MINDFULNESS MEDITATION AND PERSONALITY EFFECTS ON SELF-REGULATION IN PRESCHOOLERS

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Abbreviations

1. Mindfulness Based Stress Reduction (MBSR)
2. Mindfulness Based Cognitive Therapy (MBCT)
3. Dialectic Behavior Therapy (DBT)
4. Acceptance and Commitment Therapy (ACT)
5. Mindfulness Meditation (MM)
6. Mindful awareness practices (MAPs)
7. Treatment as usual (TAU)
8. Behavior Rating Inventory of Executive Function- Preschool Version (BRIEF-P)
9. Five Factor Model (FFM)
10. The Preschool Behavioral and Emotional Rating Scale (PreBERS)
11. Inhibitory Self-Control Index (ISCI)
12. Flexibility Index (FI)
13. Emergent Metacognition Index (EMI)
14. Emotion Regulation (ER)
15. School Readiness (SR)
16. Social Confidence (SC)

ABSTRACT

MINDFULNESS MEDITATION AND PERSONALITY EFFECTS ON SELF-REGULATION IN PRESCHOOLERS

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Research on self-regulation skills in preschool children shows lasting academic, economic, and psychological effects that may remain through adulthood. Children show large gains in these skills during the preschool age, making it an important time to intervene. There has been recent support for the use of meditation and other mindfulness activities to increase self-regulation in various age groups with the inclusion of preschoolers. Additionally, there has been growing support for using the Five Factor Model of personality to explain individual differences in the emergence of such skills. The present study sought to determine the feasibility and effectiveness of a mindfulness meditation program on preschool self-regulation skills. This study also sought to explore individual differences in the emergence of these and assess the relationship between two indirect measurements of self-regulation. Preschoolers (N=102) from a rural Appalachian Pre-K program were assigned to either 6 weeks of guided meditations led by their teacher or an active control group. Teachers completed a personality measure and two self-regulation measures, which were both completed pre- and post-intervention. Contrary to prior research, results indicated no significant interaction effect between time and intervention as both groups equally improved over the two periods. Additionally, there were no correlations between the two self-regulation measures, suggesting need for better measurement scales. Similar to the literature, this study did find an association between the five factors of personality and the different aspects of self-regulation.

CHAPTER ONE: INTRODUCTION

Self-regulation is strongly predictive of school readiness in young children. McClelland and Tominey (2016) state that without it, children may struggle interpersonally and academically, which could cause students to disengage from school and learning. They also explain that since early academic skills lay a foundation for later success, it may become increasingly difficult for these children to overcome achievement gaps. A study by Montroy, Bowles, Skibbe, McClelland, and Morrison (2016) found that the majority of children show rapid gains in self-regulation during the preschool age, but some children may not start developing these skills until well after kindergarten. These individual differences are partly attributed to temperament, or personality traits, found in children (Murray, Rosanblam, Christopoulos, & Hamoudi, 2015).

Since early self-regulation development is related to later academic success, positive economic outcome, and overall positive health, it is critical to encourage self-regulation at an early age. Fortunately, research shows that self-regulation is responsive to intervention (Murray et al., 2015). Zelazo and Lyons (2011) propose that mindfulness training, or practices that promote being grounded in the present moment, may be an effective way of improving self-regulation skills during this critical period.

For instance, Tang, Posner, and Rothbart (2013) state that it has recently been possible to track changes in self-regulation in college students after only 5 days of meditation (i.e., a type of mindfulness training). Neuroimaging techniques show that meditation improves activation and connectivity in areas of the brain related to self-regulation (Tang et al., 2013). In a previous study, the same researchers found that a version of mindfulness meditation significantly

increased parents' reports of self-regulation in Chinese preschoolers (Tang, Yang, Leve, & Harold, 2012); however, the research of meditation effects on self-regulation in US preschoolers is in its infancy, with the majority of its publications dating back only a couple of years.

Mindfulness meditation has shown positive effects on emotion regulation, attention, and social skills, all of which are believed to be aspects of self-regulation (Cahn, Delorme & Polich, 2013). Most of the meditation literature has been on the study of clinical or healthy adult and college student samples. Far less research has been conducted in the classroom, with virtually no intervention studies being compiled on preschoolers. We know from case studies and current research that preschoolers can practice mindfulness training; however, the practices must be developmentally appropriate (Flook et al., 2010; Lillard, 2011; Tang et al., 2012; Zelazo & Lyons, 2012).

Zelazo and Lyons (2012) explain that mindfulness-training activities may foster self-regulation by both top-down and bottom-up influences. Top-down influences refer to the neurocognitive aspects (i.e., executive functioning), while the bottom-up influences refer to the control of intrinsic emotions. Zelazo and Lyons (2012), conclude that, "it remains largely unknown whether mindfulness training in children leads to improvements in behavioral measures of self-regulation" (p. 158). Therefore more research is needed in this age group.

CHAPTER TWO: LITERATURE REVIEW

Mindfulness

The term mindfulness has brought forth many variant definitions from scholars and Buddhists alike, with most agreeing that the construct contains two important components: being nonjudgmental and present-centered (Bishop et al., 2004). In 1994, Kabat-Zinn explained it as, "paying attention in a particular way: on purpose, in the present moment, and non-judgmentally" (p. 4). This type of awareness is usually taught through mindfulness practices, which are structured actions that require individuals to exercise will over their physical and mental actions, such as yoga and meditation (Davidson et al., 2012). Mindfulness does not have to occur in a specific activity, though. Mindfulness can occur while walking, eating, driving, or any other aspect of one's life. Thich Nhat Hanh (1987), a Buddhist monk, explained it as, "While washing the dishes one should only be washing the dishes, which means that while washing the dishes one should be completely aware of the fact that one is washing the dishes" (p.3). As repetitive as it may sound, any activity that one is completely aware of doing is an act of mindfulness.

Mindfulness has been implemented into many new therapeutic treatments, such as Mindfulness Based Stress Reduction (MBSR), Mindfulness Based Cognitive Therapy (MBCT), Dialectic Behavior Therapy (DBT), and Acceptance and Commitment Therapy (ACT; Hayes & Wilson, 1993; Kabat-Zinn, 1990; Linehan, 1993a, 1993b; Teasdale, Segal, & Williams, 1995). MBSR originated in 1979 and was originally an 8-week group intervention for the reduction of medical symptoms that involved the use of various meditation techniques, yoga practice, didactic communication, and psychosocial support (Baer, 2003; Kabat-Zinn 1990; Lutz, Jha, Dunne, & Saron, 2015). MBCT was adapted from MBSR to better serve individuals suffering from

depression. The goal of MBCT is to teach these individuals to observe their thoughts and feelings nonjudgmentally and view them as separate functions from themselves (Baer, 2003). DBT is a treatment that uses acceptance as a catalyst for change in individuals with Borderline Personality Disorder and ACT is a therapy that helps clients to be aware of their thoughts, emotions, and sensations without trying to change them (Baer, 2003). In a review of these treatments, Baer (2003) observed that each of these programs included the acceptance of certain mental and physical states, without trying to alter them in any way.

