>Phase BC</td>
<td>Eight consecutive days of pull-out intervention</td>
<td>11/29 12/6 12/13 01/08</td>
</tr>
<tr>
<td>Mid-Intervention Survey</td>
<td>Teacher social validity surveys</td>
<td>12/08 12/21 1/18</td>
</tr>
<tr>
<td>Winter Break</td>
<td>No school for staff and students</td>
<td>12/23 – 01/07</td>
</tr>
<tr>
<td>Phase C</td>
<td>Daily in-class emotion log. Probe format</td>
<td>12/11 12/22 01/19</td>
</tr>
<tr>
<td>Post-Intervention Survey</td>
<td>Teacher and staff post-intervention surveys</td>
<td>01/25 01/25 01/25</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Probe for all participants. Business as usual.</td>
<td>02/01 and 02/22</td>
</tr>
</tbody>
</table>
APPENDIX E

STRENGTHS AND DIFFICULTIES QUESTIONNAIRE
Strengths and Difficulties Questionnaire

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behavior over the last six months or this school year.

Child's name .............................................................................................. Male/Female
Date of birth...........................................................           

<table>
<thead>
<tr>
<th></th>
<th>Not True</th>
<th>Somewhat True</th>
<th>Certainly True</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considerate of other people's feelings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restless, overactive, cannot stay still for long</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often complains of headaches, stomach-aches or sickness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shares readily with other children, for example toys, treats, pencils</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often loses temper</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rather solitary, prefers to play alone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generally well behaved, usually does what adults request</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many worries or often seems worried</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helpful if someone is hurt, upset or feeling ill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constantly fidgeting or squirming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has at least one good friend</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often fights with other children or bullies them</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often unhappy, depressed or tearful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generally liked by other children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easily distracted, concentration wanders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nervous or clingy in new situations, easily loses confidence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kind to younger children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often lies or cheats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picked on or bullied by other children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often offers to help others (parents, teachers, other children)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thinks things out before acting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steals from home, school or elsewhere</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gets along better with adults than with other children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many fears, easily scared</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good attention span, sees work through to the end</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Signature .................................................................   Date .................................................................

Parent / Teacher / Other (Please specify):

Thank you very much for your help

© Robert Goodman, 2005
APPENDIX F

BASELINE SOCIAL VALIDITY SURVEY
Describe the “challenging” behaviors that you feel your student is demonstrating.
Examples include tantrums, refusal to complete work, hyperactivity.

How severe would you say the behavior is? (1 = “unnoticeable” to 5 = “highly disturbing”)

1 --- 2 --- 3 --- 4 --- 5

How often does your child demonstrate the behavior?
Examples include five times a day, every day, twice a week, etc.

Where does this behavior happen most often? Examples include the art room, playground, etc.

Is there a certain time of day during which the behavior is most likely to occur?
Examples include during direct instruction, independent work time, before transitions, etc.
How concerned are you about you’re the behavior you mentioned above? (1 being “I am not concerned about it” to 5 being “I am very concerned about the behavior.”)

1--- 2 --- 3 --- 4 --- 5
APPENDIX G

MID- AND POST- INTERVENTION SOCIAL VALIDITY SURVEYS
<Original description of the behavior provided here>

Please watch the two video clips.

Which of the two do you believe showed your child before the start of the intervention?

Which of the two video clips do you believe showed your child after the intervention?

Did you notice a difference or change in the behavior?

How severe would you say the behavior is now? (1 being “unnoticeable” to 5 being “highly disturbing”)

1 --- 2 --- 3 --- 4 --- 5

How often does your child demonstrate the behavior now? Examples include five times a day, every day, twice a week, etc.

Were the changes in behavior great enough to make you want to continue using this intervention?
How concerned are you about the behavior you mentioned above? (1 being “I am not concerned about it” to 5 being “I am very concerned about the behavior.”)

1 --- 2 --- 3 --- 4 --- 5

How likely are you to continue using this intervention in the future?

Would you recommend this intervention to others?

Overall, the procedures of the intervention: (circle one)

were acceptable, require too much time to implement, would be easy to implement.
APPENDIX H

STAFF POST-INTERVENTION GENERALIZATION SURVEY
Have you noticed a difference or change in the behavior?

How severe would you say the behavior is now? (1 being “unnoticeable” to 5 being “highly disturbing”)

1 --- 2 --- 3 --- 4 --- 5

How often does your child demonstrate the behavior now? Examples include five times a day, every day, twice a week, etc.

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

How concerned are you about the behavior you mentioned above? (1 being “I am not concerned about it” to 5 being “I am very concerned about the behavior.”)

