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# Increasing Self Regulation Skills in Students With Emotional/behavioral Disorder

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INCREASING SELF REGULATION SKILLS IN STUDENTS WITH

EMOTIONAL/BEHAVIORAL DISORDER

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Abstract

Students who qualify under Emotional/Behavioral Disorder (EBD) for special education services can exhibit significant external behaviors that significantly interfere with their educational progress. EBD students who exhibit these significant behaviors often also exhibit significant difficulties with self-regulation. Difficulty with self-regulation can be due to biological factors or environmental factors. EBD students need research based, intensive interventions to increase their self-regulation skills, which will therefore reduce externalizing behaviors. Interventions need to be implemented across the student's entire day including interventions with parent interactions, school-wide interventions, interventions in the general education environment and interventions in the special education environment. Interventions in the special education environment that have been shown to be effective include those that address impulse control deficits, executive functioning deficits, and cognitive behavioral curriculum that explicitly teaches self-regulation skills.

Table of Contents

**CHAPTER I: INTRODUCTION**

Students in special education who qualify under Emotional Behavioral/Disorder (EBD) are characterized by the severe behaviors which, according to the Minnesota Department of Education Eligibility Criteria, can include but are not limited to severe anxiety, significant depressive mood, withdrawing/isolating behaviors, distorted or unusual behavior patterns, physically or verbally aggressive behaviors and severe impulsivity.  Students who qualify for Special Education under the EBD category exhibit a pattern of at least one severe behavior from categories described as internalizing behaviors, externalizing behaviors or distorted reality.  In order to qualify in this educational category, students' behaviors must "demonstrate an established pattern" that is significantly different from peers (MN ED criteria).

Students who qualify in this category exhibit behaviors that significantly interfere with their educational performance by limiting what they can participate in, separating them from peers, interrupting academic learning, and impeding their ability to develop important social relationships.   Research has shown that a large number of students with EBD may also have neuropsychological deficits.  A research study conducted by Carlson, Hooper, Mattison (2006) indicated that 57.1% of elementary students who have "serious behavioral and emotional problems" scored in the clinical range for total problems on the NEPSY assessment (p. 179).  This study also indicated that "37-40% of students scored in the bottom second percentile for Attention/Executive Functions and Language." (2006)  Students scored highest on the Memory for Faces subtest and lowest on the Speed Naming subtest.  There were two correlations found in this study, "neuropsychological deficits were significantly associated with lower IQ and lower reading scores" (2006, p.

182).  Almost half of the subject (47.1%) had significant issues in utero, during delivery or as a newborn.  These issues include exposure to drug and/or alcohol in utero, premature delivery, and low birth weight.  Carlson et al. (2006) did not find any significant correlation between the issues described and deficits in neuropsychopathology.  This research study indicates that, along with EBD students' significant difficulties with regulating their behavior and emotions, students with EBD also may struggle with neuropsychological processing, especially attention, executive functions and language.

Wagner, Kutash, Duchnowski, et al. (2005) completed a research study collecting longitudinal data through phone interviews with parents and reviewed student's school file.  Participants included 1,081 six through twelve year olds and 1,077 thirteen through sixteen year olds classified under the EBD category.  Wagner et al.'s (2005) findings provide descriptive factors of students with EBD.  An overwhelming majority of students were male, an average of 78%, which is higher than peers in other disability categories, an average of 65.6%, and much higher than the number of males in the general population, an average of 51%.  When compared with the general population and students with other disabilities, Wagner et al. (2005) also found that students with EBD are more likely to live in poverty (31.5%), live in a single-parent household (36.3%), have a parent(s) who are unemployed (23.8%), have a parent(s) who is not a high school graduate (20.4%) and live with another family member with a disability (45.6%) (Wagner et al., 2005).  This population of students was more transient when compared to other students with disabilities.  Students with EBD were shown to attend four or more schools, mostly because the school reassigned the student (Wagner et al., 2005).  EBD students

were also more likely to be expelled or suspended from school (60.3%) when compared to students with other disabilities (19.7%) (Wagner et al., 2005). Results from Wagner et al. (2005) longitudinal study, EBD students were reported to consist of mostly males, have a more likely chance of experiencing adversity within their home environment, were more transient between schools and were more likely to be expelled or suspended from school.

The statistics gathered on EBD students' outcomes and adversity they face are extremely troubling. Statistics show that EBD students experience adversity while still in school. Students with EBD are "13 times more likely to be arrested while in school" when comparing them to students in other special education disabilities (Doren, 1996, p. 370). Young women with EBD are also "twice as likely to become teenage mothers" as compared to students with other disabilities (Data resource center for child & adolescent health 2005/2006).

When our students with EBD leave school, their outcomes continue to be unfavorable when compared to the general population and when compared to other students with disabilities. Statistics from the National Survey of Children with Special Health Care Needs show that only 40% of students with EBD graduate from high school, which is significantly lower than the national average of 76%. Compared to students with other disabilities, EBD students are "twice as likely … to be living in a correctional facility, halfway house, drug treatment center, or on the street after leaving school" (data resource center for child & adolescent health 2005/2006, p. 1). A small fraction of students with EBD continue their education, only 10-25% of them, while 53% of the general population enrolls in a post-secondary program (Bullis & Cheney, 1999).

According to the US Department of Education, the number of students receiving special education services is continuously growing and includes a large number of our current student population. In Minnesota alone, the number of students receiving special education services aged 6-21 are 112,375. The number of students identified under the EBD category is 14,736, which is 13% of the special education population in Minnesota. The number of students receiving special education services ages 6-21 in the entire United States in 6,050,725. The number of students identified under the EBD category is 346,488 which is 6% of the total population of special education students. Compared to national data, Minnesota has a higher than average number of students identified as having an Emotional/Behavioral Disability. (U.S. Department of Education, EDFacts Data Warehouse 2015-16)

When looking at the number of students receiving special education services under the EBD category and then the statistical outcomes and descriptive factors that these students endure it is especially troubling. EBD students are a large part of our population, especially in Minnesota which is larger statistically than the national average. According to the statistics compiled by the U.S. Department of Education (2015-16), if only 40% of our EBD students graduate, that means that approximately 5,894 students with EBD in Minnesota are not graduating each year. Following the data generously, only 25% of students with EBD who do graduate go on to post-secondary school – that is only 3,690 students in Minnesota, approximately.

Some may question why this matters. If students have significant behavioral issues in school, why does it matter if they continue on with their schooling or even graduate? Students with emotional and behavioral difficulties in school become adults

with emotional and behavioral difficulties in our society.  Students with these significant issues, who often become aggressive, withdraw, have distorted realities, and are impulsive can become a dangerous to themselves or others if they do not learn to successfully regulate their behavior and emotions.  A large number of these students also become parents, who are raising and shaping their children.  Research shows that fathers exhibit "abnormal psychophysiological response patterns similar to that of their sons" including being more aggressive, hostile, and impulsive (Herpertz et al., 2006, p. 544).  This study sheds light on possible hereditary behavior and behavior learned from parents.  If students with EBD do not successfully learn to regulate their behavior and emotions, they may end up teaching their children maladaptive patterns of behavior and emotional regulation.

With only 40% of our students with EBD graduating from high school and 25% continuing their education at the postsecondary level, this leaves a large population of adults who do not hold degrees, which are needed to obtain a large number of jobs.  High school drop outs, including all students with or without disabilities, "from the class of 2008 will cost the nation more than $319 billion in lost wages over the course of their lifetimes."  EBD students who do not graduate could contribute to this loss of income (alliance for excellent education, 2008).