Mindfulness research has shown support for clinical populations, but it has also been found to produce other beneficial outcomes including attention, emotional regulation, empathy, physical health, and overall well-being (Roeser & Eccles, 2015). Black and Fernando (2014) state that mindfulness is a trainable skill learned through "intentionally remembering to pay attention in the present moment without habitual reaction or conceptual exaggeration" (p.1242). As discussed above, there are several ways to develop these skills, including meditation, yoga, breath-work, and certain martial arts. While research can be found on all of these practices, the focus of this paper will be specifically on the use of meditation.

Meditation

As with mindfulness, there is no agreed-upon definition of meditation in the current literature. However, Kabat-Zinn (1982) described it as the deliberate moment-to-moment self-regulation of one's attention. However, this definition makes meditation hard to operationalize; which is a problem in current research. Singh (2014) described the primary components of mediation as form, object, behavior of the mind, and attitude. Where form refers to the position of the body (i.e., sitting, walking, lying down), object being the focus of one's attention (i.e., the breath, sensations, mantras), behavior of the mind referring to the focused concentration and

flexible awareness of attention, and attitude being how an individual approaches meditation (i.e. persistence, presence, relaxation). The areas of the brain thought to be involved in meditation are the frontal and prefrontal cortex, which are related to processes such as attention regulation, emotion regulation, insight, and memory (Cahn, Delorme & Polich, 2013; Singh, 2014).

Singh (2014) explains that the perspectives of meditation differ among Eastern and Western societies. In the East, meditation is a life-long spiritual practice with a goal of *nirvana*, or transcendence. In the West, meditation is a more short-term intervention for wellness and self-improvement. The perspectives of meditation and the difference in goals have created a wide array of meditation styles, which in turn makes it more difficult to research effectively. In a review of mindfulness training, Bear (2003) writes that Transcendental and Insight Meditation use mantras and focus on insight and wisdom. These types of meditations usually have a more spiritual component, whereas Mindfulness Meditation (MM) involves the observation of constantly changing internal and external stimuli as they arise.

Dahl, Lutz, and Davidson (2015) propose three families of meditation practice. These are attentional, constructive, and deconstructive, with each focusing on different cognitive goals. The attentional family has a primary focus on attention regulation and meta-awareness. Meditation practices in this family may ask one to be aware of one's breath, thoughts, or physical sensations without trying to make any changes. The constructive family is concerned with perspective taking and the reappraisal of maladaptive thought patterns, while the deconstructive family uses insight to understand these maladaptive patterns (Dahl et al., 2015).

Within the different families of meditation, there are many specific meditation techniques. However, for the purpose of this paper we will focus on meditation practices found in the attentional family. MM is one of those practices. MM highlights being present in the

moment and sustaining awareness in a non-judgmental way (Kabat-Zinn, 1994). There are two major components of MM: focused attention and open awareness (Lutz et al., 2015). As explained by Lutz, Slagter, Dunne and Davidson (2008), focused attention is the process of bringing and maintaining one's attention to a particular object (i.e., the breath) and open awareness is observing all internal and external stimuli without pursuing them in thought. While focused attention primarily affects processes related to cognition, open monitoring simultaneously affects emotion processes (van Vugt, 2015).

Research on meditation has shown effects in reducing negative symptoms in both healthy and clinical populations. In clinical populations, symptom reduction in anxiety, depression, addiction, and chronic health pain have been noted (Baer, 2003; Dahl et al., 2015; Kabat-Zinn, 1982). In healthy samples, it reduces behavioral problems, stress responses, rumination, and emotional responses (Baer, 2003; Black & Fernando, 2014; Cahn et al., 2013; Flook et al., 2010). Meditation research has also had significant effects in increasing attention, academic performance, emotional regulation, and overall well-being (Dahl et al., 2015; Lutz et al., 2015; Zelazo & Lyons, 2012).

Mindfulness Practices for Children

While most of the published research on meditation effects has been on adults and undergraduates, the research of using meditation as a tool for children has been growing (Baer, 2003; Lillard, 2011; Zelazo & Lyons, 2011). Mindfulness in children may increase positive classroom behaviors because this nonjudgmental awareness is positively correlated with school readiness, pro-social behaviors, and academic performance, while negatively correlated with external problems (Black & Fernando, 2014). However, one issue with mindfulness training in young children is the concern of age-appropriate adaptations (Lillard, 2011).

Zelazo and Lyons (2012) reviewed some of these adaptations for children. They stated that these practices may involve more movement-based activities, have simpler and more concrete metaphors, and use props to foster understanding. For example, a child could learn deep breathing techniques by using their breath to make a pinwheel spin. Another way to create more age-appropriate practices is through mindful games and exercises tailored to the specific age groups (Flook et al., 2010). For example, younger children may be asked to use their senses to explore items in a classroom while older children may be asked to be aware of certain flora or fauna during a nature walk. At first, it may require a lot of instruction to have children sit silently, but it has been found that children are able and willing to engage in meditation practice (Adair & Bhaskaran, 2010; Zelazo & Lyons, 2011).

Meditation can increase calmness, attention, and overall well-being in children; which makes it an attractive mindfulness practice in classrooms (Pearson, 2004). Pearson (2004) explains that some children may only be able to sit still for a short amount of time, and, therefore, meditative practices should be gradually increased. Pearson (2004) also explains that meditation is most effective for students at the beginning of the day; otherwise, some release work may be required before practice can begin. Release work refers to any exercise that releases tension or frustration; examples include deliberate shaking, shouting, and dancing.

There have been significant findings on the results of meditation found in clinical child populations. Liehr and Diaz (2010) found that a group of 18 students averaging 9.5 years old reported reduced depression and anxiety symptoms after mindfulness training. Mendelson et al. (2010) found that a group of minority fourth and fifth graders significantly reduced problematic responses to social stress, rumination, intrusive thoughts, and emotional arousal. Semple, Reid, and Miller (2005) had five 7- to 8-year-olds with anxiety practice a 6-week mindfulness training

intervention and the results were associated with teacher-rated improvements in adaptive functioning and total internalizing and externalizing problems.

Research on mindfulness training has also had many positive outcomes on typically developing elementary children as well. Black and Fernando (2014) had 409 elementary students complete a 5-week mindfulness-based program and found an increase in student attention, self-control, participation, and caring/respect. A school-based program using mindful awareness practices (MAPs) for second- and third-graders showed significant increases in behavioral regulation, metacognition, and executive functioning (Flook et al., 2010). A mindfulness training intervention in healthy first- to third-graders showed a self-reported reduction in test anxiety and teacher-reported reduction in attention and social skill problems (Napoli, Krech, & Holley, 2005).

Preschool Meditation and Self-Regulation

The research for preschool meditation is far more limited. This specific research is in its infancy with most of the studies looking at mindfulness curriculum effects on executive functioning and other aspects of self-regulation. However, the few published studies regarding this population has shown promising results. Lim and Qu (2016) found that a single-session mindfulness training influenced attentional control in preschool children. A study by Smalley et al. (unpublished) had 44 preschoolers in an 8-week randomized MAPs program, which involved sitting, movement, and body-scan meditations by experienced instructors. Their results showed an increase in executive functioning on teacher ratings, but not on parent ratings. Flook, Goldberg, Pinger, and Davidson (2015) implemented a 12-week mindfulness-based prosocial skills training curriculum with 4-year-olds in kindergarten and found positive effects on teacher-reported social competence, measures of selflessness, and academic success.

