What Should Nancy Do?
Developing an Assessment of
Preschool Socioemotional Abilities

by

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Abstract

Early childhood is a crucial time to support socioemotional development, to prepare children for success in school, and to prevent adverse long-term life outcomes. Many curricula and interventions are being developed to support preschoolers in this area of growth. The success of these interventions relies on tracking changes in socioemotional knowledge and behaviors. There is a need for a simple, objective measure that is sensitive to short-term changes and provides a multifaceted understanding of a child’s socioemotional abilities. Here, we began the development and testing of such a measure, the Socioemotional Assessment (SEA). The SEA was shown to be easy, clear, and engaging, and we found validation for the SEA through comparisons with the Social Competence and Behavior Evaluation, a well-validated teacher questionnaire. This initial study also clarified what adjustments must be made to improve a subsequent iteration of the measure. These results, while exploratory in nature, showed that the SEA could be used as a tool to provide rich explanations of children’s socioemotional knowledge base. Experimenters can use this measure, centered on a shared-reading experience, to test children easily and objectively, avoiding the bias inherent with often-used teacher or parent questionnaires. Additional use with pre- and post-testing can evaluate the SEA as a measure sensitive enough to track changes over a short timespan. The success of this measure has implications for its possible use both by researchers in testing interventions and by teachers in better understanding their students.
Introduction

The behaviors that constitute socioemotional abilities are vast, encompassing a variety of distinct but interrelated constructs. In this study, I sought to understand these constructs and create a measure to track them in preschool-aged children. This thesis follows the progression of creating this measure, the Socioemotional Assessment (SEA). I will outline the research motivating this measure, the development of the measure, and the results from testing.

To begin, the first chapter provides a brief outline of the field of socioemotional development. I will describe how socioemotional skills develop in early childhood to provide background into this conceptual area and its significance. The next chapter, Development of the Measure, will move to a description of the process of designing the measure. This chapter will look at the gaps in the field of preschool socioemotional measurement and will layout the criteria set for a new measure. The third chapter, Methods, will delve into the study conducted to test the new measure. This chapter will explain the methods of testing, coding, and analysis. The following chapter will present the results from the testing of the measure. Lastly, I will close with a discussion investigating these results and outlining the implications of this study. The SEA was created to fill a gap in the field of socioemotional development. With further improvements and validation, this measure can have a critical impact in helping both researchers test socioemotional interventions and teachers understand more fully their students’ socioemotional competencies.
Classification of Socioemotional Behaviors

To begin this overview, I will first outline the types of social behaviors that are key in this area of study. This review will provide the necessary context for understanding the following discussions regarding the development and instruction of these behaviors. Typically, when discussing social behavior in preschool and beyond, researchers and educators focus on two areas: antisocial and prosocial behaviors.

**Antisocial behavior.** Antisocial behavior is typically separated into two categories: externalizing and internalizing behaviors. Externalizing includes behaviors such as hyperactivity, aggression, destruction, defiance, and disruptiveness (Achenbach, Edelbrock, & Howell, 1987; Cicchetti & Toth, 1991; Hinshaw, 1992). Internalizing encompasses behaviors such as anxiety, depression, social withdrawal, sleep problems, and somatic symptoms (Achenbach et al., 1987; Cicchetti & Toth, 1991). While not all researchers follow this distinction, it has become the most common categorization as there tends to be a fair amount of comorbidity among the behaviors within each category (Cicchetti & Toth, 1991).

**Prosocial behavior.** Prosociality can be subdivided into three distinct behaviors: comforting, sharing, and helping (Dunfield, 2014). While they all fall under the heading of prosociality, there is evidence that these different skills do not in fact have the same underlying mechanisms. For example, the neurological regions that are active during helping are different from those that are active during comforting (Paulus, Kühn-Popp, Licata, Sodian, & Meinhardt, 2012). In
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addition, success in tasks testing helping, sharing, and comforting have been shown to have no correlation (Dunfield, Kuhlmeier, O’Connell, & Kelly, 2011).

**Early Development**

Early socioemotional development provides the context and foundation for preschoolers’ socioemotional abilities. This discussion looks at early emotion development, early social development, and other early factors that predict later socioemotional outcomes.

**Emotion.** The development of emotion expression and knowledge begins very early in a child’s life. This knowledge develops through experiences and can be increased through training. While some emotions, like happiness, are acquired in the first few months and are relatively easy to understand, others, like guilt, take more time. Emotion knowledge and understanding are important steps towards emotion regulation, or the process of controlling one's response to an emotion-inducing stimulus (Rivers, Tominey, O’Bryon, & Brackett., 2013).

Infants are able to consistently recognize the emotions of others at around seven months old. This development starts with positive emotions and later includes negative emotions (Walker-Andrews, 1997). In preferential looking studies, two-month-olds show a preference for, and thus recognition of, happy faces (Walker-Andrews, 1997). By around three and four month, infants have different looking-time reactions to facial expressions of happiness, surprise, and anger (Montague & Walker-Andrews, 2001; Siegler, DeLoache, Eisenberg, & Saffran, 2014). Emotion recognition abilities expand to more complex emotions, like fear and interest, by around seven months (Siegler et al.,
Infants are also able to match facial emotion expressions with vocal emotion expressions as early as seven months old (Siegler et al., 2014).