1 --- 2 --- 3 --- 4 --- 5
### Table 7

**Emotional Intelligence Book List**

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Emotion</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Stuck with the Blooz</em></td>
<td>Caron Levis</td>
<td>Sad</td>
</tr>
<tr>
<td><em>Celia</em></td>
<td>Christelle Vallat</td>
<td>Sad</td>
</tr>
<tr>
<td><em>Michael Rosen’s Sad Book</em></td>
<td>Michael Rosen</td>
<td>Sad</td>
</tr>
<tr>
<td><em>My Friend is Sad</em></td>
<td>Mo Willems</td>
<td>Sad</td>
</tr>
<tr>
<td><em>The Quiet Book</em></td>
<td>Deborah Underwood</td>
<td>Calm</td>
</tr>
<tr>
<td><em>Houndsley and Catina and the Quiet Time</em></td>
<td>James Howe</td>
<td>Calm</td>
</tr>
<tr>
<td><em>When I was Young on the Mountain</em></td>
<td>Cynthia Rylant</td>
<td>Calm</td>
</tr>
<tr>
<td><em>A Quiet Place</em></td>
<td>Douglas Wood</td>
<td>Calm</td>
</tr>
<tr>
<td><em>And if the Moon Could Talk</em></td>
<td>Kate Banks</td>
<td>Calm</td>
</tr>
<tr>
<td><em>Polly Molly Woof Woof</em></td>
<td>David Lloyd</td>
<td>Happy</td>
</tr>
<tr>
<td><em>Anna’s Hibiscus Song</em></td>
<td>Atinuke</td>
<td>Happy</td>
</tr>
<tr>
<td><em>Taking a Bath with the Dog and Other Things That Make Me Happy</em></td>
<td>Scott Menchin</td>
<td>Happy</td>
</tr>
<tr>
<td><em>Anh’s Anger</em></td>
<td>Gail Silver</td>
<td>Angry</td>
</tr>
<tr>
<td><em>The Day Leo Said I Hate You</em></td>
<td>Robie H. Harris</td>
<td>Angry</td>
</tr>
<tr>
<td><em>When Sophie Gets Angry – Really Really Angry</em></td>
<td>Molly Bang</td>
<td>Angry</td>
</tr>
<tr>
<td><em>Sometimes I’m a Bombaloo</em></td>
<td>Rachel Vail</td>
<td>Angry</td>
</tr>
<tr>
<td><em>Angry Arthur</em></td>
<td>H. Oram &amp; S. Kitamura</td>
<td>Angry</td>
</tr>
<tr>
<td><em>That Makes Me Mad!</em></td>
<td>Steven Kroll</td>
<td>Angry</td>
</tr>
</tbody>
</table>

*Note.* List compiled with through comprehensive search of the Children’s Literature Comprehensive Database and reviewed by three experts in the field.
APPENDIX J

THE MOOD METER
SCIENCE

The Science Behind the Mood Meter

The Mood Meter is one of the “anchors of Emotional Intelligence” in the RULER program. It helps people develop the core RULER skills: Recognizing, Understanding, Labeling, Expressing, and Regulating emotions. The Yale Center for Emotional Intelligence describes it as follows:

The Mood Meter develops emotional intelligence over time. Learning to identify and label emotions is a critical step toward cultivating emotional intelligence. Using the Mood Meter can help you become more mindful of how your emotions change throughout the day and how your emotions in turn affect your actions. Using the Mood Meter can help you to develop self-awareness and self-regulation, it’s important to understand the full scope of your emotional life.

Mood Meter Mobile App Overview

The Mood Meter, a square evenly divided into four quadrants of primary colors, is the centerpiece of the mobile app. Each color quadrant represents a category of moods:

<table>
<thead>
<tr>
<th>RED</th>
<th>YELLOW</th>
<th>BLUE</th>
<th>GREEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>emotions are unpleasant and high in energy, like anger, frustration and anxiety</td>
<td>emotions are pleasant and high in energy, like excitement, joy and elation</td>
<td>emotions are unpleasant and low in energy, like boredom, sadness and despair</td>
<td>emotions are pleasant and low in energy, like tranquility, serenity and satisfaction</td>
</tr>
</tbody>
</table>

First, users consider where their feeling falls on the Mood Meter in terms of how pleasant or unpleasant they feel (x-axis) and how high or low energy they feel (y-axis). As the user plots their feeling on the Mood Meter, the app reveals emotion words tied to each coordinate on the grid.

Each quadrant has 25 emotion words, for a total of 100 emotion words in the Mood Meter.
APPENDIX K

YALE CENTER FOR EMOTIONAL INTELLIGENCE APPROVAL EMAIL
Re: Email to the Yale Center for Emotional Intelligence

Kara McElvaine <kara.mcelvaine@yale.edu>  
To: "kristin.withey@gmail.com" <kristin.withey@gmail.com>  

Tue, Aug 16, 2016 at 6:23 AM

Hi Kristin,

Thanks so much for your email to the Yale Center for Emotional Intelligence. Yes, you have our permission to use the Mood Meter app as a part of your self-regulation intervention for early elementary English language learners with and at-risk of emotional and behavioral disorders. Please do include the name of the app in any publications. Also, please send us any copies of future publications. Many thanks in advance. Best of luck.

Best,
Kara

---
Kara K. McElvaine  
RULER Research Coordinator  
Yale Center for Emotional Intelligence
APPENDIX L

LETTER FOR PARENT SOLICITATION OF INTEREST
August 9, 2017

Dear Families,

My name is Kristin Withey and I am a doctoral candidate at UNLV and former early childhood special education for CCSD. I am currently completing my dissertation on supporting the behavioral needs of young children requiring special education under the label of emotional disturbance through an emotional intelligence intervention. This intervention uses children’s books and an iPad app to teach students how to identify emotions and manage their related behaviors. An example of emotional intelligence includes when a student feels anger, they identify the cause and then select the most appropriate way to deal with that anger, such as using a cool-down strategy.