Razza, Bergen-Cico, and Raymond (2015) conducted a 1 year mindfulness yoga intervention looking at the effects of self-regulation in preschoolers across a treatment as usual, or TAU, condition. Results indicated that the intervention was successful in promoting effortful control, executive functioning, and attention across all children in the treatment group. In particular, children in the mindfulness yoga group demonstrated significant improvements in terms of their abilities to delay gratification and inhibit both behavior and attention.

Thierry, Bryant, Nobles, and Norris (2016) found a positive impact on preschooler's teacher-rated executive function skills through a yearlong mindfulness curriculum. Specifically, the cognitive areas of self-regulation in the BRIEF-P, Working Memory and Planning/Organizing scales, were significantly improved. However, no positive changes were found on the scales that measured the behavioral aspects of self-regulation (Inhibit, Emotional Control, and Shift). Poehlmann-Tynan et al. (2016) implemented a 12-week mindfulness intervention, adapted from Kindness Curriculum, in economically disadvantaged preschoolers. The results demonstrated increases in attentional focus and self-regulation skills compared to an active control group.

Self-Regulation

Self-regulation is an umbrella term used for many processes of regulation (Murray, Rosanblam, Christopoulos, & Hamoudi, 2015). Constructs that coincide with self-regulation are self-control, emotion-regulation, and executive functioning; however, each of these are merely a component of self-regulation. Carver and Scheier (2011) explain it as, "the sense that self-corrective adjustments are taking place as needed to stay on track for the purpose being served,

and the sense that the corrective adjustments originate within the person" (p. 3). In other words, it is the ability to manage one's thoughts and feelings to carry out a goal.

Murray et al. (2015) explains that there are three domains used to conceptualize self-regulation: cognitive, emotional, and behavioral regulation. Cognitive self-regulation includes executive functioning, attentional control, and decision-making skills and emotional self-regulation involves understanding and managing one's emotions. The interaction between these two domains lay a foundation for the third domain, behavioral regulation. This domain involves the regulation of behaviors and actions and includes the ability to follow rules, delay gratification, negotiate, and use coping strategies.

Self-regulation is linked to mental health, well-being, academic achievement, and even later socio-economic success (Murray et al., 2015). Higher levels of self-regulation in children are associated with increased adaptability, cooperativeness, and ability to accomplish goals (Posner & Rothbart, 2007). Conversely, lower levels of self-regulation are linked to maladjustment, behavioral problems, and even socio-economic disadvantages in adulthood (Murray et al., 2015; Sawyer, Miller-Lewis, Searle, Sawyer, & Lynch, 2015). Fortunately, self-regulation is malleable, thus making it susceptible to various interventions (Murray et al., 2015).

Self-Regulation and Preschoolers

During the preschool ages, 3- to 5-years-old, cognitive self-regulation rapidly increases (Sawyer et al., 2015). Murray et al. (2015) explains that during this time, children show improved performance on executive functioning tasks, specifically in the areas of working memory and inhibition. Garon, Bryson, and Smith (2008) explain that selective attention is a critical foundation for these abilities. Because of the increase in their higher-order cognitive abilities, preschoolers are able to use rules, strategies, and planning to guide appropriate behavior (Murray et al., 2015).

Kopp (2009) explains that around the age of 4, children also start to develop "theory of mind," a term first coined by Premack and Woodruff (1978) to explain the ability of perspective-taking. This encourages empathy and prosocial behaviors, which is very influential in the development of self-regulation. With the addition of developing verbal skills, children are able to use internal speech to manage their thoughts, feelings, and ultimately, their behaviors (Murray et al., 2015).

A child's level of self-regulation skills at the time they enter school may have a lasting impact on their ability to adjust, engage, and learn in a formal school environment (Sawyer et al., 2015). Sawyer et al. (2015) stated that children with better internal self-regulation skills are more likely to have positive social experiences with peers and are less likely to exhibit inappropriate behaviors once reaching the classroom. Sawyer's (2015) study showed that children with a higher level of parent-reported self-regulation skills at 4-years-old had lower levels of reported behavior problems at 6-years-old. This was also true for children who showed greater rates of improvement during those years. They concluded that less improvement of self-regulation skills prior to the transition into kindergarten posed a threat on both internal and externalizing problems once in formal education.

Personality

Personality has been defined as, "patterns of thought and behavior that show consistency across situations and stability over time, affecting the individual's adaptation to the internal and social environment" (Rothbart, Ellis, & Posner, 2004, p.358). The theory of personality psychology has endured many competing models throughout history, with the trait theory being the most prominent (Widiger & Costa, 2013). Well-known trait models have included Allport's Trait Theory, Eysenck's Personality Inventory and Cattell's 16 Personality Factors (Allport,

1937; Cattell, Eber, & Tatsuoka, 1970; Eysenck, 1947), but the Five-Factor Model (FFM) currently dominates the field (McCrae & Costa, 2013)

In the past, personality trait models were thought to only measure adult populations, with children being better explained by temperament models (De Pauw, Mervielde, & Van Leeuwen, 2009). However, in the past decade there has been a growing number of research indicating otherwise (Grist, Socha, & McCord, 2012). The line between temperament and personality models have been blurred, indicating that personality models are also useful in understanding individual differences in young children (Grist & McCord, 2013). Research indicates that the FFM seems to be the most useful framework for identifying personality for the preschool age and is measured in child as young as 2 years old (Goldberg, 2001; Grist et al., 2012).

Five-Factor Model

Tupes and Christal (1992) originally created the FFM of personality. This model currently leads the field of personality trait theory. The FFM organizes individual differences into five analytically derived factors, commonly labeled as extraversion, neuroticism, conscientiousness, agreeableness, and openness to experience (Costa & McCrae, 1995; (Goldberg, 1993; John & Srivastava, 1999).

Extraversion, as a trait, refers to the quantity or intensity of one's preferred level of interactions, activity, need for stimulation, and capacity for joy (Widiger & Costa, 2013). The six facets under extraversion are warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotionality (Costa & McCrae, 1995). People high in this trait tend to be sociable, optimistic, fun loving, and affectionate; whereas, people low in this trait tend to be reserved, independent, and quiet (Widiger & Costa, 2013).

Neuroticism, as a trait, refers to one's vulnerability to stress, self-consciousness, and emotional stability (Widiger & Costa, 2013). The facets falling under neuroticism are anxiety, angry hostility, depression, self-consciousness, impulsivity, and vulnerability (Costa & McCrae, 1995). Clients showing high levels of this trait usually present with complaints of feeling anxious, shameful, and emotionally vulnerable (Zimmerman & Mattia, 2000). However, people low in this trait may show little capacity to experience, exhibit, or act on negative emotions at all (Widiger & Costa, 2013).

Conscientiousness, as a trait, refers to the degree of organization, persistence, control, and motivation that one brings to a goal-directed behavior (Widiger & Costa, 2013). The facets under conscientiousness are competence, order, dutifulness, achievement striving, self-discipline, and deliberation (Costa & McCrae, 1995). People high in this trait tend to be organized, hardworking, and ambitious; whereas, people low in this trait tend to be unreliable, lazy, and negligent (Widger & Costa, 2013).