A child’s ability to express their emotions also develops over the first few years of a child’s life. Children experience and express happiness and distress in the first few months, but do not develop a distinction between the negative emotions of anger, fear, and sadness until the second half of their first year (Emde, 1998; Izard, 2006; Siegler et al., 2014). During the second year of life, children begin to develop more complex emotions like embarrassment, pride, shame, and guilt (Siegler et al., 2014). Early emotion development is also tied to early social skills. As early as two months, children begin social smiling, smiling directed at people, and by 7 months, smiling is directed mostly at familiar people (Halberstadt, Denham, & Dunsmore, 2001; Siegler et al., 2014). Additionally, infants as early as nine months old were more liked by their peers when displaying a wide range of emotions during play (Rubin, 1980).

**Prosocial behaviors.** Prosocial behaviors also have roots in early life. Empathy, defined as a matching of emotion to another person, can be seen as early as infancy (Eisenberg et al., 2006; Hoffman, 2006). Empathy is distinct from sympathy, as sympathy does not involve actually experiencing the same emotions as the object of one’s sympathy (Eisenberg et al., 2006). Infants in their first days of life display global empathy by crying at the sound of another person’s crying (Eisenberg, 2006; Hoffman, 2008). This behavior stems from an inability to see oneself as emotionally separate from others (Eisenberg, 2006). However, by around 6 months old, children demonstrate an ability to see
themselves as separate from others, first observing others in distress and then beginning to show distress (Hoffman, 2008). By around a year, children continue to show this pattern of behavior when seeing others in distress but begin to employ self-soothing techniques (Hoffman, 2008). These expressions of self-soothing led researchers to a theory of prosocial behavior as rooted in empathy as the physiological reaction prompted by the suffering of others may motivate behavior to alleviate that discomfort (Hoffman, 2008).

Hepach, Vaish, & Tomasello (2013) supported this discomfort alleviation hypothesis by tracking the pupil dilation of two-year-olds. Hepach and colleagues (2013) looked at how helping behavior decreased the pupil arousal resulting from watching someone in distress. Arousal decreased both when infants were able to help the person in distress and when they saw that person helped by someone else (Hepach et al., 2013). This study supported this theory of empathetic helping by showing that the more the pupil was dilated, the faster the onset of the child’s helping behavior (Hepach et al., 2013).

Early experiences at home also have large effects in the development of prosociality. For example, toddlers whose parents talk to them about emotions tend to help and share more (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013). Similarly, factors of parenting style like low punishment and control and high induction and reasoning positively impact children’s prosocial development (Hasting, Utendale, & Sullivan, 2007).

**Helping.** Laboratory studies have found early evidence of helping behavior in children as young as 14 months old. Felix Warneken’s studies
focused on various types of task failures, including reaching for objects, encountering obstacles, or failing to accomplish a simple task (Warneken & Tomasello, 2006). By 18 months old, children are already likely to help experimenters with these tasks as long as they recognize what the experimenter is trying to accomplish (Warneken & Tomasello, 2006). In these studies, the solution was extremely clear to the child (i.e. pick up the dropped object or open the door of the cabinet). Specifically, the out-of-reach tasks were most likely to elicit helping behavior, a result that is supported by studies with younger children and primates (Warneken & Tomasello, 2006). Both 14-month-olds and chimpanzees have trouble helping in many of the tasks besides reaching tasks, possibly due to a lack of clear understanding of the solution to the task failure (Warneken & Tomasello, 2006). Other laboratory studies with similar results test helping by tracking for reactions when experimenters drop objects like pencils or paper clips or ask for help finding something they lost (Dunfield et al., 2011; Knafo, Israel, & Ebstein, 2011; Paulus & Rosal-Grifoll, 2017; Staub, 1971).

**Comforting.** Also known as empathetic helping, comforting requires children to interpret the emotions of another person and then figure out how to best help that person. Svetlova, Nichols, & Brownell (2010) studied the development of these types of prosocial behaviors. They found that both 18-month-olds and 30-month-olds were much better at engaging in instrumental helping than in empathetic helping (Svetlova et al., 2010). However, by 30 months, many infants were able to respond, without verbal prompting, to negative emotion displays with comforting behavior (Svetlova et al., 2010).
Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman (1992) looked at the development of comforting behavior over the second year of life. These researchers found a large development of comforting behavior from age one to age two. They documented a development from the initial empathetic distress demonstrated shortly after birth, to physical comforting with hugs and patting, to more constructive behaviors like verbal comfort and trying to fix the problem (e.g. giving their mother a bandaid) (Zahn-Waxler et al., 1992). Further, by two years old, toddlers expressed comforting towards experimenters and playmates in addition to their mother (Dunfield et al., 2011; Zahn-Waxler et al., 1992).

**Cooperating.** As early as 18 months old, children will cooperate to accomplish a task requiring two people and will attempt to get their partner to rejoin the cooperation when they stop (Warneken & Tomasello, 2007). Tasks include both cooperative problem solving, with a clear goal, as well as cooperative social games, demonstrating a desire to cooperate even without a goal (Warneken & Tomasello, 2007). With infants, studies show that those who cooperated with social initiations (i.e. enthusiastically responding to requests and not ending interactions) were the most liked among their peers (Rubin, 1980).