Your child’s teacher and I are excited to try out this new intervention this school year. We were wondering if you might be interested in finding out more about this study and possibly allowing your child to participate in my dissertation on the effects of this intervention. The entire study will take place at your child’s school during regular school hours and will be of no additional cost to you. If interested in learning more, please detach and return the portion below.

Thanks so much for your time and consideration!

Looking forward to it,

Kristin Withey
Educational and Clinical Studies
University of Nevada, Las Vegas
Kristin.withey@unlv.edu

____. I am interested in learning more about the research study and would consider allowing my child to participate.

Parent/Guardian’s Name: ________________________________

Student’s Name: ________________________________

Please contact me at ____________________________ (cell; home; work; email)

Please circle the best time to contact you:

morning          afternoon          evening          whenever
APPENDIX M

PARENTAL PERMISSION FORMS
TITLE OF STUDY: Emotional Intelligence Intervention for Young Children with Emotional and Behavioral Disorders

For questions or concerns about the study, you may contact Kristin Withey at kristin.withey@unlv.edu.

Additional questions may be addressed to Drs. Tracy Spies and Cori More at tracy.spies@unlv.edu or cori.more@unlv.edu or contact the department at 702-895-3205.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794 or via email at IRB@unlv.edu.

**Purpose of the Study**
Your child is invited to participate in a research study. The purpose of this study is to see if an emotional intelligence intervention using children’s books and an iPad app to track feelings causes an improvement in their behavior.

**Participants**
Your child is being asked to participate in the study because they are a primary student receiving special education services under the identification label of emotional disturbance.

**Procedures**
If you allow your child to participate in this study, they will be participating in a study that will take place over the course of nine weeks and will consist of four phases: baseline, intervention (BC), intervention (C), and maintenance.

Baseline phase will allow the researcher to gather an understanding of your students’ behavior in-class. During this phase, the researcher will observe and video-record the student in the classroom setting for ten minutes per day for a total of five days.

After baseline, intervention phase (BC) will start. This phase will involve two component parts: one out-of-class intervention and one in-class emotion log.

B. The researcher and student will meet daily for 15 minutes during a teacher-identified intervention block. This intervention will use children’s literature to target one of four

#1110441-2, Expiration: 09-30-2018
focal emotions (angry, sad, calm, excited). The researcher will complete a read-aloud to help the student identify the character’s emotion and causes. They will discuss where the character would be plotted on the MoodMeter application (explained in detail later). The researcher will also ask the student to reflect on a time they felt similar feelings, their causes, and how they responded to the emotions. The researcher and student will then consider alternative actions and de-escalation strategies through role-play and discussion. During the very first intervention session, the researcher will also teach the student how to log his/her emotion on the iPad app. The student will be asked to return to his/her classroom after the intervention session.

C. In the classroom, during the ten-minute timeframe the student is most likely to demonstrate their personally-identified “challenging” behavior, the student will be asked to log his/her emotion along with the reason why they are feeling that way on the MoodMeter app. Once the emotion has been logged, the researcher will video-record the subsequent ten minutes in the classroom for behavioral data, analyzing in the same format as during baseline.

After twelve days, the pull-out intervention will stop and the classroom teachers will give the student the iPad log immediately before the ten minutes during which they are most likely to exhibit their individualized challenging behavior. Students will remain in the classroom, log their emotions with the iPad, then return to instruction. The researcher will observe and video-record this exchange along with the subsequent ten minutes of in-class behavior.

The final phase will include two days of in-class observation after all intervention has stopped. These will be completed one week and one month after the last intervention probe has been completed. The goal of this phase is to see if the change in classroom behavior has been maintained even after the removal of the intervention.

In addition, your child’s teacher, SPTA and an additional school staff member (e.g. counselor) will be asked to complete social validity questionnaires rating the usefulness of the intervention.. During these, they will be shown 2 one-minute video clips of your child’s in-class behavior and asked if they notice a change in behavior or not.

Finally, your child’s teacher will be completing a BASC-3 and Strengths and Difficulties Questionnaire about your student. These are standard assessments used by the school system and may sound familiar to you. Most likely your child had a BASC-3 completed by the school psychologist when they were initially qualified for special education.

Benefits of Participation
There may/may not be direct benefits to your child as a participant in this study. However, we hope that this emotional intelligence intervention will help your child develop self-regulation and emotional intelligence and decrease challenging behaviors. Research shows that decreased behaviors and increased time on task leads to an increased benefit from academic instruction.

Risks of Participation

#1110441-2, Expiration: 09-30-2018
There are risks involved in all research studies. However, there are no anticipated risks for participation in this study other than those encountered in day-to-day school life. iPads and individualized behavior interventions are regularly used in classroom settings. Any personal feelings-based discussions will be completed in a private room or logged on the MoodMeter app, to which you and the child’s teacher will have access. All data collected will be disaggregated and will be kept confidential. Any sort of published report of the research study will not include any information that will make it possible to identify your child. Research records will be kept in a locked file; only relevant researchers will have access to the records.