Agreeableness, as a trait, refers to the kinds of interactions a person prefers to have with others, from compassionate to agonistic (Widiger & Costa, 2013). The six facets under agreeableness are trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness (Costa & McCrae, 1995). People high in this trait tend to be softhearted, trusting, and altruistic; whereas, people low in this trait tend to be cynical, uncooperative, and irritable (Widiger & Costa, 2013).

Openness to Experience, as a trait, refers to the active seeking and appreciation of novel experiences (Widiger & Costa, 2013). The facets under openness to experience are fantasy, aesthetics, feelings, actions, ideas, and values (Costa & McCrae, 1995). People with high levels of this trait tend to be curious, imaginative, and willing to entertain unconventional ideas;

whereas, people low in this trait tend to be conventional in their beliefs, dogmatic, and emotionally unresponsive (Widiger & Costa, 2013).

Five-Factor Model and Self-Regulation

The personality traits found in the FFM have been correlated with aspects of self-regulation. For instance, self-control, which falls under the umbrella of self-regulation, has been related to low neuroticism and high conscientiousness (McCrae & Lockenhoff, 2010). In contrast, people high in neuroticism struggle with impulsivity and are less able to control their emotional reactions (Carver, Sutton, & Scheier, 2000; McCrae & Lokenhoff, 2010). Goal setting, which is a skill in the cognitive aspect of self-regulation, has been related to high conscientiousness and extraversion and low neuroticism; people with this personality profile tend to set more challenging goals for themselves.

Shiner and Masten (2012) found that childhood personality traits predicted later academic attainment, rule-abiding conduct, and social competences in emerging adulthood. Specifically, they found that emerging adult academic attainment and rule-abiding conduct was positively correlated with childhood openness, agreeableness, and conscientiousness; however, it was negatively correlated with childhood neuroticism. Similarly, emerging adult social competence was positively correlated with childhood extraversion, agreeableness, and openness to experience, while negatively correlated with childhood neuroticism.

A study by Ingram and Grist (2017), showed that extraversion, agreeableness, conscientiousness, and openness to experience were all positively correlated with emotional regulation, academic behavior, and prosocial/communication skills in preschoolers on the M5-PS-35. However, neuroticism was negatively correlated to all three areas; implying that neuroticism is the only trait that is negatively correlated with aspects of self-regulation.

Present Study

Individual differences in self-regulation have been found to predict important developmental outcomes related to school readiness (Blair & Razza, 2007; McClelland et al., 2007; Zelazo & Lyons, 2012). It also serves as the foundation for lifelong functioning and has been linked to mental health, physical health, economic success, and overall well-being (Hoyle, 2010; McClelland & Tominey, 2016; Murray et al., 2015). Self-regulation is also an important factor in children's resiliency, coping, and stress management (Compas, 2009; Murray et al., 2015). The majority of children show the most gains of self-regulation during the preschool age, making this period an important target for research (Montry et al., 2016; Zelazo, 2012).

Until recently, self-regulation research has focused on processes rather than individual differences (McCrae & Löckenhoff, 2010). However, there is accumulating research that supports the idea that personality has an effect on the initial development of self-regulation (Grist, Socha, & McCord, 2012). In recent years, the trait model has been applied to young children and has shown that individual differences in young children are well explained by the FFM, making it seem to be the most useful framework for understanding personality in preschoolers (Goldberg, 2001; Grist & McCord, 2010). Fortunately, there are now measurements that are able to assess these differences in children as young as 2 years old (Grist et al., 2012).

Even though self-regulation is influenced by these innate factors, it is also seen as a malleable construct that is susceptible to growth. Self-regulation can be strengthened through instruction and practice (Murray et al., 2015). One intervention that has shown to have positive effects on self-regulation is mindfulness training (Zelazo & Lyons, 2012). The current research has focused on the result of implementing social-emotional curriculums to promote mindfulness in preschoolers (Flook et al., 2015; Phoehlmann-Tynan et al., 2016; Thierry et al., 2016). The

research of these curricula has had favorable outcomes on increasing aspects of self-regulation, such as executive functioning and prosocial behaviors. However, the research on the direct effects of meditation in preschoolers is far more limited. Currently there is no measure to directly assess global self-regulation in this age group making it a difficult construct to study.

The current study will explore the feasibility of incorporating mindfulness meditation within a preschool population as a potential method of increasing self-regulation. This study will also look at personality traits within preschoolers to determine if differences in personality factors have an impact on the initial levels of self-regulation and the overall efficacy of meditation practice. Since there is currently no measure that directly assesses self-regulation, this study will also compare two indirect measures of self-regulation skills to determine if the variances are concurrent with each other.

Hypotheses

Hypothesis 1. The mindfulness intervention will significantly increase levels of self-regulation in preschoolers, from pre- to post-intervention. Specifically, the intervention group will improve more on the Emotion Regulation, School Readiness, Social Confidence, Inhibitory Self-Control, Flexibility, and Emergent Metacognition variables than the control group.

Hypothesis 2. The Emotion Regulation and School Readiness scales on the PreBERS will be positively correlated with the Inhibitory Self-Control and Flexibility indexes on the BRIEF-P, respectively.

Hypothesis 3. The personality traits will account for some of the variance in scores on the self-regulation measures. Specifically, the extraversion, agreeableness, conscientiousness, and openness to experience traits on the M5-PS-35 scale will be positively correlated with higher

pre-intervention self-regulation scores. The neuroticism trait on the M5-PS-35 scale will be negatively correlated with pre-intervention self-regulation scores.

CHAPTER THREE: METHODOLOGY

Participants

The present study included preschool-aged participants between the ages of 3- and 5-years old (M=4, SD=.296). Teachers (n=6) completed the personality and self-regulation measures in their classrooms. Preschool participants consisted of 102 preschoolers, 59% males and 41% females. In regard to ethnicity, 61% were White, 19% Native American, 4% Hispanic, 1% Black, 1% Asian and 14% did not report this information.

Measures

Mind Yeti®. Mind Yeti® is an online mindfulness application originally created for elementary-aged children to promote social-emotional learning through guided meditation sessions. There are seven categories of guided meditations; these include learning the basics, calm down, focus, get along, reset, create, and go to sleep. The guided meditations are 3 minutes and 32 seconds to 9 minutes and 15 seconds long (Committee for Children, 2016).

M5-PS-35. This scale measures the five factors of personality: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience in preschoolers. It uses a 5-point Likert scale (0: totally irrelevant, 1: somewhat irrelevant, 2: neither, 3: somewhat relevant, and 4: very relevant). In terms of reliability, the Cronbach's alpha for each of the five factors were .90 for agreeableness, .87 for conscientiousness, .77 for extraversion, .79 for neuroticism, and .71 for openness to experience (Grist et al., 2012).

PreBERS. The Preschool Behavioral and Emotional Rating Scale is a standardized, norm-referenced, 42-item rating scale designed to assess the behavioral and emotional strengths of children on a 4-point Likert scale (0= not at all like the child; 1= not much like the child; 2= like

the child; 3= very much like the child). The scale includes four subscales: Emotional Regulation (ER; 13 items), School Readiness (SR; 13 items), Social Confidence (SC; 9 items), and Family Involvement (FI; 7 items). The internal consistency reliability exceeded .84 for each subtest and .97 for the Strength Index (Epstein & Synhorst, 2009).