**Impact of nature and nurture.** Researchers have looked not only at the socioemotional behaviors that emerge in infancy and early childhood, but also at the early factors that predict later socioemotional development. Two large predictors of socioemotional development emerge in infancy. Attachment is a result of the type of environment a child is raised in and their relationship with
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their parent(s). Temperament is formed through genetics and prenatal influences and is inherent to a child at birth. These environmental and biological influences interact to shape a child’s socioemotional development.

**Attachment.** Parental attachment is an influential way in which a child’s environment impacts their later socioemotional development. Generally, attachment is measured by the classic Strange Situation set-up, created by Mary Ainsworth (Ainsworth, Blehar, Waters, & Wall, 2015). In this laboratory paradigm, a child’s behavior is tracked by measuring how they respond to their mother leaving and returning to the room and to the presence of a stranger (Ainsworth et al., 2015). Attachment is typically classified into four categories (Ainsworth et al., 2015). Children with secure attachments feel safe to explore their environment away from their parent. These children also view their parent or parents as the primary caregiver and are most comforted by them (Ainsworth et al., 2015). An anxious-avoidant attachment causes children to generally avoid contact and ignore their parent (Ainsworth et al., 2015). Children with anxious-resistant attachment generally have an ambivalent relationship with their parent, both wanting and pulling away from them (Ainsworth et al., 2015). Lastly, children with disorganized attachments have unusual or contradictory reactions to the Strange Situation, often demonstrating fear and behaviors like rocking and jerky movements (Main & Hesse, 1990).

Many researchers have found a connection between attachment and later socioemotional outcomes. Studies show that children with insecure attachments - a group including anxious-avoidant, anxious-resistant, and disorganized
attachments - tended to have issues with internalizing and externalizing behaviors (Brumariu & Kerns, 2010; Fearon, Bakermans-Kranenburg, van Ijzendoorn, Lapsley, & Roisman, 2010; Kochanska & Kim, 2013; Rothbaum & Weisz, 1994; Sroufe, 2006). A meta-analysis by Fearon et al. (2010) found that this connection was even stronger for children with disorganized attachments. Attachment has also been linked to later social competence. A meta-analysis by Sroufe (2006) found a connection between secure children and various measures of positive socioemotional outcomes such as self-reliance, emotional regulation, social competence, and positive peer relationships.

The relationship between attachment and later socioemotional outcomes is often complicated by other factors. Early research demonstrated a stronger impact of attachment to mothers than attachment to fathers (Rothbaum & Weisz, 1994), but more recent studies have shown that attachment with either parent is sufficient to gain the positive effects of a secure attachment (Kochanska & Kim, 2013). In fact, Kochanska & Kim (2013) found that having a secure attachment with both parents did not lead to better outcomes than having a secure attachment with only one parent and an insecure attachment with the other. Similarly, while many studies are done with biologically related parent-child pairs, Stams, Juffer, and van Ijzendoorn (2002) showed that adopted children had the same relationship between attachment and socioemotional development. Child gender, however, does seem to have an impact, with boys generally demonstrating a stronger relationship between attachment and externalizing behaviors (Fearon et al., 2010; Rothbaum & Weisz, 1994; Stams et
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al., 2002). While environment plays a large role in socioemotional development, there is evidence to suggest that a child’s natural temperament also plays a role.

Temperament. Temperament describes the general behavioral tendencies and reactions to an environment that children show starting at infancy. There are various ways to break down temperament into different dimensions of behavior, and over time these descriptions have shifted. Currently, the three dimensions often tracked are reactivity/negative emotionality, self-regulation, and inhibition/sociability (Rothbart, 2007; Sanson, Hemphill, & Smart, 2004). Temperament is shown to be fairly stable over time and can be observed as early as the first month (Davis et al., 2007; Rothbart, 2007; Sanson et al., 2004). Due to this, much of the discussion of the development of temperament focuses on genetic and prenatal influences. Researchers have found connections between specific gene alleles and temperament (Sheese, Voelker, Rothbart, & Posner, 2007; Tost et al., 2010). Additionally, a study by Davis et al. (2007) found that maternal stress had an impact on temperament for fetuses after 30 weeks of gestation. These genetic and prenatal influences, and others unknown as of now, work together to form temperament, which acts as a precursor for personality and social development.

Temperament and social development have been connected in various ways. Temperament has been linked to externalizing and internalizing behaviors in preschool and beyond (Eisenberg et al., 2009; Miner & Clarke-Stewart, 2008; Rothbart, 2007; Rubin, Burgess, Dwyer, & Hastings, 2003; Sanson et al., 2004). Positive socioemotional outcomes – such as social skills, peer relationships,
empathy, and conscience development – also appear to have roots in temperament (Rothbart, 2007; Sanson et al., 2004). As in most discussions of child development, nature and nurture work in tandem, and a child’s temperament interacts with their environment to predict later socioemotional outcomes. Researchers have found that parenting style and quality pair with temperament to impact later social development (Miner & Clarke-Stewart, 2008; Rothbart, 2007; Sanson et al., 2004; Sheese et al., 2007). A notable model for this interaction is the idea of goodness-of-fit. According to this model, positive socioemotional outcomes occur when an environment fits with the support a child needs based on their temperament (Sanson et al., 2004). For example, when looking at how children develop a conscience, children with highly fearful temperaments benefit strongly from gentle, non-punitive parenting (Rothbart, 2007). For children with a fearless temperament, strong relationships with parents were a more important predictor of conscience development (Rothbart, 2007). Temperament is an influential biological factor that interacts with many other factors to cause various socioemotional outcomes.