The population of EBD students we teach is comprised of complex students who are more likely to experience adversity in their home life and after school and are characterized by significant difficulties regulating their behaviors and/or emotions.  The traditional method of responding to behaviors a student exhibits is to only use consequences and punish the child (Skiba & Losen, 2016).  If the traditional method for

responding to behaviors is used with this population of students it could be detrimental to their view of school, outlook on life, and the amount of progress they make socially, emotionally, and academically (Skiba & Losen, 2016). Given the significant nature of behaviors these students exhibit, their difficulty with self-regulation, and emotional complexity that can sometimes be hidden from view, we need effective and responsive interventions to teach these students self-regulation.

Baumeister, Schmeichel and Vohs defines self regulation as "the self altering its own responses or inner states" (2007). Self regulation is an executive function process, a person initiates behavior or controls it and also must make choices from all options, some of which are maladaptive choices. As stated above, a large number of students with EBD are shown to have executive functioning deficits. With self regulation being a component of executive function and EBD students showing executive function deficits, it is no wonder that our EBD students show significantly poor choices and impulse control. Baumeister et al. state, "the problems that most obviously revolve around self-control failure are those of impulse control" (2007). Learning self regulation is integral for EBD students to improve their performance at school socially and academically (Baumeister et al., 2007).

The representation of students with EBD in our schools is something we cannot ignore. Teachers need to be trained in best practices and research based interventions in order to make progress with this population. Students with EBD need to learn self-regulation skills. The way in which we structure our classrooms and interventions has a significant impact. Teachers need to use research based, responsive teaching practices in order to teach EBD students self-regulation skills.

Research Question

What are responsive education practices for reactive behaviors exhibited by students in special education who qualify under Emotional or Behavioral/Disorders (EBD) that leads to building of self-regulation skills?

CHAPTER II: LITERATURE REVIEW

**Causes of Emotional Behavioral Disorder**

Emotional Behavioral Disorders, or EBD, are characterized by significant external and internal behaviors. Behaviors can include a large array of manifestations, but often serve a function for that student, the main function often being to "make a desired change in the environment" (Alberto & Troutman, 2009). Alberto and Troutman (2009) list six functions of behavior that are most common:

- Gain attention

- Gain a tangible object, activity, event

- Gain sensory stimulations

- Escape from attention

- Escape from the situation, a task, setting, activity or event

- Escape from sensory stimulation

When planning interventions for students with EBD it is critical that the function of behavior is identified. This is most commonly and effectively done through the use of a Functional Behavioral Assessment where the assessor analyzes behavior to determine the function. What causes a student to have an Emotional or Behavioral Disorder, why does one student act out significantly and another is able to control his/her behavior in class? There is a lot of research looking into causes and trends of students with EBD including research studies conducted on executive functioning and impulse control, biological factors, and environmental factors. There is not one cause clearly identified, but rather a complex web of contributing factors for students with EBD.

**Executive Functioning and Impulse Control**. As stated previously in this document, maladaptive behavior seen in students with EBD likely stems from biological

factors, exposure to drugs or alcohol in utero, lack of impulse control and neurological deficits. Difficulty inhibiting impulses and behaviors "disrupts working memory … influences the ability to self-regulate moods and motivation, and integrate behaviors to achieve goals" (Watson & Westby, 2003, p. 196). Neurological deficits is a factor identified in students with EBD that defines what an Emotional/Behavioral Disorder looks like and identifies a factor of a possible cause.

Watson and Westby (2003) describe "four components of executive functioning (that) are affected by deficits in behavioral inhibition" (p. 196). These four components include nonverbal working memory, verbal working memory, self-regulation of emotions, and problem solving. Students' deficits in executive functioning can account for a significant number of internal and external behaviors seen in students with EBD. Nonverbal working memory "involves the ability to recognize the relationship of present events to previous experiences" (Watson & Westby, 2003, p. 196). This component of executive functioning is key in students' ability to visually represent events and perform a sequence of behaviors observed in another. Verbal working memory involves the student "internalizing language (and) self-directed speech" (Watson & Westby; 2003, p. 196). This assists the student to conduct self-talk in order to guide him/her through "managing behavior and guiding moral reasoning" (Watson, Westby; 2003). This component of executive functioning is key in managing behavior when the student is not being supervised. Self-regulation of emotions is the executive functioning component that involves regulates emotions, motivates the self with short or long term goals, and is the internal force that drives regulation without "external consequences" (Watson & Westby; 2003). The last area of executive functioning influenced by

behavioral inhibition is problem solving.  This executive functioning component serves a more complex function, it is the "ability to analyze observed behaviors and synthesize new behaviors in pursuit of a goal" (Watson & Westby; 2003).  Behavioral inhibition deficits is often seen in students with EBD and falls under the Minnesota Eligibility Criteria for Emotional Behavioral Disorder in section A category 3 "the student must exhibit aggressive, hyperactive or impulsive behaviors that are developmentally inappropriate" (Minnesota Department of Education, 2017).  Identifying executive functioning processes that are affected by deficits in behavioral inhibition is essential to planning effective interventions with our students with EBD.

Lochman and Wells (2002a) describe a model that highlights the interaction and influence of cognitive processing of problem solving and the influence of the "child's physiological arousal, and the behavioral response" titled the *Contextual Social-Cognitive Model*.  Problem solving is a component of executive functioning, which has already been shown to be an area that a large number of students with EBD have deficits in.  Problem solving is an integral component in regulating behavior and responding to situations that arise.  One's behavior and response can be either appropriate or maladaptive, depending on one's capability to problem solve and interpret social cues.  Smith, Lochman, and Daunic (2005) have compiled research to outline the stages of problem solving and deficits that aggressive students show, they are as follows organized in the order needed to problem solve:

    1. Encoding: aggressive children "recall fewer relevant cues about events" (Smith, Lochman & Daunic; 2005 quoted from Lochman and Dodge,

1994) and "selectively attend to hostile rather than neutral cues" (Smith, Lochman & Daunic 2005)

2. Interpretation: aggressive children interpret interactions with others as more hostile

3. Problem Solution: aggressive children "generate maladaptive solutions for perceived social problems" and generate more "dominance and revenge oriented" social goals (Smith, Lochman, & Daunic; 2005 quoted from Lochman, Wayland, & White, 1993)

4. Potential Solutions: aggressive children generate more aggressive and direct actions, and low quality solutions to problems

5. Identify and evaluate each solution related to a consequence: aggressive children value aggressive responses more and predict that aggressive solutions "will be more successful" (Smith, Lochman, & Daunic; 2005 quoted from Lochman, & Dodge 1994).

6. Act on chosen response: aggressive children are more incapable of following through with appropriate or "prosocial interpersonal behaviors." (Smith, Lochman, & Daunic; 2005)

Students with EBD, who are characterized as having aggressive behaviors, show significant difficulty thinking through and completing appropriate and prosocial steps in problem solving.  Students who have aggressive behaviors are more inclined to think aggressively and value more aggressive behavior when problem solving (Smith et al., 2005).

VanGoozen et al. (2004) completed a research study conducting executive functioning tasks (set shifting, working memory, inhibition and attention) with students diagnosed with Oppositional Defiant Disorder (ODD) or Conduct Disorder (CD) and some diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). They compared performance with a control group of students without significant medical diagnosis. The study was completed with students at a specialized clinic for children with ODD. The report did not indicate that these children were identified for special education services. The study found that students with ODD/CD had no significant deficits when compared to the control group for all areas tested. One area where students showed a significant deficit was on a set-shifting task, found only for students diagnosed with ODD/ADHD. This test "measures the ability to initiate, switch, and stop a sequence of complex purposive behavior, and attention and concentration skills" (Van Goozen et al., 2004, p. 287). This study also showed that children with ODD and children with ODD/ADHD were able to delay responses and control impulses for a more desirable reward. While this study seemingly contradicts what the studies summarized above have proved, we need to examine the participants of this study. This study was completed with students who have a psychological diagnosis and are in medical care. There are many students who are diagnosed with a psychological and/or medical diagnosis who do not qualify for special education services. It is my hypothesis that the reason they did not find significant executive deficits in students with an ODD/CD or ODD/ADHD diagnosis are because they examined children who are not characteristic of students whose behavior significantly affects their academic or social progress in a school environment. This study was also completed while controlling for environmental factors and displaying a

concrete reward. It is hypothesized that, if this study was completed in a school setting or a setting where children are interacting with peers they would have a more difficult time using executive functioning skills and inhibiting impulses. More research needs to be completed with students identified as needing special education services under the EBD category and in a natural setting in order to either prove or disprove my hypothesis.