BRIEF-P. The Behavior Rating Inventory of Executive Function-Preschool Version is a standardized, 63-item rating scale designed to measure a range of executive function in preschool-aged children on a 3-point Likert Scale (1= Never, 2= Sometimes, 3= Often). There are three broad indexes: Inhibitory Self-Control (ISCI), Flexibility (FI), and Emergent Metacognition (EMI). Additionally there are five clinical subscales: Inhibit (e.g. "is impulsive"), Shift (e.g. "is upset by change in plans and routines"), Emotional Control (e.g. "becomes upset too easily"), Working Memory (e.g. "has trouble remembering something, even after a brief period of time"), and Planning/Organizing (e.g. "has trouble carrying out the actions needed to complete tasks"). The internal consistency reliability was .80-.95 for parents and .90-.97 for teachers (Gioia, Espy, & Isquith, 2003)

Procedure

Preschool students attending a North Carolina Pre-K Program, in rural Appalachia during the fall 2017 academic year were recruited for this study. Each of the six preschool classes were randomly chosen to be in either the meditation intervention (n=50) or the comparison (n=52) group. Preschool students in the intervention group engaged in a guided meditation session, led by their teacher, from Mind Yeti® 5 times a week for a total of 6 weeks. The teachers were instructed how to use the guided meditation program before the intervention period. They were also given suggestions on how to approach the meditation sessions with their children (i.e., model appropriate behavior, encourage participation, ignore minor distractions).

The guided meditations were each approximately 3.5-9.25 minutes long. Participants in the comparison group continued to have their circle time as usual. Teachers completed the M5-PS-35, PreBERS, and BRIEF-P pre-intervention and the PreBERS and BRIEF-P again post-intervention for each student participating in the study.

CHAPTER FOUR: RESULTS

Hypothesis 1

For the first hypothesis, a two-way mixed measures analysis of variance was conducted on all of the self-regulation measures, pre- and post-intervention for both groups. This analysis was chosen due to the nested structure of this study design. A mixed measure model is the recommended approach for this type of data as it is a robust analysis for assessing random and fixed effects on nested dependent variables (Pinheiro & Bates, 2000).

There were eight outliers in the PreBERS data and sixteen outliers in the BRIEF-P data, as assessed by inspection of a boxplot method. Self-regulation scores (PreBERS and BRIEF-P) were not normally distributed, as assessed by Shapiro-Wilk's test ($p < .05$). One variable in particular, Social Confidence, was moderately, positively skewed and therefore a SQRT transformation was applied. According to Levene's Test of Equality, none of the pre-intervention measures on the PreBERS showed homogeneity of variances (ER, $p=.001$; SR, $p<.001$; and SC, $p<.001$). This was also true for post-intervention School Confidence ($p=.042$). Similarly, the assumption of homogeneity of covariances, as assessed by Box's test of equality of covariance matrices, was violated for the PreBERS variables ($p<.001$). However, there was homogeneity of variances ($p>.05$) and covariance ($p=.751$) on all of the BRIEF-P dependent variables.

PreBERS. The main effect of time showed a statistically significant difference in mean self-regulation skills pre- and post-intervention for Emotion Regulation, $F(1, 100)=12.181$, $p=.001$, School Readiness, $F(1,100)=22.685$, $p<.001$, and Social Confidence, $F(1, 100)=14.267$, $p<.001$. Specifically, all participants increased over time on all three dependent variables (See **Table 1**).

Table 1: PreBERS Self-Regulation Descriptives across Time

Dependent Variables	**Time 1 (pre-intervention)**		**Time 2 (post-intervention)**	
	M	SD	M	SD
Emotion Regulation	27.28	6.871	29.07	7.591
School Readiness	27.38	7.075	30.28	7.839
Social Confidence	19.96	3.969	21.47	4.302

The main effect of group type also showed a statistically significant difference in mean self-regulation skills between groups for Emotion Regulation, $F(1, 100)=46.361$, $p<.001$, School Readiness, $F(1, 100)=24.089$, $p<.001$, and Social Confidence, $F(1, 100)=34.449$, $p<.001$. Specifically, participants in the control group had higher scores across all three dependent variables (See **Table 2**).

Table 2: PreBERS Self-Regulation Descriptives between Groups

Dependent Variables	**Intervention**		**Control**	
	M	SD	M	SD
Emotion Regulation	23.97	.760	31.22	.746
School Readiness	25.14	.885	31.22	.867
Social Confidence	18.81	.409	22.17	.401

However, there was no statistically significant interaction between the intervention and time on any of the PreBERS self-regulation skills; including Emotion Regulation, $F(1, 100)= .000$, $p=.991$, School Readiness, $F(1, 100)=.991$, $p=.322$, or Social Confidence, $F(1, 100)= .005$, $p=.945$. The means and standard deviations for the 2X2 Factorial Design are presented in **Table 3** for each of these dependent variables.

Table 3: PreBERS Self-Regulation Descriptives

Dependent Variables	Group	Time 1 (pre-intervention)		Time 2 (post-intervention)	
		M	SD	M	SD
Emotion Regulation	Intervention	22.68	4.905	25.26	7.671
	Control	29.92	6.759	32.52	6.557
School Readiness	Intervention	23.80	4.772	26.48	7.807
	Control	29.17	8.229	33.27	7.476
Social Confidence	Intervention	17.92	1.724	19.70	3.829
	Control	21.25	4.511	23.10	4.308

BRIEF-P. The main effect of time showed no statistically significant difference in mean self-regulation skills pre- and post-intervention for Inhibitory Self-Control, F(1, 95)=.169, p=.682, Flexibility, F(1,95)=.342, p=.560, and Emergent Metacognition, F(1, 95)=.225, p=.636. See **Table 4** for means and standard deviations of these dependent variables across time.

Table 4: BRIEF-P Self-Regulation Descriptives across Time

Dependent Variables	Time 1 (pre-intervention)		Time 2 (post-intervention)	
	M	SD	M	SD
Inhibitory Self-Control	35.85	11.582	35.16	13.458
Flexibility	25.23	6.362	25.84	7.458
Emergent Metacognition	37.79	12.065	36.88	13.973

The main effect of the intervention also showed no statistically significant difference in mean self-regulation skills between groups for Inhibitory Self-Control, F(1, 95)=.133, p=.716, Flexibility, F(1, 95)=.277, p=.600, and Social Confidence, F(1, 95)=1.233, p=.270. See **Table 5** for means and standard deviations of these dependent variables across time.

Table 5: BRIEF-P Self-Regulation Descriptives between Groups

Dependent Variables	Intervention		Control	
	M	SD	M	SD
Inhibitory Self-Control	35.136	1.368	35.811	1.247
Flexibility	25.250	.722	25.764	.658
Emergent Metacognition	36.114	1.381	38.189	1.258

There was also no statistically significant interaction between the intervention and time on any of the BRIEF-P self-regulation skills; including Inhibitory Self-Control, $F(1, 95)= .107$, $p=.745$, Flexibility, $F(1, 95)=.003$, $p=.956$, or Emergent Metacognition, $F(1, 95)= .796$, $p=.375$. The means and standard deviations for the 2X2 Factorial Design are presented in **Table 6** for each of these dependent variables.