**Social Competence in Preschool**

As children enter preschool, their socioemotional abilities grow and change. Certain shifts are rooted in simple development and experiences. With the onset of preschool, children also begin to encounter teachers and curricula that work to improve their socioemotional skills.

**Impact of verbal and literacy development.** As children enter preschool, their verbal and written abilities begin to increase through
experience and explicit instruction, and this, in turn, impacts their socioemotional abilities. An increase in emotion vocabulary and emotion knowledge is linked with higher social competence (Denham et al., 2003; Fabes, Eisenberg, Hanish, & Spinrad; 2001). Emotion knowledge works to increase emotion regulation, demonstrating that the more children can understand and label their emotions, the better able they are to regulate them (Miller et al., 2006). This increase in emotion vocabulary helps by allowing children to talk themselves through difficult situations as a way of regulating negative emotions (Zeman, Cassano, Perry-Parrish, & Stegall, 2006). Emergent literacy can also have an impact on socioemotional development. Preschool literacy relates to prosocial and antisocial behavior; boys with difficulties in literacy show higher levels of aggressive misbehavior and fewer prosocial interactions; girls with difficulties in literacy show higher levels of solitary play and negative affect (Doctoroff, Greer, & Arnold, 2006).

**Happy-victimizer phenomenon.** Guilt is an especially interesting emotion in preschoolers. While preschool-aged children have developed feelings of guilt in themselves (Walker-Andrews, 1997), do not expect others to feel guilty when they commit wrong actions (Krettenauer, Malti, & Sokol, 2008). Young children assume others will feel happy after committing harmful acts, such as hitting another child to get a toy, despite understanding that the actions committed were morally wrong (Krettenauer et al., 2008). Around six or seven years old, children begin to attribute feelings of guilt and sadness to the victimizer (Krettenauer et al., 2008). A meta-analysis by Malti & Krettenauer
What should Nancy do? A Preschool Socioemotional Assessment (2013) shows that the ability to provide accurate moral attributions (e.g. attributing feelings of guilt to a victimizer) is associated with prosocial and antisocial behavior. The ability to understand others’ emotions in moral situations is important to acting in socially appropriate ways.

**Sharing.** Another form of prosocial behavior, spontaneous sharing, does not develop until late into the preschool years. Researchers test sharing by looking at how children divide up objects like tickets, pennies, and food (Brownell, Svetlova, & Nichols, 2009; Fehr, Bernhard, & Rockenbach, 2008; Staub, 1971). Studies demonstrate two-, three-, and four-year-olds are likely to act selfishly, despite understanding and supporting norms of sharing (Fehr et al., 2008; Smith, Blake, & Harris, 2013). Sharing can be increased at younger ages by situations in which children collaborate with the recipient of the lesser prize (Hamann, Warneken, Greenberg, & Tomasello, 2011) and through reciprocal sharing and kin relationships (Olson & Spelke, 2008). As children age, they become more likely to share with real or hypothetical children. By age seven or eight, children are much more likely to act in line with inequality aversion, or sharing for the greatest possible equality between the two parties (Fehr et al., 2008; Smith et al., 2013).

**Socioemotional Interventions.** Socioemotional curricula are increasing in prevalence in all education sectors, from preschool through high school. While only 44 percent of teachers surveyed by Bridgeland, Bruce, & Hariharan (2013) reported a school wide socioemotional curriculum, 88 percent reported some socioemotional learning in their schools. Further, 93 percent of teachers found
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Socioemotional learning important for their students (Bridgeland, Bruce, & Hariharan, 2013). There are many ways of teaching socioemotional skills in the classroom.

**School-wide conflict resolution programs.** Conflict resolution programs educate students on how to manage conflict situations with themselves and their peers. They provide tools and scripts for what to say to resolve conflict. There are four main types of conflict resolution programs. Mediation teaches students how to mediate their peers’ conflicts; teachers can either appoint a few mediators or rotate mediation duty (Jones, 2004). While every student, and the school at large, benefits from mediation interventions, the mediators tend to benefit the most (Jones, 2004). A process approach teaches these skills through a specific class separated from the general curriculum (Jones, 2004). Alternatively, a peaceable classroom approach incorporates conflict resolution curriculum directly into the regular classroom, and it becomes a part of how the classroom functions (Jones, 2004). A peaceable school approach takes this even further by incorporating conflict resolution education into the school at large, including teachers and administrators as well as students (Jones, 2004).

**Preschool programs.** Other socioemotional programs focus specifically on preschoolers. Many early education socioemotional intervention programs use one or both of the following methods: parent education and preschool education. Programs like Triple P Parenting Program and Parent-Child Interaction Therapy provide parents with the information and skills to improve their interactions with their children to prevent and reduce social and
behavioral difficulties (Cooper, Masi, & Vick, 2009). Other programs, like PATHS Preschool and Incredible Years, provide preschool teachers with lessons that focus on practicing socioemotional skills (Cooper et al., 2009). Many Head Start classrooms have implemented the Head Start REDI program, which uses the PATHS curriculum to teach socioemotional development (Bierman et al., 2008). The PATHS curriculum provides teachers with specific lessons focusing on prosocial friendship skills, emotional understanding, self-control, and social problem-solving skills (Bierman et al., 2008). These skills are taught through the use of activities like modeling, discussions, games, puppets, and role-playing (Bierman et al., 2008).