**Cost /Compensation**
There will not be financial cost to you to participate in this study. The study will take 75 minutes per week of your child’s class time. However, your child will be removed at the time deemed least intrusive to their education. In addition, they will be video-recorded for ten minutes each research day in their typical classroom setting. Your child will not be paid for their time.

**Contact Information**
If you or your child have any questions or concerns about the study, you may contact Kristin Withey at Kristin.withey@unlv.edu or her advisors, listed above. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794, or via email at IRB@unlv.edu.

**Voluntary Participation**
Your child’s participation in this study is voluntary. Your child may refuse to participate in this study or in any part of this study. Your child may withdraw at any time without prejudice to your relations with the university. You or your child is encouraged to ask questions about this study at the beginning or any time during the research study.

Please note that in order to complete the research study, your child’s school and teacher have consented to allow the research team on campus. Should the school or teacher decide they no longer wish to participate, the research and your child’s intervention will stop.

**Confidentiality**
All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link your child to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time, the information will be deleted from all files and the computer trash will be securely emptied.

**Participant Consent:**
I have read the above information and agree to allow my child to participate in this study. I am at least 18 years of age. A copy of this form has been given to me.

<table>
<thead>
<tr>
<th>Signature of Parent</th>
<th>Child’s Name (Please print)</th>
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</table>

#1110441-2, Expiration: 09-30-2018
Parent Name (Please Print)                      Date

Audio/Video Taping:

I agree to allow my child to be video-taped for the purpose of this research study. I understand that this information will only be used for this research study. I have the right to request to view the recordings of my child.

__________________________________________  ________________________________________
Signature of Parent                      Child's Name (Please print)

#1110441-2, Expiration: 09-30-2018
APPENDIX N

STUDENT ASSENT FORMS
Emotional Intelligence Intervention for Young Children with Emotional and Behavioral Disorders

1. My name is Mrs. Withey and these are Drs. Spies and More.

2. We are asking you to take part in a research study because we are trying to learn more about if reading books and logging your feelings on the iPad can help you reduce the amount of time you spend on negative classroom behaviors.

3. If you agree to be in this study, I will observe you and record a small video up to five times a week. I will also pull you out for 15 minutes every day to read a book and use an iPad. Your parents and teachers will get to see the iPad log. Teachers/staff will also watch two 1-minute video-clips of you.

4. You will have to miss out on 75 minutes of class each week. You may feel a bit awkward talking with me sometimes about your feelings.

5. Hopefully, though, this intervention will help you feel better about coming to school and help you participate in healthy / happy ways.

6. Please talk this over with your parents before you decide whether or not to participate. We will also ask your parents to give their permission for you to take part in this study. But even if your parents say “yes” you can still decide not to do this.

7. If you don’t want to be in this study, you don’t have to participate. Remember, being in this study is up to you and no one will be upset if you don’t want to participate or even if you change your mind later and want to stop.

8. You can ask any questions that you have about the study. If you have a question later that you didn’t think of now, you can email me at Kristin.Withey@unlv.edu or ask me next time. You can also talk to Drs. Tracy Spies and Cori More at tracy.spies@unlv.edu or cori.more@unlv.edu or 702-895-3205. If I have not answered your questions or you do not feel comfortable talking to me about your question, you or your parent can call the UNLV Office of Research Integrity – Human Subjects at 702-895-2794 or toll free at 877-895-2794.

9. You may now say that you agree or do not agree to be in this study. You and your parents will be given a copy of this form after you respond.

10. If you say “yes” now, you can always change your mind later. To stop participating, you and your parents will have to talk with the research team and request to stop the intervention. After that, you will no longer have to participate.

Student Name

Date

Student Signature (Age Appropriate)

#1110441-2, Expiration: 09-30-2018
APPENDIX H

SCATTERPLOT ASSESSMENT FORM
Scatterplot Assessment

Student: ___________________________ School: ___________________________
Date(s): ___________________ 
Behavior of Concern: __________________________________________________

<table>
<thead>
<tr>
<th>Frequency of Behavior</th>
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<tr>
<th>Setting or Class</th>
<th>Times or Intervals</th>
<th>Day/Date</th>
<th>Day/Date</th>
<th>Day/Date</th>
<th>Day/Date</th>
<th>Day/Date</th>
<th>Total Times Observed</th>
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Observation Notes

Adapted from *Addressing Student Behavior: A Guide for All Educators*, which is a copyright-free technical assistance manual prepared by the New Mexico Public Education Department, Quality Assurance Bureau, Fall 2010. www.ped.state.nm.us
APPENDIX P