Table 6: BRIEF-P Self-Regulation Descriptives

Dependent Variables	Group	Time 1 (pre-intervention)		Time 2 (post-intervention)	
		M	SD	M	SD
Inhibitory Self-Control	Intervention	35.80	11.561	34.48	13.511
	Control	35.89	11.709	35.74	13.517
Flexibility	Intervention	24.98	6.403	25.52	7.831
	Control	25.43	6.381	26.09	7.198
Emergent Metacognition	Intervention	37.41	11.793	34.82	12.653
	Control	37.79	12.396	38.58	14.883

Hypothesis 2

For the second hypothesis, a Pearson Correlation was conducted on two of the PreBERs scales (i.e., ER and SR) and two of the BRIEF-P scales (i.e., ISCI and FI). There was a strong positive correlation between Emotion Regulation and School Readiness ($r=.648$, $p<.01$).

Additionally there was a strong positive correlation between Inhibitory Self-Control and Flexibility (*r*=.805, p<.001). See **Table 7.**

Table 7: Pearson Correlations for Self-Regulation Variables

	Emotion Regulation	**School Readiness**	**Inhibitory Self-Control**
School Readiness	.648**		
Inhibitory Self-Control	-.057	-.044	
Flexibility	-.027	.047	.805**

**Correlation is significant at the .01 level (2-tailed).

Hypothesis 3

For the third hypothesis, Pearson Correlations were conducted on the M5-PS-35 personality factors and all of the pre-intervention self-regulation scores as a precursor to conducting any potential multiple linear regressions (**Table 8**). Extraversion was moderately, positively correlated with Social Confidence (r=.378, p<.001) and openness to experience (r=.498, p<.001).

Agreeableness was strongly, positively correlated with Emotion Regulation (r=.654, p<.001) and conscientiousness (r=.542, p<.001). Additionally, agreeableness had a moderate, positive correlation with School Readiness (r=.371, p<.001) and a small, positive correlation with openness to experience (r=.246, p=>025).

Conscientiousness was strongly, positively correlated with School Readiness (r=.685, p<.001) and openness to experience (r=.578, P<.001). Additionally, conscientiousness had a moderate, positive correlation with Emotion Regulation (r=.301, p=.006). In addition to what has been previously stated, openness to experience was moderately, positively correlated to both School Readiness (r=.418, P<.001) and Social Confidence (r=.434, p<.001).

Finally, neuroticism was moderately, negatively correlated with Emotion Regulation (r=-.416, p<.001), Social Confidence (r=.434, p<.001), extraversion (r=-.383, p<.001), agreeableness (r=-.464, p<.001), conscientiousness (-.335, p=.002), and openness to experience (r=-.451, p<.001). Neuroticism also had a small, negative correlation with School Readiness (r=-.251, p=.022). However, since none of the BRIEF-P self-regulation measures were significantly correlated with the M5-PS-35 personality traits, the multiple linear regressions could not be conducted.

Table 8: Pearson Correlations for Main Testing Variables

	E	**A**	**C**	**N**	**O**
A	-.137				
C	-.013	.542**			
N	-.383**	-.464**	-.335**		
O	.498**	.246*	.579**	-.451**	
ER	-.105	.654**	.301**	-.416**	.194
SR	-.030	.371**	.685**	-.251*	.418**
SC	.378**	.127	.193	-.379**	.434**
ISCI	-.068	-.027	.001	.087	-.095
FI	-.030	.029	.033	.020	-.065
EMI	-.097	.052	-.037	-.044	-.094

Note. E= Extraversion, A=Agreeableness, C=Conscientiousness, N=Neuroticism, O=Openness to Experience, ER=Emotion Regulation, SR=School Readiness, SC=Social Confidence, ISCI=Inhibitory Self-Control Index, FI= Flexibility Index, EMI=Emergent Metacognition,
*Correlation is significant at the .05 level (2-tailed).
**Correlation is significant at the .01 level (2-tailed).

CHAPTER FIVE: DISCUSSION

This study was important because, to our knowledge, it was the first study to examine the effects of meditation practice alone on preschool self-regulation skills. Additionally, this study chose to examine how individual differences in preschool personality effect the emergence of such skills. Even though self-regulation skills have been shown to affect a child's academic success throughout school and their overall well-being (Murray et al., 2015; Posner & Rothbart, 2007), there is no measure that directly assess these skills in pre-kindergarten students. Therefore, this study used and compared two indirect methods that assessed preschool behavioral and emotional strengths and executive functioning skills. As a result, these findings may contribute valuable information to the field of self-regulation research in preschoolers by providing information on individual differences, assessments, and potential interventions.

Hypotheses Discussed

For the first hypothesis, all participants improved on self-regulation scores over time, regardless of condition. Additionally, the comparison group scored higher on self-regulation scores at both time points. This is not reflective of the current literature and indicates that the control group had significantly higher self-regulation scores than the intervention did pre-intervention, as assessed by the PreBERS and BRIEF-P measurements.

The second hypothesis was also not supported by the results of this study. Specifically, the two scales on the PreBERS (i.e., ER and SR) were strongly, positively correlated with one another. Likewise, this was true for the two scales on the BRIEF-P (i.e., ISCI and FI). However, there was no significant correlations between these two measurements, suggesting that they are not associated with each other and likely measure independent constructs.

The third hypothesis was not supported in full, as the multiple linear regression was not run. This was due to only finding partial correlations within the data. However, the correlations that were found partially supported the third hypothesis. The three overall scales on the PreBERS were significantly correlated to the five factors of personality. Additionally, several correlations were found within the five factors of personality and within the three overall scales on the BRIEF-P, but there was no significant correlations between these two measurements.

Neuroticism was correlated to several pre-intervention self-regulation skills. Specifically, neuroticism had a small to moderate, negative correlation with all three PreBERS scales. Agreeableness, conscientiousness, and openness to experience were all correlated to at least two pre-intervention self-regulation skills. Specifically, agreeableness and conscientiousness were positively correlated with Emotion Regulation and School Readiness and openness to experience was moderately, positively correlated with School Readiness and Social Confidence. Lastly, extraversion was only moderately, positively correlated with one pre-intervention self-regulation skill, Social Confidence.

Previous Research

The literature on mindfulness has linked this practice to beneficial outcomes, like improved attention, emotion regulation, and empathy for others (Lutz et al., 2015; Roeser & Eccles, 2015; Zelazo & Lyons, 2015). The findings of this study did not confirm previous research in regards to mindfulness intervention in the preschool population. Several studies found that mindfulness training significantly improved aspects of self-regulation in the prekindergarten ages (Lim & Qu, 2016; Razza, Bergen-Cico, & Raymond, 2015; Thierry, Bryant, Nobles, & Norris, 2016). However, many of the studies differed in their intervention type and lengths. For instance, Lim and Qu (2016) found that a single session of playing

mindfulness activities (i.e., balancing, focusing on sounds, and counting the breath) improved attentional control in preschoolers, while Razza et al. (2015) and Thierry et al. (2016) both conducted yearlong mindfulness interventions. Additionally, most of the current research of mindfulness interventions in preschools use mindfulness-based curricula that incorporate other social-emotional aspects.