In order to better understand these deficits in impulse inhibition we need to understand the stages of impulse management and development. Rezmierski (1984) found that people move through nine stages in controlling their impulses. Behavioral inhibition is an integral component of our students with EBD learning self-regulation, and some could argue that behavioral inhibition and self-regulation harness very similar skills and define the same behaviors. In order to teach self-regulation strategies to our students, we must first identify which developmental stage of impulse control they are in. Using reinforcement in the correct stage is inherent if we want our students to respond to our interventions; if we are not matching the impulse stage they are in to our interventions our students will not be able to effectively control their impulses. Once the stage is identified, we can plan interventions and instruction accordingly.

Research has identified specific neurological deficits involved in executive functioning processes that students with EBD display. One specific area students with EBD show a neurological deficit is in problem solving. Research has identified specific ways students with EBD show deficits in the stages of problem solving. Behavioral inhibition is another area identified as a neurological deficit. Rezmierski (1984) identified stages of impulse control that individuals move through. By matching which stage our students are at for impulse control, we can plan effective

interventions. VanGoozen et al. (2004) did not find significant neurological deficits in students identified with a mental health condition, however this study did not specifically work with students identified for special education services and it was completed in a controlled environment. In sum, not all students with EBD have neurological deficits but a large portion of the population does exhibit these deficits. We need to plan interventions that focus on teaching strategies to compensate for neurological deficits and review evaluation reports and medical records to specifically identify EBD students with these concerns.

**Biological Factors**. Students with Emotional Behavioral Disorders (EBD) have also been shown to have certain biological factors and the influence of noteworthy medical events. Mattison, Hooper, and Carlson (2006) found that the population of students with EBD they were testing had a medical history that was significant. The most common events across this group of participants were exposure to drug and/or alcohol in utero (26.5%), low birth weight (14.3%), premature delivery (14.3%), and history of seizures or head injury (8.8%). A majority of participants (51.4%) had some form of medical risk factor for neurological deficits. While not all participants experienced noteworthy medical events, this is a characteristic of EBD students found that we must be sure to make note of.

In utero exposure to drugs and/or alcohol can cause significant detrimental effects to children. Waller (1994) completed interviews with parents of 284 children who were known to have exposure to crack or cocaine in utero. It is important to note that the students included in this study did not grow up in an environment where there was active drug abuse, thereby controlling for some environmental factors and focusing in on how

exposure to drugs in utero can affect children. Waller (1994) found an important trend as they grow older their problems increase (antisocial behavior, dangerous behavior), older children exhibit more "violence, inappropriate social behavior, hyperactivity and learning problems" (p. 30). Children who are younger (ages 3-4) were reported to have more temper tantrums, mood swings, hyperactivity, impulsive behavior, and inappropriate social behavior. Younger children also show more deficits in learning, memory, nonverbal cues, and understanding consequences. This study found evidence that exposure to drugs in utero, even if their home environment is healthy and supportive, has a significant negative impact on children and youth's behavior. The study also showed an alarming trend where students' problems and deficits in behavior increase as they grow older (Waller, 1994).

Fahim et al. (2012) conducted a research study to analyze anatomical differences in the brain between students who were diagnosed with Oppositional Defiant Disorder (ODD) and controls with medical or psychological diagnosis. Fahim et al. (2012) found that students with ODD showed a decrease in GMd (grey matter) and WMd (white matter density) in areas of the brain that are responsible for regulating emotions and impulse control. Results also indicated that there was "an association between ODD symptoms and decreased in GMd in the orbital-frontal pole (OFC)" (Fahim et al. 2012). The orbital-frontal pole region of the brain is "associated with empathy" which supports that children with ODD are associated with a lack of empathy for others. Fahim et al. (2012) also found that there was a significant difference in brain anatomy when comparing gender. Boys "exhibited decreased GMd and WMd in the frontal pole" this also supports the findings that "boys with ODD and conduct disorders have decreased empathy,

morality and the identification of interpersonal cues" (Fahim et al., 2012, p. 603). This finding also supports the fact that boys and girls with ODD show differing forms of aggression; boys are more likely to show physical aggression while girls exhibit more verbal aggression. This study provides evidence that students with ODD may have anatomical differences in their brain structure when compared to controls, specifically in regions of the brain that are responsible for regulating emotions, impulse control and empathy.

Matykiewicz (1997) conducted a research study to measure biological variables of adolescent males who were juvenile offenders to see if they found "variables that constitute the low serotonin syndrome." They found that "juvenile offenders had significantly lower glucose nadirs than did the control males" and that the target juveniles had a "mean urinary 5-HIAA level" (Matykiewicz 1997). These findings are significant because the indication of hypoglycemia and the low level of 5-hydroxyindoleacetic acid (5-HIAA), or the "primary metabolite of serotonin" are characteristics of adults with type 2 alcoholism (Matykiewicz, 1997). Adults with type 2 alcoholism exhibit characteristics of "impulsivity, aggression, violence, and antisocial personality disorder" (Matykiewicz, 1997). Matykiewicz's findings (1997) indicate that there are biological factors linking juveniles to adults with impulsive and aggressive behavior. While this study did not look specifically at the population of students with EBD, youth with EBD have been shown to be "13 times more likely to be arrested while in high school" (Doren, 1996, p. 370). It his highly likely that, if one's participants are taken from a population of juvenile offenders there is a significant number of youth who have been identified with an Emotional or Behavioral Disorder. More research needs to be conducted, however it is highly likely

that students with EBD have characteristics of the "low serotonin syndrome" which could be part of a cause of behaviors.

Biological factors play a significant role in children's behavior and capability to regulate emotions, impulses and problem solve. When defining what EBD looks like in students, we need to conduct in-depth interviews and collect family history in order to accurately define each student who qualifies under the EBD category. In general, characteristics of EBD can be partially attributed to, but are not limited to, the exposure to drugs and/or alcohol in utero, medical events that are classified as neurological risk factors, and differences in brain anatomy in specific regions that regulate emotions, impulse control, and empathy. The population of students with EBD may also be experiencing the "low serotonin syndrome" which affects mood (Matykiewicz, 1997).

**Environmental Factors**. Environmental factors also heavily influence and shape behavior. We must analyze a student's environment in order to also understand behaviors and further to define what an Emotional Behavioral Disorder is. Environmental factors that influence students can include the school environment, social environment at school and home, the home environment, parent and child interactions and the environment surrounding the home.

Multiple components with parents have been shown to affect child aggression. Parents who "provide harsh or irritable discipline, poor problem solving, vague commands, and poor monitoring and supervision of children's behavior" have been found to be characteristics of parents who have aggressive children (Smith, Lochman & Daunic, 2005, quoted Patterson, Reid & Dishion, 1992). The "severity of parental discipline" is also shown to be "positively correlated with children's poorer

social information processing" (Smith, Lochman & Daunic, 2005, Weiss, Dodge, Bates & Pettit, 1992). The community environment is also highly influential on aggressive behavior in children. Being rejected by peers has shown to "independently predict delinquency and conduct problems in adolescence (Smith, Lochman & Daunic, 2005, Lochman & Wayland, 1994) and are shown to display more significant difficulties with behavior.