PROCEDURAL FIDELITY FOR INTERVENTION DAY 1
<table>
<thead>
<tr>
<th>Date:</th>
<th>Component</th>
<th>Yes, step completed</th>
<th>No, step not completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Introduce Mood Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Researcher model the skill with talk-aloud</td>
<td></td>
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<tr>
<td></td>
<td>i. Researcher opens application to home screen</td>
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<tr>
<td></td>
<td>ii. Researcher introduces the app by saying its name</td>
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<td></td>
<td>iii. Researcher asks students to repeat the name</td>
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<tr>
<td></td>
<td>iv. Researcher explains the purpose of the Mood Meter: to log emotions we are feeling</td>
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<tr>
<td></td>
<td>v. Researcher will explain that red emotions are unpleasant and are high in energy like being mad; yellow emotions are pleasant and high in energy like being excited; blue emotions are unpleasant and low in energy like sadness; and green emotions are pleasant and low in energy like being calm.</td>
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<td></td>
<td>vi. Researcher will say, “it’s time to log my emotion. I feel_____” and will select the appropriate vocabulary term.</td>
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<td>vii. Researcher clicks “Confirm”</td>
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<td></td>
<td>viii. Researcher will read aloud, “I’m feeling____ because” and will say “I will click this box to explain why I am feeling____.” Teacher clicks “describe why” box.</td>
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<td></td>
<td>ix. To start dictation recording, teacher will select the microphone button and say, “I’m feeling____ because____.” She will then click the microphone symbol a second time to stop the dictation.</td>
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<tr>
<td></td>
<td>x. Researcher will say, “Now I press done to log my emotion.”</td>
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<tr>
<td></td>
<td>b. Student model the skill with guidance / prompts</td>
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<tr>
<td></td>
<td>i. Researcher will say, “now it’s your turn. Please walk me through how to use the app.”</td>
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<td></td>
<td>ii. Student will select an emotion term.</td>
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<tr>
<td></td>
<td>iii. Student clicks “confirm”</td>
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<tr>
<td></td>
<td>iv. Student presses “describe why” box and the microphone dictation button.</td>
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<td></td>
<td>v. Student orally explains the reason for their selected emotion and clicks to microphone button to stop dictation.</td>
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<tr>
<td></td>
<td>vi. Student clicks the done button.</td>
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<td></td>
<td>vii. Researcher provides prompts/models and performance feedback where necessary</td>
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<td></td>
<td>c. Student completes emotion log independently with talk-</td>
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</tbody>
</table>
### aloud

i. Student repeats process above an additional time while talking aloud through the process

### 2. Introduce book

a. Researcher reads the title to the children

b. Researcher asks them to repeat the title

### 3. Read aloud

a. Researcher reads the tradebook

b. Researcher asks the student, “How is character feeling?”

   Waits for student response. If student responds incorrectly, explain the correct answer with justification (indicate physical representations)

c. If student has responded correctly to the prior question, researcher will ask student, “How do you know?” If student provides an off-topic response, teacher will explain the correct answer with justification relating to the physical representation

d. Researcher and student will plot character feeling on Mood Meter following modeled procedures above

e. Have student demonstrate bodily expression of same emotion

f. Researcher asks, “What happened to make the character feel this way?” Student will respond. If student response is off-topic, teacher will provide an accurate response based on the story.

g. Researcher asks, “How did the main character act when they felt this way?” Student will respond. If student response is off-topic, teacher will provide an accurate response based on the story.

h. Researcher asks, “How did the main character solve their problem?” Student will respond. If student response is off-topic, teacher will provide an accurate response based on the story.

### 4. Role Play

a. Researcher will ask student, “What happens that makes you feel this way?” Student will respond. Researcher accepts any student response.

b. Researcher will ask student, “How do you act when you feel this way?” Student will respond orally or demonstrate. Researcher accepts any student response, but can redirect if demonstration is too physical.

c. Researcher asks, “What else can you do when you feel this way?” “or “what’s another way we could respond?” Student will respond. If student responds inappropriately, researcher will offer a socially acceptable behavioral response to the focus emotion.
5. Return to class  
   a. Researcher walks student back to special education classroom.  
   b. Researcher will hand iPad to student and ask them to log their emotions.  
   c. Student logs their emotion following same steps as highlighted above.  
   d. Student returns to in-class activity / expectations.  
   e. Start video recording on iPad.  
   f. After 10-minute period is over, stop recording.  

6. Corrective procedures  
   a. If student refuses to respond, researcher prompts back on track  
   b. If student continues to respond, researcher moves to next procedural bullet point