**The RULER.** The RULER is an emotion regulation intervention developed by Yale University for elementary and middle school classrooms. This intervention outlines a process for guiding students through the regulation of their emotions and provides specific tools to facilitate discussion of emotion. After showing positive socioemotional growth, the RULER team adapted the tool for younger children and created the Preschool RULER (Brackett, Rivers, Reyes, & Salovey, 2012).

The RULER is a tool that gives students and teachers a systematic guide for dealing with emotionally arousing situations. The acronym RULER stands for Recognizing, Understanding, Labeling, Expressing, and Regulating (Brackett et al., 2012). Using this acronym, teachers can encourage students to first understand how they and others are feeling and then act appropriately on these feelings.
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The RULER curriculum also provides a useful tool to help students with this process: the Mood Meter (Rivers et al., 2013). The Mood Meter is a graph of emotion with one axis measuring valence and the other axis measuring arousal. It can be adapted to fit various age groups, and for preschool classrooms, it simply consists of four colored squares. The blue square represents emotions of negative valence and low arousal such as sadness and loneliness. The red square represents emotions of negative valence and high arousal and is generally labeled as anger and fear. The green square represents emotions of positive valence and low arousal such as calmness. The yellow square represents emotions of positive valence and high arousal such as happiness and excitement. Students use this tool to recognize and label their emotions in the morning and throughout the day as needed. Teachers also use the Mood Meter to help students who are experiencing negative emotions as it can help to facilitate a discussion about their emotions.

Importance of Preschool Socioemotional Skills

Preschool socioemotional skills have near- and far-reaching impacts. While explicit instruction of socioemotional skills tends to be overshadowed by instruction of easily measurable skills like emergent math and literacy, these skills prove to be just as, if not more, important for school adjustment and academic achievement. First, it is imperative to look at the connection between emotional competency and social behavior. This is the basis for understanding the complex relationships between social and emotional development as well as being situated in the framework used by interventions like the RULER that
utilize emotion knowledge to improve social skills. Secondly, the link connecting both emotion knowledge and social skills with school success justifies the need for increased focus on teaching and testing these skills.

**Emotional competency leading to social competency.** Various studies have looked at the impact of emotion knowledge and emotion regulation on social behaviors and peer relationships. There is a direct relationship between emotion knowledge and social skill development. Emotion knowledge has been shown to be negatively predictive of internalizing behaviors and positively predictive of prosocial behaviors (Denham, 1986; Denham et al., 2003; Izard et al., 2001). Emotion knowledge also has an impact on peer relationships as children with higher levels of emotion knowledge tend to be more liked by peers (Denham, 1986). In fact, simply employing emotion-related vocabulary in peer interactions is associated with higher peer ratings of likeability (Fabes et al., 2001). In addition to knowledge, the ability to regulate emotions is connected to positive social effects like popularity and socially appropriate behavior (Spinrad et al., 2006). Emotion regulation also has an impact on the development of sympathy over time (Eggum et al., 2011).

**Socioemotional skills and life outcomes.** Both emotion knowledge and social behavior in preschool children have been shown to be connected to concurrent and later school success. Emotion knowledge and regulation in preschool is related to academic achievement at the current time, in kindergarten, in first grade, and in third grade (Graziana, Reavis, Keane, & Calkins, 2007; Howse, Calkins, Anastopoulos, Keane, & Shelton., 2003; Izard et
al., 2001; Rhoades, Warren, Domitrovich, & Greenberg, 2011; Trentacosta & Izard, 2007). This connection between emotion-related skills and academic achievement remains even when IQ is taken into account (Graziano et al., 2007). While sometimes seen as separate predictors of school success, the connection between socioemotional knowledge and academic success is possibly mediated by attentional skills, positive student-teacher interactions, behavioral problems, motivation, and engaged learning (Blair, 2002; Graziano et al., 2007; Howse et al., 2003; Rhoades et al., 2011).

Most studies point to a fair amount of consistency in antisocial behaviors over time with early antisocial behaviors leading to negative outcomes later in life. Cummings, Iannotti, & Zahn-Waxler (1989) found that when observing children at age two and again at age five, they show consistency in their amount of aggressive behaviors. This aggression decreases slightly with age and changes somewhat from physical to verbal aggression, but the aggressive two-year-olds remain aggressive at age five (Cummings et al., 1989). This stability remains beyond preschool into childhood and adolescence (Mesman, Bongers, & Koot, 2001; Mesman & Koot, 2001; Cicchetti & Toth, 1991). Externalizing and internalizing behaviors in male preschool children predicts delinquent behavior as early as 10 years old (Tremblay, Pihl, Vitaro, & Dobkin, 1994). Additionally, early antisocial behaviors predict preadolescent and adolescent diagnoses of externalizing and internalizing disorders (Mesman et al., 2001; Mesman & Koot, 2001).
In summary, socioemotional development begins in infancy and continues to change and develop through preschool and beyond. The research background presented in this chapter provides a brief overview of the behaviors being discussed, how they developed, and why they are important. This overview included discussions of emotion knowledge, prosociality, and behavioral difficulties, delving into both the early precursors and how these areas develop in infancy and into preschool. Given this background, the value of having a simple way to assess children’s socioemotional development is clear. Early socioemotional development can be altered by the various factors outlined here and has important implications for a child’s life. However, objective, detailed, and sensitive measurement tools are not readily available. In the following section, I will review the tools available, discussing the strengths and weaknesses of each measure. This review will shed light on how these tools fail to effectively measure the socioemotional constructs outlined here.