Herpertz, Vloet, Mueller, Domes, Willmes, and Herperts-Dahlmann (2006) conducted a research study measuring, describing and comparing factors in boys with early onset conduct disorder (CD) and their fathers compared to controls who were considered healthy. Herpertz et al. (2006) found "fathers of boys with CD exhibited fewer nonspecific skin conductance fluctuations at rest and significantly decreased SCRs to all three picture categories." This study also found evidence that "psychophysiological responses show similar familial transmission" which is evidence that these measures have a hereditary component between fathers and sons. Fathers of sons with CD also showed higher impulsiveness in the areas of motor and cognitive subscales, a "higher tendency to react angrily to frustration," anger was reported to be more "outwardly directed," and there was "strong evidence of higher spontaneous aggression, higher reactive aggression, and increased excitability." This study reports significant findings and correlations between fathers of sons with CD, which greatly strengthens other research indicating that aggressive behavior and responses along with psychophysiological responses can be linked to heredity. The implications of this study are quite discouraging when applying them to an educational setting. If aggressive behavior and psychophysiological responses are inherited, how do we help our students with EBD? This strengthens the argument

that, in order to describe our students with EBD we need to conduct in-depth research into students' backgrounds and family. When planning interventions, we also need to include support and education for family members. While education and support may not come from the school, we can provide family members with resources that do provide these supports.

School environment and teacher interaction can also influence students' behavior. Smith, Lochman and Daunic (2005) found that "aggressive children who are also socially rejected tend to exhibit more severe behavior problems than children who are either aggressive only or rejected only." If a student exhibits aggressive behavior and has experienced rejection from peers, it "predicts delinquency and conduct problems in adolescence" (Smith, Lochman, & Daunic, 2005, Lochman & Wayland, 1994). Research has also shown that the "relation between childhood conduct problems and adolescent delinquency is at least partially mediated by deviant peer group affiliation" (Smith, Lochman, & Daunic, 2005, Vitaro, Brendgen, Pagani, Tremblay & McDuff, 1999). Although we cannot control peers' interactions with our students, it is important that we create interventions that support EBD students' creating positive peer interactions.

The classroom environment also impacts students' behavior. It is very common to organize special education classrooms by type of disability. This puts all of EBD students in the same environment. Research has shown that the "density of aggressive children in classroom settings can also increase the amount of aggressive behavior emitted by individual students" (Smith, Lochman, & Daunic, 2005, Barth, Dunlap, Dane, Lochman, & Wells, 2004). This environment shows lasting effects throughout a school

year, but the effect does not continue through further years. While this is an effect that appears to be temporary, increased behavior in the classroom could prevent students from making the amount of progress they are fully capable of.

Teacher interaction with EBD students can also influence behavior. Nelson (1998) looked at the interaction between teachers and students in regards to students' disruptive behaviors. They found that teachers "interacted more negatively with students with disruptive behaviors compared to control students" (Nelson, 1998). When looking more specifically at their findings they are even more discouraging. The "63% of target students had a negative response in reaction to teachers' attempts to correct student behavior" (Nelson, 1998, p. 35). Students were found to show fewer disruptive behaviors "when teachers used direct instruction or effective instruction methods" (Nelson, 1998, p. 35). When interacting and redirecting students, teachers "were more likely to respond to the disruptive behaviors of target students with a reprimand compared to control students" (Nelson, 1998, p. 34). Evans, Weiss, and Cullinan (2012) collected information about teachers' "perceptions of problem characteristics of students with EBD served in different educational environments and examined what management and intervention strategies teachers used." They found that there were no significant differences in reporting of EBD characteristics but strategies and interventions used did differ. Teachers in the general education classroom and special education resource room reported using more strategies for academic support than to support externalizing or internalizing behaviors. Teachers in the special education resource room reported using more strategies and interventions to support students with externalizing and internalizing behaviors than general education teachers. Teachers working in a separate school, or

federal setting IV, reported using the most strategies and interventions for academic, externalizing and internalizing behaviors compared to general education and special education resource room teachers. This data likely reflects that students' behaviors are more severe in relation to their educational setting and likely need more interventions and strategies used. Another important finding from this study was that general education teachers mostly used strategies and interventions for academic support. The strategies used for externalizing behavioral support consisted of behavior contract, reprimand, and teacher proximity. The types of interventions and strategies used in the resource room and setting 4 were more intensive: explicit direct instruction, level system, rules taught and posted, teacher proximity, and verbal reinforcement. General education teachers also did not use a consistent strategy and/or intervention for internalizing behaviors. The findings from these studies on teacher interaction and support of students with EBD are critical for determining responsive interventions with EBD students. General education teachers need to be trained on specific and effective interventions to implement with EBD students to support their academics and to reinforce and respond to student behaviors.

The school environment a student attends, living in a neighborhood with problems and lower socioeconomic status are all "risk factors for aggression and delinquency" (Smith, Lochman & Daunic, 2005, quoted Kupersmidt, Griesler, DeRosier, Patterson & Davis, 1995). Parent interactions with and response to their child also significantly impacts a students' behavior. There are multiple factors that schools cannot control for which include parent discipline, parent involvement, parent interaction, the child's socioeconomic status, and the type of neighborhood students go home to. Although we

can not control for these factors, we can provide supports for students and families experiencing these difficulties.  Acquiring a comprehensive evaluation, including a detailed account of the home environment, is key for making progress with students with EBD.

Although Emotional Behavioral Disorders are characterized by internal and external behaviors, we also need to look deeper and find the root of the cause for these behaviors.  This is often difficult or even impossible to do at the school level, however teachers can use testing for special education evaluations to identify executive functioning deficits, describe a student's home life, and gather information on possible biological influences in order to more clearly define and describe EBD students' behaviors and to develop programming.  Once we can describe each students' present levels and determine possible contributing factors we can then plan interventions that specifically fit where each student is currently at developmentally, socially, and academically.

## Interventions

Up to this point, this paper has discussed the significance and impact of students with Emotional Behavioral Disorder as well as potential causes and contributing factors.  Having background information is very important when first working with a student with EBD with externalizing behaviors; the next step is to then plan effective and responsive interventions.  At the root of the significant issues seen in students is the significant difficulties to self regulate and control impulses.  Interventions with EBD students need to include the explicit instruction and use of strategies in order for them to increase their own control over their behavior, thought processes and impulses.  This can

be done by ensuring we are addressing all of our students' needs.  As discussed earlier, these include identifying the functions of our students' behavior(s), addressing and teaching strategies for deficits in executive functioning and impulse control, as well as acknowledging and providing support for any biological and/or environmental factors.

**Interventions to Support Parents**.  While we can't change biological and environmental factors, we can provide support for students and their families.  Greene et al. (2004) compared the effectiveness of two interventions: "collaborative problem solving (CPS)" and "Parent Training (PT)" with children diagnosed with Oppositional-defiant disorder (ODD).  Parent training includes educating parents on how to implement effective parent discipline, the goal being to change any parent responses to their child's behavior that in turn increases the ODD behavior.  Collaborative problem solving involves a collaborative approach between the adult and child focusing on reinforcing and guiding effective ways to problem solve.  Results of this research study showed that the number of children who showed an excellent response to treatment at a 4 month follow up included 80% of children in the CPS intervention as compared to 44% of children participating in the PT intervention (Greene et al., 2004, p.11).  Mothers' rated their children to show significantly more improvement in their behaviors for the CPS intervention when compared to the PT intervention at the end of the intervention and when surveyed 4 months post treatment.  Overall, Greene et al. (2004) "found that a cognitive-behavioral model of intervention emphasizing collaborative parent-child problem solving produced significant improvements in multiple domains of functioning and across multiple informants at several different data points" (p. 12).  While this study was completed in a therapeutic and not educational setting, it provides important

information for educators when planning interventions.  As stated previously, biological and parent factors significantly contribute to students' behaviors.  Support and education on appropriate parent response and interventions with their children who exhibit significant behaviors can reduce a child's behaviors significantly.  Educators can provide instruction on effective responses to behavior and provide resources for parents to seek effective interventions outside of the school environment.