For instance, Thierry et al (2016) used yearlong mindfulness curriculum, which resulted in significant improvements on the preschooler's teacher-rated executive function skills as assessed by the BRIEF-P. Specifically, those in the intervention group improved in the areas of Working Memory and Planning/Organizing, but none of the other areas. However, the present study did not find a significance difference between the groups in any of the areas of executive functioning.

Self-regulation is a new concept that encompasses many interrelated constructs, such as self-control, emotion regulation, and executive functioning. While research has been conducted on these aspects of self-regulation, the field still lacks a direct measurement of global self-regulation skills for the preschool age. The various scales on the PreBERs claim to assess a child's ability to regulate his/her emotions and behaviors (i.e., Emotion Regulation) and their cognitive abilities of attentional control (i.e., School Readiness), which account for all three major domains of self-regulation as proposed by Murray et al. (2015). According to previous research and the definitions for these scales, the BRIEF-P and PreBERS should overlap in measurement; however, the present study found no significant correlations between these two instruments.

To some extent, the findings of the present study related to previous personality research. Previously literature has found associations with various aspects of self-regulation and the FFM

(Ingram & Grist, 2017; McCrae & Lockenhoff, 2010; Shiner & Masten, 2012). Specifically, traits that are consistent with positive self-regulation skills, such as self-control and rule-abiding conduct, have been positively associated with extraversion, conscientiousness, agreeableness, and openness to experience (McCrae & Lockenhoff, 2010; Shiner & Masten, 2012). While traits that are inconsistent with positive self-regulation skills, such as impulsivity, are positively associated with neuroticism (Carver, Sutton, & Scheier, 2000), which implies that self-regulation has an inverse relationship with the neuroticism trait. The results from the present study was reflective of this relationship.

Implications

The present study offers few implications due to insignificant findings and data that was not normally distributed. However, this study did provide qualitative information regarding the feasibility of incorporating mindfulness meditation into the daily curriculum of preschool students. Feedback provided by the teachers who led intervention groups were overall positive. When asked for a review of the MindYeti® intervention, one of the three teachers reported, "My kids are loving it and have started asking to do [MindYeti®]." Another reported, "Our kids have loved it!" There were also some constructive feedback about the program, such as "The children liked it for the most part. I think some of the sessions were hard because they needed more of a visual to keep them interested" and reports that some of the sessions may have been "too long" for this age group. Another implication regarding the intervention is the length of time that students are practicing mindfulness. Much of the previous literature for this population reports intervention periods that are longer than six weeks, with some of them lasting up to a year. The insignificant findings of this study may have been contributed to an intervention that was too short of time. Overall, the intervention was widely accepted by the teachers and their preschool

students reveal the feasibility of meditation research and the need for programs that are longer and specifically geared toward this age group.

The other implication of this study is the need for a direct measurement of preschool self-regulation that is all encompassing. The current research on self-regulation in preschoolers is hard to compare as many of them use different definitions and measurements of this construct. The present study used two of these methods and found that there was no correlation between the different self-regulation measurements.

The present study did find statistically significant correlations between the M5-PS-35 personality factors and the PreBERS self-regulation scales, but not the BRIEF-P scales. This supports the previous implication and leads us to a new one: the importance of studying preschool personality. This study is representative of the current literature, which suggests that preschool personality is correlated with self-regulation skills (Carver, Sutton, & Scheier, 2000; Ingram & Grist, 2017; McCrae & Lockenhoff, 2010). The implication for this is that by identifying these associations early on, we can better determine at-risk children and provide them with additional support. While personality is relatively stable over time, self-regulation research supports the idea that these skills are malleable and can be improved (Murray et al., 2015). Additionally, since preschool personality can be assessed beginning at 2 years of age, these interventions can occur before the behaviors become dysfunctional.

Limitations and Future Directions

There were several limitations to this study. For instance, the structure of this study resulted in nested data and even though a robust analysis was chosen to meditate this effect, the data was not normally distributed, resulting in findings that cannot be generalized. It is possible that the results from this study did not reflect previous findings of meditation research because of

the rural, Appalachia sample and future comparative studies may be warranted. Additional limitations come from the subjective nature of the measurements used in this study. For example, this study did not use a direct measurement of self-regulation nor did it use any additional reporters, such as parents or direct observers. Another limitation of the measurement was the lack of direct assessment used to supplement rating scales.

Additionally, the teachers were not blind to who was in the intervention group and there was no way to determine if the preschool participants were actively engaging in the meditative practices. As indicated, some of the teachers were partial to the Mind Yeti® program, while others were not. This, coupled with raters that were not blind to conditions, could have led to biased results.

Future studies could compare this rural, Appalachia sample to an urban sample and since this program was only 6 weeks long, it may be beneficial to extend the intervention to a full year. Future studies should consider more interactive meditation interventions that incorporate active techniques and exercises to engage this age group more effectively. Since many of the current studies have used full mindfulness curricula, it may be beneficial to explore the mechanisms within these curricula to determine what aspects are most effective to improving intervention. This could help determine if meditation has the potential to be effective on its own, or if additional practices throughout the day are more effective.

Future directions involve using multiple sources of self-regulation measurements, such as parent-report or direct observation from impartial raters to supplement teacher-reports. Additionally, future research should include direct assessments, such as the "Head-Toes-Knees-Shoulder Task" (i.e., a task that assesses inhibitory self-control, working memory, and attentional control; Ponitz et al., 2008) or the "Marshmallow Test" (i.e., a test that assesses self-

control and the ability to delay gratification; Mishel et al., 1989). Future research should focus on creating better measurements of self-regulation for preschoolers. The future research should also consider increasing the intervention period for this age group and adding more interactive components to increase willingness to participate.

Conclusion

In conclusion, the guided meditation intervention did not result in any significant improvement on the self-regulation measures over a 6-week period. However, the attitudes toward this intervention were overall positive, suggesting it is feasible to incorporate meditation practices in a rural, Appalachian prekindergarten. The two self-regulation measures used for this study did not correlate with each other, suggesting a need for a more direct method of studying self-regulation in preschoolers. However, the present study did support current personality research, showing that there is a significant relationship between the five factors of personality and different aspects of self-regulation. Due to data that was not normally distributed the findings from this study cannot be generalized to other populations. Future research should compare these findings to that of an urban population and opt for more supplemental and direct assessments.

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Appendix A: M5-PS-35

M5-PS-35 Questionnaire ©

Cathy L. Grist and David M. McCord
Western Carolina University

Child's Name: _____ Age: _____ M F
Date:_____

Child's Ethnicity (circle one): White Black Hispanic Asian Native American Other

Teacher's Name: _____ Years of Experience: _____

This is a personality questionnaire, which should take about 10 minutes. There are no right or wrong answers to these questions; you simply respond with the choice that describes the child best.

Without spending too much time dwelling on any one item, just give the first reaction that comes to mind.