Development of a Measure

While many measures exist to assess the socioemotional skills of preschoolers, there is a large gap in this field. An initial overview of the current assessments and their limitations shows the ways in which these measures fall short. From this review, it becomes clear that there is an important tool missing from this field. My experiences in a preschool classroom helped me clarify not only the limitations of the available measures, but also the factors that need to be incorporated into new measures in order to fill the present gap. This review of
the current literature paired with my observations as a teacher led to a comprehensive understanding of the critical gaps in socioemotional testing, the consequences of our inability to test for these types of skills, and the need to develop a measure that is sensitive, objective, and detailed.

**Ways of Measurement**

Through my analysis of the current field of assessment, I was able to identify the features missing from current tools that informed my design for the current measure. Assessments of a child’s socioemotional behavior can come in a variety of different forms. Numerous actors in a child’s life interact with and observe a child’s socioemotional behavior including peers, teachers, parents, and researchers. These people can be used as resources for evaluating the socioemotional skills of preschool children. There are positives and negatives to each type of evaluation and many reasons to choose one method over another. What is needed, however, is an easy and quick tool that tracks and presents a full spectrum of socioemotional skills objectively and richly.

**Laboratory paradigms.** Psychology laboratories often create paradigms through which to test a child’s social knowledge and skills, specifically in regards to prosocial behaviors. These studies usually look at how willing a child is to act prosocially towards either an experimenter. These helping studies often set up situations in which experimenters drop objects or fail at a simple task such as putting a piece of paper on a pile (Hepach et al., 2013; Ianotti, 1985; Warneken & Tomasello, 2006). Researchers track whether children provide help, the amount
of prompting required before they offer help, and how long it takes for them to help (Hepach et al., 2013; Warneken & Tomasello, 2006).

**Limitations.** While these experiments can be useful in gaining some understanding of children’s socioemotional tendencies, they do not generalize to realistic settings; a child’s interactions with an experimenter will greatly differ from how they interact with another child or a familiar adult, like a teacher. Additionally, while the high level of control in laboratory settings allows for the collection of sensitive measures such as reaction time, it also removes the complexity of factors present in real-life situations that impact the child’s actions. Children do not act in a void, and they are impacted by the environment around them. While a measure looking at a child’s behavior in a realistic setting is much messier and leads to more complicated data, ignoring the impacts of a child’s typical environment makes for a measure that does not have meaningful implications for children’s typical response. This may be in part because a laboratory setting is an unfamiliar place for which children have no mental schema. It is unclear whether the social rules of their world apply in the same way to this new setting. These types of measures are so far removed from the reality of children’s lives that researchers cannot appropriately and completely look at the complexity of socioemotional skills, abilities that are inherently interpersonal and require a social network and naturalistic setting to manifest.

**Questionnaires.** Questionnaire formats ask parents and teachers to rate a child’s behavior on some type of scale. These can be highly effective because parents and teachers both know children extremely well and have ample
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opportunities to observe their behavior (Nangle, Hansen, Erdley, & Norton, 2010). Most existing questionnaires were created to look for abnormal or highly antisocial behaviors and are typically used for diagnosis of early socioemotional problems to identify individuals for intervention and behavioral support (Nangle et al., 2010). Some of these questionnaires also have prosocial behavior subscales embedded within them. However, when included, these items tend to be vague, referring to general areas of skill without specifying the ways in which children attempt and succeed in prosocial behavior. For example, the Social Competence and Behavior Questionnaire includes an item that states “negotiates solutions to conflicts” (LaFrenier & Dumas, 1995). While an important skill set to be looking at, a Likert scale cannot provide important information about how children do this, the strategies they use, and the types of conflicts to which they negotiate solutions.

**Limitations.** The most important limitation of questionnaires is that parents and teachers may be biased with regards to their children and students. Parents tend to rate their children as more socioemotionally competent than they are due to their emotional attachment (Nangle et al., 2010). Additionally, differences in parenting styles and in what type of behavior is expected affect how parents see their children in comparison to their peers. Teachers have more experience with a wider and more diverse group of children and thus can have more accurate points of reference from which to objectively rate children (Nangle et al., 2010). However, they can be biased by classroom behavior. While a child may be extremely prosocial with his or her peers, if that child also causes
disruptions in the classroom, this could disproportionately affect the teacher’s responses (Nangle et al., 2010). On a structural level, studies have shown that teachers are biased by factors completely unrelated to the actual socioemotional competences of the children. Mashburn, Hamre, Downer, & Pianta (2006) found that teacher factors like years of experience, race, and self-efficacy as well as school factors like student-to-teacher ratio and length of day impacted teacher ratings of their students socioemotional competency. Studies also indicate that Black children are more often disciplined despite a similar number of disruptive behaviors as white children (Skiba, Michael, Nardo, & Peterson, 2002). These factors, completely divorced from actual socioemotional skills, could impact how children are perceived and rated through teacher questionnaires.