**School-Wide Interventions**.  Before students are evaluated for special education services it is important that effective interventions are implemented in the general education setting and on a school wide level.  In fact, continuing to provide effective interventions in the general education setting and on a school wide level are also important with current special education students under the EBD category.  This paper's focus is on interventions to implement in the special education setting, however I will briefly touch on interventions in this other setting.  One widely known system used on a school-wide level is Positive Behavior Interventions and Supports (PBIS).  This intervention is meant as a school wide behavioral support system but it also aids in the pre-referral process and accurate identification of students with disabilities.  PBIS is set up as a "multi-tiered continuum of behavior supports from prevention for all students to highly individualized supports" (Lewis, 2010, quoted Horner & Sugai, 2005; Sugai et al., 2000).  Implementing school wide positive behavior interventions and supports increases the amount of appropriate behavior seen in students and the "likelihood of consistent adult and student responses to problem behavior" when the interventions and supports were based on applied behavior analysis, directly taught social skills, and included

acknowledging appropriate behaviors and problem behaviors constructively (Lewis, 2010, quoted Lewis, Colvin & Sugai 2000; Sadler & Sugai, 2009; Scott et al., 2005).

One specific intervention included in the school wide PBIS model has been implemented with success: the Check, Connect and Expect intervention (Stage, Cheney,7 Lynass, Mielenz & Flower, 2012 & Cheney, Lynass, Flower, Waugh, Iwaszuk, Mielenz Kawken, 2012).  This intervention includes an adult who meets with the student throughout the day to briefly check in, set up the student for each day and reflect on the day using a visual point sheet.  The program consists of a check in time where the student and adult meet before school to review the daily goals, throughout the day teachers rate students on their performance using a four point Likert scale, and a check out time at the end of the day where the student and adult meet to reflect on his/her day, problem solve if needed, and provide positive reinforcement appropriately for a period of 8 weeks.  The visual point sheet with expectations lists at least three subject areas that the student is rated on.  Cheney et al. (2010) found that "typically 70% of students in the intervention improve their social behavior and do not develop emotional and behavioral disabilities" (p. 156).  The goal of this intervention is for students to learn to monitor their behavior.  Along with the daily check-in and visual point sheet with expectations, students may also participate in brief social skills instruction if using the visual point sheet does not show that they consistently meet their goals.  Another important component to this increased intervention is the use of a graph for students to track their goals along with the adult in order to compare and teach students the skill of self-monitoring.  Stage et al. (2012) found that, with use of the Check, Connect, and Expect intervention and Functional Behavior Assessment (FBA) based interventions there was a

steep slope in weekly daily progress report percentages compared to other intervention groups. They also found that as "students' DPRs increased, teacher's ratings of their problem behaviors decreased" (Stage et al., 2012, p. 188). The validity assessments indicated that daily progress reports are "valid to make treatment decisions when standardized externalizing problem behavior measures are the criterion" (Stage et al., 2012, p. 189). These two studies have found evidence that the Check, Connect and Expect intervention is successful for most students who are not identified for special education services and for special education students who need more intensive interventions, such as the direct social skills instruction (Cheney et al., 2010; Stage et al., 2012).

Another intervention included in the PBIS model that has shown to be effective when administered school-wide is the Think Time Strategy (Benner et al., 2012, cited Nelson & Carr, 2000). Benner et al. (2012) describe this intervention as strategic steps in response to a behavior:

1. Precision request: when a student exhibits a problem behavior the teacher specifically asks the student to comply.

2. Assigning behavior intervention: if the student does not comply with step 1, then the student is, calmly and without the teacher showing emotion, directed to a previously designated area that is supervised (i.e. another classroom). The student is not interacted with and independently goes to this spot.

3. Reflective period: student is given time in an area that has limited distractions and does not allow the student to interact or engage with others

4. Debriefing process: once the student is calm the student and neutral adult objectively and without the teacher showing emotion describe what happened. Once the neutral adult judges that the student is calm and honestly describes what happened, the student completes a reflective form that asks three questions - What was your behavior? What do you need to do differently when you go back to class? Can you do it? The student should complete this form independently unless there are justifications of why the student can't complete the form.

5. Classroom reentry: student goes back to his/her class and is positively acknowledged for completing the form and calming down. The teacher reviews the form and if accurate the student joins the class, if it is not filled out accurately the teacher then returns to step 2 and follows the steps again.

Benner et al. (2012) implemented this intervention with trained staff and documented student behaviors through multiple, structured observation. Overall results show that the "intervention had a significant moderate effect on reducing problem behaviors and a trend, albeit non significant, for increasing percentage of on-task behaviors" (Benner et al., 2012, p. 195). Benner et al. (2012) also found that the effectiveness of the intervention was "influenced by the students' initial baseline level of problem behavior… which suggests that the behavior intervention may be more effective with students with

externalizing behavior" (p. 196). This intervention method provides teachers with a specific and effective response to student behaviors while also giving students the opportunity to reflect on behaviors and increase self-awareness.

Implementing effective interventions for students with deficits in self-control and external behaviors is important on a school-wide level. It is too often that these students are thought of as the responsibility solely of special education staff, however interventions need to first begin in the general education setting. Research based, effective interventions that reduce student behaviors to implement at a Tier II level (targeted interventions for students in the general education setting) include the Check, Connect and Expect intervention and the Think Time Strategy.

**Interventions in the General Education Setting**. Interventions should also be implemented to help a student receiving special education services under the category of EBD successfully participate in the general education setting. Korinek and DeFur (2016) reviewed research to compile effective strategies for teachers to use to increase EBD students successful participation in the general education classroom. The basic process for general and special education teacher to use in order to ensure effective interventions and supports are in place is:

- Identify interventions and supports that promote student self-regulation
- Assess teaching practices
- Set goals
- Implement effective and the most relevant practices
- Integrate the interventions and supports within the curriculum
- Assess the effectiveness of these interventions and supports

- Collaborate and problem solve

(Korinek & DeFur, 2016)

Korinek and DeFur (2016) researched several effective interventions for teachers to use. The first recommendation is to organize the physical setup of the classroom. This includes providing visual prompts to aid in students' independence (i.e. a poster with the steps involved during each reading rotation). Another way to support students with EBD include establishing clear classroom expectations, routines and rules; teachers should provide opportunities for these to be "modeled, practiced with feedback, consistently enforces and reinforced multiple times until they become standard operating procedures for students" (Korinek & DeFur, 2016, p. 234). Teachers should also provide students with checklists to use for self-management, these can take the form of a to-do checklist or a checklist to help the student calm down when upset. The overall goal of using a checklist is to "break down complex tasks and visually guide students through the steps to complete activities or assignments more independently" (Korinek & DeFur, 2016, p. 235). Another important practice to embed in the general education classroom is to allow students with EBD opportunities to voice their opinions and providing opportunities for choice. A practice that increases self-regulation and self-management is to set goals with the whole class with students participating in tracking the goal. General education teachers can also model self-regulation language and skills, use strategic questioning and provide positive feedback. Korinek and DeFur (2016) found several effective strategies to use in the general education setting in order to increase EBD students' self-regulation: thoughtful organization, clear expectations, rules and routines, use checklists, give students choices and a voice, set goals with the classroom, model self-regulation

language and skills, use strategic questioning, and providing positive feedback. These strategies are all quite simple to implement but can significantly increase the success of EBD students in the general education setting. As stated previously, Korinek and DeFur, recommend that once effective practices have been identified and implemented, the teacher needs to follow through with the rest of the basic steps in order to integrate them into daily practice, assess if the strategies are working, and problem solve for those that are not working.