APPENDIX Q

PROCEDURAL FIDELITY FOR INTERVENTION DAY 2-8
<table>
<thead>
<tr>
<th>Date:</th>
<th>Component</th>
<th>Yes, step completed</th>
<th>No, step not completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduce book</td>
<td>a. Researcher reads the title to the children</td>
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<tr>
<td></td>
<td>b. Researcher asks them to repeat the title</td>
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<tr>
<td>2. Read aloud</td>
<td>a. Researcher reads the tradebook</td>
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<tr>
<td></td>
<td>b. Ask the student, “How is character feeling?” Wait for student response. If student responds incorrectly, explain the correct answer with justification (indicate physical representations)</td>
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<tr>
<td></td>
<td>c. If student has responded correctly to the prior question, teacher will ask student, “How do you know?” If student provides an off-topic response, researcher will explain the correct answer with justification relating to the physical representation</td>
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<td></td>
<td>d. Researcher and student will plot character feeling on Mood Meter following modeled procedures above</td>
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<td></td>
<td>e. Have student demonstrate bodily expression of same emotion</td>
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<td></td>
<td>f. Researcher asks, “What happened to make the character feel this way?” Student will respond. If student response is off-topic, researcher will provide an accurate response based on the story.</td>
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<td></td>
<td>g. Researcher asks, “How did the main character act when they felt this way?” Student will respond. If student response is off-topic, researcher will provide an accurate response based on the story.</td>
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<td></td>
<td>h. Researcher asks, “How did the main character solve their problem?” Student will respond. If student response is off-topic, researcher will provide an accurate response based on the story.</td>
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<tr>
<td>3. Role Play</td>
<td>a. Researcher will ask student, “What happens that makes you feel this way?” Student will respond. Researcher accepts any student response.</td>
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<td></td>
<td>b. Researcher will ask student, “How do you act when you feel this way?” Student will respond orally or demonstrate. Researcher accepts any student response, but can redirect if demonstration is too physical.</td>
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<td></td>
<td>c. Researcher asks, “What else can you do when you feel this way?” or “what’s another way we could respond?” Student will respond. If student responds inappropriately, researcher will offer a socially acceptable behavioral response to the focus emotion.</td>
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</table>
4. Return to class  
   a. Researcher walks student back to special education classroom.  
   b. Researcher will hand iPad to student and ask them to log their emotions.  
   c. Student logs their emotion following same steps as highlighted above.  
   d. Student returns to in-class activity / expectations.  
   e. Start video recording on iPad.  
   f. After 10-minute period is over, stop recording.  

5. Corrective procedures  
   a. If student refuses to respond, researcher prompts back on track  
   b. If student continues to respond, researcher moves to next procedural bullet point  

APPENDIX R

PROCEDURAL FIDELITY FOR PHASE C
<table>
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<tr>
<th>Date:</th>
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<tbody>
<tr>
<td>Component</td>
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</table>

a. Researcher starts video recording on iPad.

b. At predetermined time, teacher hands iPad to student and ask them to log their emotions.

c. Student logs their emotion following same steps as highlighted above.

d. Student returns iPad to teacher and returns to in-class activity / expectations.

e. After 10-minute period is over, stop recording.
REFERENCES


Touch to teach social and self-management skills to an elementary student with emotional/behavioral disorders. *Education and Treatment of Children, 34*, 299-322.


Code of Federal Regulations, Title 34, §300.8(c)(4)


regarding current knowledge. *Behavioral Disorders, 32*, 29-45.


Every Student Succeeds Act (ESSA) of 2015, P.L. 114-95, § 1177


Mathews, B. L., Koehn, A. J., Abtahi, M. M., & Kerns, K. A. (2016). Emotional competence and


start in school: Effects of INSIGHTS on children with high maintenance temperaments.

*Early Childhood Research Quarterly, 30,* 128-139.


Stanton-Chapman, T. L., & Brown, T. S. (2015). A strategy to increase the social interactions of


EDUCATION


PROFESSIONAL EXPERIENCE

2015- Present: Graduate Assistant, Department of Educational and Clinical Studies, University of Nevada, Las Vegas

2012-2015 Aggie Roberts Elementary School: Early Childhood Special Education Teacher of approximately 12 students per half day session between the ages of 3-5 with Individualized Education Programs. NAECYC accredited program maintained throughout all four years. Trained to use Teaching Strategies GOLD assessment, the Student Educational Management System (SEMS) developed by the Clark County School District in order to create and track online documents related to students’ IEPs, and the Creative Curriculum and activity based interventions aligned with the Nevada Preschool Standards as well as students’ individual goals. Provided after school tutoring for students identified as English Language Learners.

Aug-Dec 2011 Innovations International Charter School of Las Vegas: Fifth Grade Teacher in the sole self-contained, rather than departmentalized or rotation-based, setting. Developed lesson plans for fifth grade students based on the Nevada Content Standards using an integrated thematic approach. Supported an inclusive environment in cooperation with a floating Special Education teacher. Taught after school children’s theatre classes.

Aug 2010- June 2011 Petersen Professional Development School: Cohort Intern. Interned for a full school year at the same location: 3 months Practicum 1 in fifth grade, 3 months Practicum 2 in first grade, 3 months Student Teaching in a fifth grade classroom. Developed and implemented science, math, reading, and writing units. Used FOSS, Investigations, EnVision, and Trophies programs. Administered formal assessments and designed plans for individual students based on needs. Trained through district in-services in 6-Traits writing approach and CHAMPS behavior management. Took university classes in educational theory and practices.

FUNDING

Withey, K. L. (Fall 2017). GPSA Funding for dissertation technology. Granted $1250

Withey, K. L. (Summer 2017). GPSA Funding for Textbook and Academic Authors Annual Conference. Granted $925

Withey, K. L. & Ewoldt, K. (2016). Student Academic Authors Request for Funds. Student Organization Funding Board through UNLV Office of Student Engagement and Diversity. Granted $500

SUBMITTED GRANTS

Withey, K. L. (2016). Emotional Intelligence and Self-Regulation for Young Urban Children with or at-risk of Emotional and Behavioral Disorders. TESOL. $ 2500

GRANT WRITING EXPERIENCE

Withey, K. L. (2016). Project iPost. Written for Initial Careers Awards (CFDA No. 84.324N) as part of ESP 789 under Dr. Kyle Higgins. $ 20,000.