Another problem with questionnaires comes from limitations of a rater’s experience with the child’s full range of socioemotional behavior. For example, parents only witness their children’s behaviors at home, a setting with familiar adults and minimal peer interaction (Nangle et al., 2010). Teachers only observe children in the classroom and are likely to miss displays of prosocial behavior due to the high student-to-teacher ratio of many classrooms and the focus on identifying and responding to antisocial behaviors (Nangle et al., 2010). Anecdotal evidence during the course of the current study suggests that even when teachers know the behaviors of their students, the motivations behind children’s behaviors could be lost. A teacher of students tested in the current study shared a story of a role-playing activity he did with his students. He was surprised that while his students understood how someone would react to a
certain situation, they did not understand why someone would act this way. Questionnaires that ask teachers about the socioemotional competence of their students can be confounded by the teachers’ misunderstandings of a child’s behavioral motivation.

Lastly, these types of questionnaires include items that are broad and subjective enough that it would be highly difficult to detect a change in a short-term intervention. While questionnaires may be good for certain uses and many have been validated widely, they may not be the most useful tools for providing teachers and researchers with the specifics of a child’s socioemotional knowledge and behavior strategy or for identifying the impacts of a short-term intervention.

**Observations.** Another way to look at a child’s socioemotional skill is through direct observation by trained researchers. There are a few standardized observation frameworks in the field, but much of the time, researchers create their own observation framework to identify the constructs being examined in a specific study (Nangle et al., 2010). Observations produce much more objective ratings than questionnaires as the bias inherent in teachers and parents is minimized with outside observers (Nangle et al., 2010). This is especially true when a child’s interactions can be video-recorded and coded by multiple coders to ensure inter-rater reliability. Also, requiring objective methods like checking boxes and timing interactions can reduce the biases that researchers may have.

**Limitations.** A main limitation of this method of assessment is the intensive time commitment required. Observations typically require each child
to be observed over multiple sessions many days apart (Nangle et al., 2010). This
effectively prohibits the use of this measure for short interventions. There are
also some limitations given the format of measures of this type. Observations
often rely on simple checklists that record if the child has done a particular
action in the period of time he or she was being observed (Christensen, 2015).
Under this yes/no binary paradigm, there is no distinction between a child who
smiles once for a few seconds and one who smiles for the entire observation.
Moreover, observation assessment forms typically include limited categories for
reactions to emotionally arousing situations (e.g. either aggression or positive
verbal solution) (Christensen, 2015). The variety of strategies that children use,
both prosocial and antisocial, are omitted from this organizational structure.
Lastly, some of the prosocial items only take into account successful
accomplishment of an action requiring another person, instead of also looking at
intent (Christensen, 2015). An example of this is turn taking, which requires
observation of the beginning and end of a child’s turn in an activity with peers
(Christensen, 2015). This conceptualization of prosocial behavior ignores
situations in which children attempt prosocial behaviors and fail because of the
unresponsiveness of their peers. While observational checklists can be
extremely important in finding an objective way to observe naturalistic behavior
in the classroom, theses limitations prevent them from being useful in many
situations.

**Peer measures.** Peer measures ask children to rate their friends and
fellow classmates in order to determine social standing within a classroom
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(Nangle et al., 2010). There are a couple different methods for obtaining peer ratings. Researchers can ask children to simply rate the likeability of their peers on a scale (Nangle et al., 2010). Alternatively, children can also be asked to provide a list of their best friends, which gives researchers an idea of the peer social networks and how accepted or rejected each child is within the classroom as a whole (Nangle et al., 2010). Similarly, researchers can provide descriptions of different behaviors and ask children to select which of their peers best fit that description (Nangle et al., 2010). While these are the most commonly used paradigms, this measure can be easily adjusted for different experimental set-ups.

Limitations. The biggest limitation of this type of measure is difficulty in eliciting peer opinions from young children due to a lack of both literacy skills and metacognitive abilities. Researchers use picture-sorting paradigms that are easier for younger children, however it does not completely erase the issue (Nangle et al., 2010). Secondly, friendships are often volatile at this age and are based on more than simply the antisocial and prosocial behaviors of a child (Howes, 2009). These types of measures cannot be used to indicate social standing without analysis of additional factors.

Structured interviews. There are also measures that test children directly on their ability to demonstrate socioemotional skills. Children of this age are generally too young to have the reading and writing ability, as well as the self-awareness, to effectively complete self-reports (Nangle et al., 2010). Most measures of this kind present scenarios to children and ask for some type of
response that reflects their socioemotional understanding (Denham, 1986; Denham, Bouril, & Belouad, 1994; Nangle et al., 2010). Structure interviews allow researchers to test children objectively by presenting the same stimulus to each child and creating consistency and objectivity with coding. In some models, children are asked to choose among a set selection of responses, which allows for clear, objective coding criteria, but evokes a less rich response than open-ended measures (Denham, 1986; Denham, Bouril, & Belouad, 1994). In free-form paradigms, responses can be transcribed and coded by coders who are blind to the race and gender of the child in an effort to reduce bias and increase objectivity. Further, structured interviews do not require the same amount of time or familiarity with a child as other methods of testing socioemotional skills. They can be completed by an unfamiliar researcher in a short testing period, which both reduces bias and makes them ideal for tracking short-term, high-impact interventions.