**Interventions to Address Impulse Control Deficits**. Effective interventions must also be implemented in the special education environment. As stated previously, difficulty inhibiting impulses and behaviors "disrupts working memory … influences the ability to self-regulate moods and motivation, and integrate behaviors to achieve goals" (Watson & Westby, 2003, p. 196). Teaching students impulse control is directly related to students' ability to self-regulate. Rezmerski (1984) identified developmental stages of impulse control that children and adults go through. Identifying which stage of impulse control our students are in is the first step so that we can plan effective interventions. Rezmierski (1984) described nine stages of impulse management and the needs associated with each:

| Stage of managing impulses | Needs | Interventions |
|---|---|---|
| 1. Adult restraint needed to control impulses | • Physical restraint<br>• Removal of stimuli<br>• Distraction or substitution | • "child proof" the environment<br>• Spend time with the child physically redirecting them along with verbal directives |
| 2. Verbal and non-verbal cues needed from another to | • Consistent rules<br>• Limits imposed by | • Consistent and predictable responses |

| control impulses | others | and rules<br>• Help child organize experiences and develop associations between behaviors and reactions of others |
|---|---|---|
| 3.　Verbal and non-verbal cues to previously learned rules needed from another to control impulses | • Limits posed by others<br>• Modeled self-talk | • Consistent and predictable responses<br>• Use of cognitive modeling i.e. adult performs task while self-talking aloud<br>• Child then performs task and repeats self-talk aloud<br>• Fade self-guidance to whisper self-talking and then use of private speech |
| 4.　Individual able to control impulses for a short time with positive reinforcement or reward when adult is in the same environment | • Consistent and predictable reinforcement<br>• Cause and effect interpretations<br>• To learn self-talk | • Explicitly teach self-control, connecting behaviors with reactions and consequences |
| 5.　Individual able to control impulses for a short time when adult is not in the same environment, with positive reinforcement or reward from an adult | • Mental rehearsal of potential reactions and behaviors<br>• Practice applying strategies<br>• Stimulation of internal cueing | • Explicitly teach student to mentally rehearse self-instruction techniques<br>• Practice cause and effect predictions student makes<br>• Practice applying new behavioral strategies |
| 6.　Individual able to control impulses for a longer period of time when adult is not in the same room, with positive reinforcement or reward from an adult | • Consistent and predictable reinforcement for delay of impulses and use of judgments<br>• Practice in cause-effect thinking | • Structured positive reward system at a longer interval |

| 7.    Individual controls impulses by thinking through choices and makes a decision based on individual and others' needs | • Practice in means-end problem solving<br>• Practice in determining options<br>• Values clarification | • Guided discussions with student about their behavior identifying why they did ____ and discuss strategies they can use next time |
|---|---|---|
| 8.    Individual controls impulses by thinking through choices and makes a decision based on personal values | • To review and evaluate personal choices | Interventions not needed at this level. |
| 9.    Individual controls impulses completely independently - without needing reinforcement/rewards from an adult or time to cognitively think through choices | There are no needs for this stage, the individual is able to independently control impulses | Interventions not needed at this level. |

(Rezmierski, 1982, p. 14, 15, 17)

Rezmierski's research shows that interventions for self control are dependent upon which developmental stage the student is in.  Interventions for self-regulation can be organized along these stages and modified based on the stage of impulse control in order to specifically meet a students' needs.

While we need to identify which developmental stage of impulse control a student is at, we also need to examine, define and determine the function of a students' impulsive behavior in order to disrupt the cycle and teach new skills.  Ellsworth (1996) described the steps a child with impulsive behavior goes through as "problem, thoughts, feelings, anger, vengeance, and out of control" (p. 4).  In order to gain control over this maladaptive pattern of response and to problem solve with the child after a behavior has occurred, the adult needs to coach the student to:

1. examine what need the behavior is meeting

2. List ways to meet this need that is deemed as appropriate and helps them self-soothe

3. Develop a plan to get his/her need met in the designated appropriate way

4. Establish a way to ask for assistance when needs are overwhelming and the child is escalated beyond the point of self-control

5. Reflect and debrief often, having the child keep track of how he/she felt, how others reacted, and how the child responded to others

6. Celebrate and provide positive encouragement

(Ellsworth, 1996, p. 6, 7, 8)

In order to implement effective and responsive interventions in order to increase students' impulse control, we need to follow these steps:

1. Determine what developmental stage of impulse control the student is in

2. Determine the function of the student's behavior

3. Match needs based on the student's impulse control stage and function of behavior

4. Develop research based interventions based on this information and plan an appropriate replacement behavior that serves the function

5. Debrief with the student frequently, providing specific positive feedback for desired behaviors

6. Reflect on effectiveness of interventions and replacement behavior, problem solve and make adjustments as needed

Along with these steps, it is important that the teacher and adults in the student's life provide consistent and predictable responses and routines as well as providing care and nurturing for the child.

**Interventions for Deficits in Executive Functioning**. Watson and Westby (2003) identified four areas of executive functioning that are affected by a student's deficit in impulse control. While stages of development and response to impulsive behavior have been identified, the Interventions described below are specific strategies to teach students and specific concepts to teach students through direct instruction, modeling, and specific feedback.

- nonverbal working memory
  - Strategies to use: graphic organizers, visual cues, videotape behavior
  - Concepts to teach: identify impulsive behavior
- verbal working memory
  - Strategies to use: model and ask specific questions, use of thinking aloud/cognitive modeling
  - Concepts to teach: pragmatic language instruction
- self-regulation of emotions
  - Strategies to use: model expected social skills and the cognitive process involved in performing each skill, social stories, verbal cueing and questioning
  - Concepts to teach: identify feelings, cause and reaction to feelings, emotional vocabulary, learn expected social skills
- problem solving

o  Strategies to use: identify goals and plan to achieve goals, role-play, guide

student through emotional reactions, scaffold interactions

o  Concepts to teach: explicitly teach consequences and expected/unexpected

responses

(Watson & Westby, 2003)

Interventions for executive functioning deficits are integrated within impulse control and

self-regulation, Ylvisaker, Szekeres and Feeney (1998) defined executive functions as "a

group of control functions that direct and regulate cognitive behavior as well as social

behavior." Addressing executive function deficits will also address impulse control and

self-regulation. For the purpose of this paper, executive functions and impulse control

will be referred to as self-regulation. Based on previous research, the author feels this

term appropriately describes both of these deficits in our students with EBD.

**Cognitive Behavioral Curriculums**. Smith, Lochman and Daunic (2005)

described specific social cognitive models for addressing children's aggression and

problem solving abilities. A review of these interventions indicates that the social

cognitive models address impulse control and executive function deficits. Specific

programs that address both of these areas include the Anger Coping, Coping Power, and

Tools for Getting Along programs. These three cognitive based approaches address

impulse control, teach to identify when behavior and emotions escalate, specific

instruction and practice of strategies, problem solving for problem behavior,

appropriately interacting with peers and adults, and how to effectively deal with

frustration and anger among other strong emotions (Smith, Lochman & Daunic,

2005). These programs are highly structured and involve the use of modeling, thinking

aloud, and supervised practice with feedback. These are all important components discussed above used to effectively address deficits in executive functioning and impulse control.