REFEREED JOURNAL ARTICLES


**MANUSCRIPTS UNDER REVIEW**


**MANUSCRIPTS IN PREPARATION**


**REFEREED CONFERENCE PRESENTATIONS**


Wilthey, K. L. (2015, November). Using iPad apps meaningfully in early childhood to develop social emotional skills. [Poster presentation]. Kaleidoscope’s Poster Session at the TED Conference. Tempe, AZ.

INVITED PRESENTATIONS


CONFERENCE PRESENTATIONS


TRaINING / PROFESSIONAL DEVELOPMENT


**Withey, K.** (2013, October). *Play theory.* Structured Friday training for parents of Aggie Roberts Elementary School ECSE students. Las Vegas, NV.


**UNIVERSITY TEACHING**

Courses Taught:
- **ECE 453 Methods for Early Childhood Education I: Social Sciences** (face-to-face; undergraduate; Spring 2016)
- **ECE 461 Early Childhood Education Management** (online; undergraduate; Spring 2018)
- **ECE 491 Student Teaching in Early Childhood Education** (field advising; undergraduate; Summer 2017)
- **ECE 492 Student Teaching Seminar in Early Childhood Education** (face-to-face; undergraduate; Summer 2017)
- **EDSP 411 Students w/ Disabilities in General Education Settings** (online; undergraduate; Fall 2015)
- **EDSP 432 Parent Involvement and Family Engagement for Students with and without Disabilities** (online; undergraduate; Spring 2018)
- **EDSP 491 Student Teaching in Special Education** (field advising; undergraduate; Summer 2017)
- **EDSP 492 Student Teaching Seminar** (face-to-face; undergraduate; Summer 2017)
- **EDU 203 Introduction to Special Education** (face-to-face; undergraduate; Fall 2015; Spring 2016; Fall 2016; Spring 2017)
- **ESP 720 Field Experience in Special Education** (field advising; graduate; Summer 2017)
- **ESP 691 Student Teaching in Special Education** (field advising; graduate; Summer 2017)
- **ESP 692 Student Teaching Seminar** (face-to-face; graduate; Summer 2017)
- **ESP 706 Advanced Educational Strategies for Students with Emotional Disabilities** (hybrid; modular; graduate; Fall 2016; Fall 2017)
- **ESP 733 Management and Modification of Students with Special Needs** (face-to-face; graduate; Summer 2016)
- **ESP 735 Advanced Behavior Management** (Specialized for Students with Emotional...
Disabilities; modular; graduate; Spring 2017)
- ESP 763Q Seminars in Selected Special Education Topics: Student Growth Models (face-to-face; modular; graduate; co-taught with Dr. Joseph Morgan; Spring 2016)
- TESL 474 Methods for English language Learners (face-to-face; modular; undergraduate; Fall 2017)

Course Development:
- ECE 441 Play Theory, Creativity, and Aesthetics in Early Childhood Education
- ESP 705 Psychological and Sociological Problems of Students with Emotional Disabilities
- ESP 706 Advanced Educational Strategies for Students with Emotional Disabilities

**HONORS AND AWARDS**
Finalist for UNLV Graduate Student Showcase, part of UNLV’s Research Week
Recipient of Edward Pierson Memorial Scholarship Fall 2017 $500
Nominated by the Department of Educational and Clinical Studies for the UNLV Outstanding Graduate Student Teaching Award October 2016
Teacher Education Division Funding Recipient, July 10-13, 2016
  - Special Education Summit in Alexandria, VA attendee
  - $1000 travel award
  - Peer-Reviewed
  - 1 out of 4 scholars selected
Department of Educational and Clinical Studies Out-of-State Doctoral Travel Support for the Acceptance of a Manuscript March 2016 $200
Project CULTURED, College and University Leaders Trained to Understand and Respond to Exceptionalities and Diversity. (H325D140035) 325D OSEP Leadership Grant at the Department of Educational and Clinical Studies, University of Nevada, Las Vegas Fall 2015-2019
  - OSEP Sponsored Leadership Program
  - 1 out of 8 scholars selected

**SERVICE**

**Professional**
Selected as Doctoral Guest Reviewer for Young Exceptional Children (2018)
Reviewed manuscript for the Journal of Special Education Technology (2/13/2018)
Reviewed presentation proposals for the 2018 DEC Annual International Conference on Young Children with Special Needs and Their Families (2/2018)
CAN Coordinator for the Nevada Division of Early Childhood, elected position (2017-2018)
Reviewed presentation proposals for the 2017 TED Annual Conference (7/2017)
Preparation and setup team at the DEC pre-conference day for NevAEYC Conference.  (5/2018)
Reviewed manuscript for the Journal of Special Education Technology.  (5/24/2017).
Participated in CEC Special Education Legislative Summit (7/10-13/2016). State team lead.