In order to score this test accurately, it is very important that you answer *every* item, without skipping any. You may change an answer if you wish

		Totally Irrelevant	Somewhat Irrelevant	Neither	Somewhat Relevant	Very Relevant
1	Worries about things	O	O	O	O	O
2	Has a vivid imagination	O	O	O	O	O
3	Completes tasks successfully	O	O	O	O	O
4	Breaks rules	O	O	O	O	O
5	Is easy to satisfy	O	O	O	O	O
6	Likes to solve complex problems	O	O	O	O	O
7	Radiates joy	O	O	O	O	O
8	Tries to excel at what they do	O	O	O	O	O
9	Is always on the go	O	O	O	O	O
10	Has a lot of fun	O	O	O	O	O
11	Is afraid of many things	O	O	O	O	O
12	Works hard	O	O	O	O	O
13	Becomes overwhelmed by events	O	O	O	O	O
14	Is relaxed most of the time	O	O	O	O	O
15	Does not understand things	O	O	O	O	O
16	Gets upset easily	O	O	O	O	O
17	Knows how to get around the rules	O	O	O	O	O
18	Loves to help others	O	O	O	O	O
19	Yells at people	O	O	O	O	O
20	Gets stressed out easily	O	O	O	O	O
21	Tells the truth	O	O	O	O	O

22	Is interested in many things	O	O	O	O	O
23	Does the opposite of what is asked	O	O	O	O	O
24	Insults people	O	O	O	O	O
25	Has difficulty starting tasks	O	O	O	O	O
26	Likes to begin new things	O	O	O	O	O
27	Gets back at others	O	O	O	O	O
28	Laughs aloud	O	O	O	O	O
29	Acts without thinking	O	O	O	O	O
30	Adapts easily to new situations	O	O	O	O	O
31	Doesn't see the consequences of things	O	O	O	O	O
32	Amuses his/her friends	O	O	O	O	O
33	Messes things up	O	O	O	O	O
34	Is demanding	O	O	O	O	O
35	Finishes what he/she starts	O	O	O	O	O

Appendix B: Preschool Behavioral and Emotional Rating Scale

☐ Preschool Norms
☐ Head Start Norms
☐ ECSE Norms

Preschool Behavioral and Emotional Rating Scale

PreBERS

Summary/Response Form

Michael H. Epstein Lori Synhorst

Section 1. Identifying Information

Name _____ Female ☐ Male ☐ Age _____

	Year	Month	Day
Date of Rating			
Date of Birth			

Parent/Guardian _____
School _____
Rater's Name _____
Relationship to Child _____

Examiner's Name _____
Examiner's Title _____

Section 2. Results of the PreBERS

Subscale	Raw Score	%ile Rank	Scaled Score	SEM	Descriptive Term
1. Emotional Regulation (ER)				1	
2. School Readiness (SR)				1	
3. Social Confidence (SC)				1	
4. Family Involvement (FI)				1	

Section 3. Composite Performance

Composite	Subscale Scaled Scores ER	SR	SC	FI	Sum of Scaled Scores	%ile Rank	Descriptive Term	Strength Index
PreBERS Strength Index								

Section 4. Other Pertinent Information

Who referred the student? _____
What was the reason for the referral? _____
Parental permission obtained on (date) _____
PreBERS results included in staffing or planning conference? ☐ Yes ☐ No

Section 5. Descriptive Terms

Scaled Score	1–3	4–5	6–7	8–12	13–14	15–16	17–20
Descriptive Term	Very Poor	Poor	Below Average	Average	Above Average	Superior	Very Superior
Strength Index Score	<70	70–79	80–89	90–110	111–120	121–130	>130

Additional copies of this form [#1847] may be purchased from PRO-ED, 8700 Shoal Creek Blvd., Austin, TX 78757-6897 800/897-3202, fax 800/397-7633, www.proedinc.com

Section 6. Response Form

Directions: The *Preschool Behavioral and Emotional Rating Scale* (PreBERS) contains a series of statements that are used to rate a preschool child's behaviors and emotions in a positive way. Read each statement and circle the number that corresponds to the rating that best describes the child's status over the past 2 months. If the statement is very much like the child, circle the 3; if the statement is like the child, circle the 2; if the statement is not much like the child, circle the 1; if the statement is not at all like the child, circle the 0. In making your rating, it is important that you consider this child's behavior in relation to other preschool children of similar age and gender. Rate each statement to the best of your knowledge of the child.

Statement	very much like the child	like the child	not much like the child	not at all like the child	ER	SR	SC	FI
1. Demonstrates a sense of belonging to family	3	2	1	0				___
2. Trusts a significant person in his or her life	3	2	1	0				___
3. Understands the meaning of words similar to same-age peers	3	2	1	0		___		
4. Is self-confident	3	2	1	0			___	
5. Acknowledges painful feelings	3	2	1	0			___	
6. Maintains positive family relationships	3	2	1	0				___
7. Asks for help	3	2	1	0			___	
8. Controls anger toward others	3	2	1	0	___			
9. Carries on conversations	3	2	1	0		___		
10. Expresses remorse for behavior that hurts others	3	2	1	0	___			
11. Shows concern for the feelings of others	3	2	1	0	___			
12. Interacts positively with parents	3	2	1	0				___
13. Reacts to disappointment calmly	3	2	1	0	___			
14. Persists with tasks until completed	3	2	1	0		___		
15. Stands up for self	3	2	1	0			___	
16. Handles frustration with challenging tasks	3	2	1	0	___			
17. Demonstrates age-appropriate hygiene skills	3	2	1	0		___		
				Column subtotals				

Statement	very much like the child	like the child	not much like the child	not at all like the child	ER	SR	SC	R
18. Takes turns in play situations	3	2	1	0	—			
19. Is involved in family discussions	3	2	1	0				—
20. Accepts closeness and intimacy of others	3	2	1	0			—	
21. Identifies own feelings	3	2	1	0			—	
22. Makes friends	3	2	1	0			—	
23. Accepts responsibility for own actions	3	2	1	0	—			
24. Interacts positively with siblings	3	2	1	0				—
25. Loses a game gracefully	3	2	1	0	—			
26. Asks others to play	3	2	1	0			—	
27. Understands complex sentences	3	2	1	0		—		
28. Listens to the conversation of others	3	2	1	0		—		
29. Participates in family activities	3	2	1	0				—
30. Accepts "no" for an answer	3	2	1	0	—			
31. Pays attention to tasks	3	2	1	0		—		
32. Listens attentively when stories are read	3	2	1	0		—		
33. Follows multistep directions	3	2	1	0		—		
34. Is enthusiastic about life	3	2	1	0			—	
35. Respects the rights of others	3	2	1	0	—			
36. Shares with others	3	2	1	0	—			
37. Apologizes to others when wrong	3	2	1	0	—			
38. Retells stories or recent events	3	2	1	0		—		
39. Is kind toward others	3	2	1	0	—			
40. Uses details in talking with others	3	2	1	0		—		
41. Works independently	3	2	1	0		—		
42. Uses numbers and color words correctly	3	2	1	0		—		
				Column subtotals				
				Previous page column subtotals				
				Total Raw Score				

Section 7. Key Questions

1. What are the child's favorite hobbies or activities? What does the child like to do?

2. What is the child's favorite activity to do with the family?

3. What chores are the child's responsibility in relationship to the family?

4. How does the child react to disappointments or frustrations?

5. How does the child play or interact with peers?

6. At a time of need, to whom (e.g., parent, neighbor, friend, relative) would this family turn for support?

7. Describe the best things about this child.

Section 8. Interpretations and Recommendations