Another social-cognitive curriculum shown to be effective when implemented in the special education setting is the PATHS curriculum, or Promoting Alternative Thinking Strategies. The PATHS curriculum aims to teach students in the areas of "self-control, emotional awareness and understanding, and social problem solving to increase social and emotional competence" (Kam, Greenberg & Kusche, 2004, p. 68). Kam et al. (2004) completed a research study to examine the effectiveness of this curriculum when implemented in the special education environment. A modified version of the PATHS curriculum that emphasized teaching behavioral self control was implemented in seven elementary schools with students who had varying disabilities (learning disorder, emotional/behavioral disorder, developmentally cognitively delayed, and physical impairment). When compared to the control groups, the PATHS curriculum showed a "significant impact in regards to teacher reports of externalizing and internalizing problems and substantial reductions in self-reported depression in the children" (Kam, Greenberg & Kusche, 2004, p. 73). Results also indicated that the effects were "sustained two years after the intervention" (Kam, Greenberg & Kusche, 2004, p. 73). The results of this study are promising in that it shows evidence that the PATH curriculum effectively reduces behaviors when implemented in the special education environment.

The social-cognitive curriculums discussed, Anger Coping, Coping Power, Tools for Getting Along programs, and PATHS, all effectively teach special education students

self-regulation.  These curricula address impulse control and executive functioning

deficits that are shown to be significant contributors to an EBD students significant

difficulty with self-regulation.  One important consideration with using a social-cognitive

curriculum is that teachers need to be well trained on the intervention as well as the

theories behind it (Smith, Lochman & Daunic, 2005).

When planning interventions for EBD students, we need to examine their entire

day.  What students have learned and which behaviors are reinforced for in their home

environment plays an important role in students' daily self-regulation skills.  Greene et al.

(2004) "found that a cognitive-behavioral model of intervention emphasizing

collaborative parent-child problem solving produced significant improvements in

multiple domains of functioning and across multiple informants at several different data

points" (p. 12).  At a school level we may not always have the resources to implement

change at home, however we can encourage parents to examine how they are interacting

with their child, provide education on effective responses to behaviors, and offer

resources for parents to seek outside resources such as therapy programs.

Special educators, general educators, and school leaders need to work together to

insure effective interventions are being implemented in the general education setting and

implemented school wide.  One widely researched, school-wide intervention is Positive

Behavior Interventions and Supports (PBIS).  Implementing school wide positive

behavior interventions and supports increases the amount of appropriate behavior seen in

students and the "likelihood of consistent adult and student responses to problem

behavior" when the interventions and supports were based on applied behavior analysis,

directly taught social skills, and included acknowledging appropriate behaviors and

problem behaviors constructively (Lewis, 2010 quoted Lewis, Colvin & Sugai, 2000; Sadler & Sugai, 2009; Scott et al., 2005). Two specific PBIS interventions discussed in this paper that have shown to effectively reduce student behaviors are the Check, Connect and Expect intervention (Stage et al., 2012) and the Think Time Strategy (Benner et al., 2012). Other interventions that have been shown to be effective in the general education setting are to once effective practices have been identified and implemented, the teacher needs to follow through with the rest of the basic steps in order to integrate them into daily practice, assess if the strategies are working, and problem solve for those that are not working (Korinek & DeFur, 2016). While these interventions' effectiveness was examined while administered at a general education level with students who were not identified under the EBD category, it is likely that they would be effective to use with EBD students while they are in the general education setting. While this paper's focus is not on school-wide methods, it is important to consider these interventions when planning effective interventions to increase self-regulation in our EBD students. We need to work with the student throughout his/her entire school day in order to provide consistency and real-life learning opportunities.

Rezmierski (1984) identified developmental stages of impulse control that children and adults go through. Identifying which stage of impulse control our students are in is the first step so that we can plan effective interventions. There are nine stages of development ranging from adult restraint needed to control impulses and verbal and nonverbal cues needed from another to control impulses to individual controls impulses completely independently - without needing reinforcement/rewards from an adult or time to cognitively think through choices. Most of our younger students are in the first two or

three stages.  In order to accurately identify which stage each student is at, identify the

function of the student's behavior and develop effective interventions to increase self-

regulation we need to follow these steps:

1. Determine what developmental stage of impulse control the student is in

2. Determine the function of the student's behavior

3. Match needs based on the student's impulse control stage and function of
   behavior

4. Develop research based interventions based on this information and plan an
   appropriate replacement behavior that serves the function

5. Debrief with the student frequently, providing specific positive feedback for
   desired behaviors

6. Reflect on effectiveness of interventions and replacement behavior, problem solve
   and make adjustments as needed

(Ellsworth, 1996; Rezmierski, 1984)

Developing responsive interventions to increase student's self-regulation needs to be

developed based on a student's developmental stage and their function of behavior.

In order for interventions to effectively increase students' self-regulation we also

need to address any executive functioning deficits.  EBD students' evaluations should

include assessments to identify any executive functioning deficits.  A research study

conducted by Carlson, Hooper and Mattison (2006) indicated that 57.1% of elementary

students who have "serious behavioral and emotional problems" scored in the clinical

range for total problems on the NEPSY assessment (p. 179).  Areas of executive

functioning that are affected by a student's deficit in impulse control include non verbal

working memory, verbal working memory, self-regulating emotions, and problem solving (Watson & Westby, 2003). Strategies and direct instruction to address these deficits need to be used with EBD students in order to increase their self-regulation.

Social-Cognitive curriculums have been shown to effectively address impulse control and executive functioning deficits, which are significant contributors to an EBD students significant difficulty with self-regulation (Smith, Lochman & Daunic, 2005). Social-Cognitive curriculums are structured programs to directly teach students self-regulation strategies and executive functioning deficits. Effective social-cognitive curriculums include Anger Coping, Coping Power, Tools for Getting Along, and Promoting Alternative Thinking Strategies. Direct instruction of strategies is another important component of teaching EBD students self-regulation.

Interventions to increase EBD students with external behaviors' self-regulation include interventions to support parents and home life, school wide interventions, interventions in the general education setting and more specific and intense interventions in the special education setting. A review of research shows that common themes between all of these interventions are to teach how to identify emotions and problem behavior, teach how to problem solve effectively, learn to monitor behavior, identify expectations and consequences through using modeling of skills, guided discussion, visual supports, explicit instruction, and using a structured positive reward system. Lewis (2010) found that educators need to continue to reflect on interventions frequently when the student is not progressing, continue to research and support early efforts to identify and intervene with EBD students, and define students not on their behaviors but on the level of interventions and supports they needs in place. EBD

students with externalizing behaviors need consistency, interventions implemented across

their entire day are integral in their success in learning self-regulation.

## CHAPTER III: DISCUSSION AND CONCLUSION

### Summary

Effective interventions for EBD students to increase their self-regulation need to address the whole student. This includes addressing any biological or environmental factors that contribute to behavior, identifying the function of a student's behavior, and meeting the needs of our students who often have deficits in executive functioning and problem solving processes (Alberto & Troutman, 2009). It is common for EBD students to have significant difficulty with regulating their behavior, this is a part of the qualifying criteria for EBD under the Minnesota Eligibility Criteria in section A category 3 "the student must exhibit aggressive, hyperactive or impulsive behaviors that are developmentally inappropriate" (Minnesota Department of Education, 2017). Identifying the function of a student's behavior is most commonly and effectively done through conducting a Functional Behavioral Analysis (FBA) (Alberto & Troutman, 2009). Once we identify the function of a student's behavior we must then plan, implement and assess effective interventions to reduce behaviors and increase self-regulation (Korinek & DeFur, 2016).

Contributing factors include biological and environmental influences. Unfortunately, one common biological factor that influences disordered behavior in students is exposure to drugs and/or alcohol while in utero (Mattison, Hooper & Carlson, 2006; Waller, 1994). Another contributing biological factor is brain composition. A large number of students with identified significant behavioral difficulties show a decrease in grey matter and white matter density in areas of the brain responsible for regulating emotions and impulse control and test positive for variables

that indicate Low Serotonin Syndrome (Fahim et al., 2012; Matykiewicz, 1997). One study found that children with significant behavioral difficulties had fathers that exhibited higher impulsiveness and aggression (Herpertz et al., 2006). EBD students could have underlying biological influences that make regulating their behavior significantly difficult.