**University**

**Graduate and Professional Student Association**
- Served as the College of Education representative to the Graduate and Professional Student Association summer council (6/2017-8/2017).
- Elected to serve as the Department of Educational and Clinical Studies representative to the Graduate and Professional Student Association (9/6/2016-5/5/2018)
- Served as part of the Student Technology Advisory Board (9/6/2016-5/5/2018)
- Participated in graduate feedback session with UNLV Libraries (2017, August)

**Student Academic Authors (Registered Student Organization)**
- Past President of the UNLV Student Academic Authors Registered Student Organization.  (2017-2018). Las Vegas, NV.
- President of the UNLV Student Academic Authors Registered Student Organization.  (2016-2017). Las Vegas, NV.
- Vice President of the UNLV Student Academic Authors Registered Student Organization.  (2015-2016). Las Vegas, NV.

**Student Council for Exceptional Children (Registered Student Organization)**
- Treasurer of the UNLV Student Council for Exceptional Children Registered Student Organization.  (2016). Las Vegas, NV.
- UNLV SCEC volunteer for the UNLV Festival of Communities, April 11, 2015.

**Department**

Represented the Department of Educational and Clinical Studies at the Spring 2017 Major Madness Fair at the University of Nevada, Las Vegas
Participated in the Student Panel in Assistant Professor Job Hunt at UNLV.  (2017, February).
Represented the Department of Educational and Clinical Studies at the Fall 2016 Graduate College Fair at the University of Nevada, Las Vegas
Presented on the doctoral competencies at 2016 UNLV Department of Educational and Clinical Studies Doctoral Summit. Las Vegas, NV.
Served on selection committee for Project SPEN:TT with Dr. Monica Brown. (5/12/2016).

Participated in the Student Panel in Assistant Professor Job Hunt at UNLV. (2016, February).


Guest Lectures


Invited panel presenter on submitting and revising manuscripts for publication. ESP 784. February 23, 2017. University of Nevada, Las Vegas.

Guest Lecture on The Role of Data at the District and School Level in ESP 763Q under Dr. Robbie Marsh. (2017, January). University of Nevada, Las Vegas

Guest Lecture on Grounding Terminology in TESL 474 under Dr. Tracy Spies. (2015, October). University of Nevada, Las Vegas

Data Collection


Community

Aggie Roberts Elementary School Literacy and Library Committee, 2012-2015
Aggie Roberts Elementary School Student Generated Funds Committee, 2014-2015
      Treasurer 2014-2015
Aggie Roberts Elementary School Family Engagement Committee, 2013-2014

PROFESSIONAL ORGANIZATIONS

National Council for Exceptional Children
      Nevada Council for Exceptional Children
Council for Children with Behavioral Disorders
Division for Research
Division on Autism and Developmental Disabilities
Division for Culturally and Linguistically Diverse Exceptional Learners
Division for Early Childhood
Nevada Division for Early Childhood
      Teacher Education Division
National Association for the Education of Young Children
Nevada Association for the Education of Young Children
Textbook and Academic Authors Association
American Educational Research Association
Division K – Teaching and Teacher Preparation
Early Education and Child Development Special Interest Group
Social and Emotional Learning Special Interest Group
Special Education Research Special Interest Group
Urban Learning, Teaching, and Research Special Interest Group

CERTIFICATION AND ENDORSEMENTS
Nevada Teaching License
Special- TESL Endorsement (Exp. 5/6/2023)
Special Education: Early Childhood Developmental Delay 0-7 Years (Exp. 5-6-2023)
Elementary Teaching K-8 (Exp. 5-6-2023)
Spanish K-12 (Exp. 5-6-2023)
Nevada Registry
Nevada Early Care and Education Professional Career Ladder Level 6.2
Early Childhood Trainer 4

CONTINUING EDUCATION/PROFESSIONAL DEVELOPMENT
Child Care Education Institute: Prof 101 Adult Learning: Theories and Strategies for Trainers and Directors, 2017
CCSD IEP Processes Training, 2015
Kristie Pretti-Frontczak and CCSD presentation, 2015
Infinite Campus for Teachers, 2014
NAEYC Training, 2014
Increasing Parent Family Engagement, 2014
Data Collection, 2014
TACSEI, 2014
Beginning PECS (Picture Exchange Communication System), 2014
Promoting Successful IEP Meetings, 2013
IEP Overview, 2013
CPI Training, 2013
Literacy and Thematic Based ECERS, 2013
Structured Outdoor Recess, 2013
Intentional Instruction During Center Play, 2013
WRITE Where You Are: Journaling in the EC Classroom, 2013
Lively Letters, 2012
Michael Darby and SMILE Anti-Bullying Presentation, 2012
Engaging Diverse Learners through Technology, 2012
Writing in the CCSS, 2012
Explicit Phonics Instruction, 2012
Kagan Strategies, 2012
Fluency with Basic Multiplication and Division Facts, 2012
Mathematical Practices in the CCSS, 2012
Fluency with Basic Addition and Subtraction Facts, 2012
How to Motivate Our Hispanic Youth, 2012

LANGUAGES

English (native)
Spanish (proficient speaking, reading, writing)