Environmental factors also contribute to student's disordered behaviors and difficulty with self-regulation. This includes environmental factors at school such as peer rejection, having a high number of students with aggressive behavior in the same classroom, and negative teacher and student interactions (Nelson, 1998; Smith, Lochman & Daunic 2005 quoted from Barth et al., 2004). Environmental factors in the student's home life such as parenting style and parental discipline also contributes to disordered behavior and difficulty with self-regulation (Smith et al., 2005). We cannot always control for environmental and biological factors students experience, but we can implement interventions with students and educate parents to help increase students' self-regulation. Interventions that have proven to be successful in reducing disordered behavior and changing students' environments include cognitive-behavioral models emphasizing parent-child collaborative problem solving, implementing school wide positive behavior interventions and supports and teachers continually assessing (Benner et al., 2012; Cheney et al., 2010; Greene et al., 2004; Kam, Greenberg & Kusche, 2004; Korinek & DeFur, 2016; Lewis 2010 quoted Lewis, Colvin, & Sugai 2000; Sadler & Sugai, 2009; Scott et al., 2005; Stage et al., 2010).

Executive Functioning deficits also contribute to disordered behavior and difficulty with self-regulation. Four components of executive functioning that students

with low self-regulation skills have difficulty with are nonverbal working memory, verbal working memory, self-regulation of emotions, and problem solving (Watson & Westby, 2003). While most of the research supports the findings that most EBD students have executive functioning deficits, VanGoosen et al. (2004) found no significant differences between students with significant behavioral difficulties and controls in executive functioning except when completing the set-shifting task. Along with difficulty with these areas of executive functioning, EBD students also show significant difficulty thinking through and completing appropriate and prosocial steps in problem solving, including the steps of encoding, interpreting, problem solving, identifying potential solutions, identifying and evaluating each solution in relation to its consequence, and acting on chosen responses (Lochman & Wells, 2002a; Smith, Lochman & Daunic, 2005). Students need to be explicitly taught strategies to compensate for low executive functioning processes and strategies to use when problem solving. This can be done through using Social-Cognitive curriculums. Effective social-cognitive curriculums include Anger Coping, Coping Power, Tools for Getting Along, and Promoting Alternative Thinking Strategies. (Kam et al., 2004; Smith et al., 2005).

Addressing all contributing factors is critical for making progress with EBD students, we also need to address impulsivity in order to increase self-regulation. In order to effectively increase student's self-regulation we need to identify the developmental stage of impulse control the student is in, determine the function of the student's behavior, match the student's needs, implement research based interventions, debrief with the student, and reflect on effectiveness of interventions (Ellsworth, 1996; Korinek & DeFur, 2016; Rezmierski, 1982).

**Limitations of the Research**

Research included in this article was limited to include relevant articles based on the research question.  Limitations were made in order to include articles that discussed subjects under the age of 18 in order to focus on subjects that are of elementary and secondary school age.  Research included interventions implemented with students in the general education setting with significant behavioral concerns but focused mainly on students identified as needing special education services under the Emotional/Behavioral Disorder category.  Research dictating effective interventions was focused on interventions to increase self-regulation, which addressed the research question.

Limitations of the research included a limited sample of articles focused on effective interventions with EBD students in special education to increase their self-regulation.  There was a large amount of research on effective interventions for students with concerning behavior in the general education population.  There were quite a few studies that researched interventions, however effectiveness was measured with students from the general education population.  Research was also not found that specifically identifies and examines the effectiveness of self-regulation curriculums.

**Implications for Future Research**

More research needs to be conducted on specific interventions that increase self-regulation, especially on effectiveness of curriculums that teach self-regulation skills.   Effectiveness of interventions also needs to be measured with EBD students in special education.  Future research should be conducted on effective interventions with students under the Emotional/Behavioral Disorder category already receiving special education services.  There seemed to be a lack of research studies conducted on the

effectiveness of implementing interventions with EBD students in the special education environment. While this may be a more difficult population to research due to confidentiality concerns, it is important to gather data in order to more effectively teach these students self regulation skills. More research also needs to be conducted to identify executive functioning deficits in EBD students more clearly. We need to ascertain profiles of students with EBD in relation to their executive functioning deficits. This will help establish if there are any trends with specific executive functioning skills. While research has identified some areas of executive functioning that EBD students have difficulty with due to identified skill deficits, future research needs to use more standardized testing when gathering data to more accurately identify any deficit areas. Another area to gather more data on is to create a comprehensive definition of self regulation and the skills needed to demonstrate age appropriate self regulation. One study mentioned in this article identified developmental stages of impulse control, while this is closely related and contributes to self regulation it does not encompass all of the skills a student needs to self regulate.

## Professional Application

As a special education teacher of EBD students, it is a part of my job to advocate for students' needs as well as identify and implement effective interventions to decrease behaviors and teach specific skills. When students with EBD qualify in this category and are identified as such there is a heavy weight put upon them due to pre-conceived notions of this label. I have heard colleagues state that, if the student can qualify for special education services through a different category they will choose the other category even if the EBD category more clearly defines the students' needs. This is a problem in

special education because, as special educators, it is our job to accurately identify why a student is having difficulty progressing in their educational performance.

Shedding light on contributing factors of EBD students as well as identifying specific interventions that are proven to be effective helps demystify the EBD label. If we can understand why a student may be exhibiting disordered behaviors and match effective interventions to students' needs then the negative connotations with this label start to dissipate. This is yet another reason of why it is so important to view the student as a whole and meet their needs as a person, a student, someone's son/daughter. High expectations, care and compassion along with effective interventions for self-regulation can make an incredible difference in an EBD student's progress.

After reviewing research, I can now identify potential causes of behavior - environmental and biological. While there is not always a lot of change I can influence in these areas, it is important to know a student's background and home life. One environment I can work to change is the school environment. With the EBD label bringing up so many preconceived notions, it can lead teachers to interact more negatively with EBD students. I plan to educate my colleagues about EBD, contributing factors, and encourage discussion about negative interactions and trying to dispel the negative connotations that go along with EBD.

Findings from this paper will be used to develop effective programming for EBD students. I plan to use the interventions listed in this paper when planning interventions with my EBD students. The first one I plan to implement is identifying which developmental stage of impulse control students are in and then aligning interventions to the identified stage. I will also use the process outlined to continually assess and problem

solve interventions already in place.  Going through this process with all parties involved, the general education teacher, paraprofessionals, administration, parents, and the student, will help insure interventions are specifically targeting students needs and are effective at increasing self-regulation.

Another critical area I will examine is the strategies I am using with EBD students.  Research indicated that EBD students exhibit executive functioning deficits.  The first step I will complete is to identify EBD students who also have executive functioning deficits by reviewing their most recent evaluation and completing observations.  Once I have identified deficits, I will use the research included in this paper to match effective strategies and interventions to deficit areas.  Addressing executive functioning deficits should increase self-regulation with my students, which is something I will monitor through data collection and continual discussions with all parties involved with this student as discussed above.

Overall, the research completed for this thesis will drastically change the way I teach.  It will influence how I identify student needs and how I view my students.  It will also impact interventions I implement with students in a positive way, interventions will be more accurately matched to my student's needs.  Interventions will also be frequently monitored and assessed.  After completing this research, I will be able to effectively develop programming for EBD students.

## Conclusion

Students with Emotional/Behavioral Disorders (EBD) require intensive interventions and consistency in order to meet their needs and increase self-

regulation. EBD students struggle with executive functioning deficits which includes significant difficulty regulating their behaviors. There are many hypothesized causes of EBD, including contributing factors from the student's environment at home and school, parent interaction, peer interaction, heredity influences, and biological factors. In order to increase self-regulation in EBD students, research based interventions need to be implemented to address deficits in executive functioning and meet each students' individual needs.

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