**Limitations.** It can be difficult to develop measures that elicit useful response for coding, considering the widely varied levels of language development within a population of young children. In addition, given the nature of these measures, the scenarios presented will always be removed from reality and require a certain degree of transfer on the part of the child. As a result, it is often unclear how well these measures effectively reflect how the child behaves in a real-life situation. There is no way to ethically create situations that place children in emotion-inducing situations in order to assess their reaction. This is especially true when measuring how children interact with their peers as it is
impossible to set up an emotion-inducing situation between children that is both ethical and consistent across subjects. As a result, child measures work better when looking at a child’s understanding of emotion and the ways a child thinks one should respond to emotionally arousing situations instead of recording a child’s actual behaviors in these situations.

**Finding the Gaps and How to Fill Them**

After surveying the existing measures for assessing children’s socioemotional skills, it is clear that these limitations require investigation. The importance of preschool socioemotional intervention programs indicates that there is a need for a tool that can be used to assess a child’s socioemotional skill level objectively and with little previous experience with the child. Moreover, there is no tool sensitive enough to truly track changes in socioemotional development in a short-term intervention.

**Experience in a preschool classroom.** While the gap in the field of measurement was clear, the format and criteria for the creation of a new measure remained uncertain. To investigate this issue, I worked as a teacher-researcher for Kindergarten Kickstart; by embedding myself in a preschool classroom, I gained more familiarity with the environment factors involved in socioemotional development. Kindergarten Kickstart is founded on the principles of bridging the research-to-practice gap, making it an ideal setting for using a research mindset to gather observational data.

**Background.** Kindergarten Kickstart is a five-week summer preschool program for children entering kindergarten with little to no previous preschool.
This program was founded in 2012 by Professor Anna Shusterman and the Wesleyan Cognitive Development Labs in partnership with the Middletown Board of Education. Kindergarten Kickstart has two main missions. First, this program provides an important service to children in Middletown who are entering kindergarten behind their peers with more access to early education. Second, Kickstart employs cutting-edge psychology research in the classroom, bridging the research-to-practice gap in early education. Each classroom is led by a team of four teachers: one certified Middletown teacher and three Wesleyan students with backgrounds in cognitive development.

**Use of interventions.** Kickstart was founded on the principles of using research-backed methods of teaching. Kickstart has furthered this mission by partnering with labs around the country to pilot specific research-based interventions in the Kickstart classrooms. Currently, Kickstart uses three specific interventions: the Wesleyan Preschool Math Games, an executive function curriculum, and the Preschool RULER. In addition, the Wesleyan Cognitive Development Labs are currently in the process of developing a literacy curriculum for use at Kickstart.

*Wesleyan Preschool Math Games.* The Wesleyan Preschool Math Games is a curriculum of research-based math activities developed by the Wesleyan Cognitive Development Labs and students of Professor Anna Shusterman. This curriculum uses cognitive development research on number acquisition to foster numeracy in preschoolers. The program employs engaging materials that are flexible for use with children at many levels.
Executive functioning intervention. Developed by Oregon State University, the executive functioning intervention used in Kickstart classrooms is comprised of a set of games and songs that develop and improve students’ executive functioning skills. Research has shown that executive functioning has an impact on socioemotional skills in preschool children (Riggs, Jahromi, Razza, Dillworth-Bart, & Mueller, 2006), so it is expected that this intervention would have an impact on the socioemotional development of Kickstart students.

Preschool RULER. The most relevant intervention to this study is the Preschool RULER outlined in the previous chapter. This tool was used at Kindergarten Kickstart during the summers of 2015 and 2016. Teachers were trained on the RULER by Shauna Tominey and used the general framework for responding to conflicts and other emotionally arousing situations as well as the Mood Meter.

Socioemotional skills improvement. In addition to the RULER intervention, Kindergarten Kickstart provides a model that should work to support students’ socioemotional development. Due to low student-to-teacher ratios, an emphasis on developmentally-appropriate activities, and a play-based classroom model, students spend much of their time interacting with their peers and having social interactions scaffolded by teachers. Until this summer, the Wesleyan Cognitive Development Lab had not yet measured these gains but believed there were improvements based on anecdotal data from teachers, parents, and community members.
Community input. Blumenstock (2016) interviewed various community members who had been involved in Kindergarten Kickstart in some way including past teachers, parents, and Middletown educators. Of the fourteen people interviewed, six mentioned classroom socialization, both in terms of familiarity with a classroom structure and social interactions with peers, as important for kindergarten readiness (Blumenstock, 2016). The ability to adapt to the structure of a school environment by following directions and transitioning easily is rooted in emotion regulation, among other skills (Blair, 2002). The second important socialization skill set identified by interviewees was the ability to interact positively and prosocially with peers. These skills were identified as imperative for success in kindergarten and were seen by interviewees as becoming less of a focus in preschool to the detriment of the students (Blumenstock, 2016). With an increased focus on academics, socioemotional learning is being neglected, hurting children’s social preparedness for kindergarten (Blumenstock, 2016).

Teacher observations. In the summer of 2016, I used my time as a Kickstart teacher to observe and record the socioemotional behavior occurring in the classroom. I also worked with the other teachers in the classroom to identify and explore patterns of behavior we observed throughout the summer, and a few patterns emerged regarding the improvement of socioemotional development. Additionally, these observations allowed my fellow teachers and I to examine the difference between expression of socioemotional behaviors, specifically prosociality, in laboratory and classroom settings.
Kindergarten Kickstart teachers observed various levels of socioemotional growth over the summer, despite the lack of an appropriate tool to objectively measure them. The most common improvement teachers observed was an increased ability to articulate emotions and the motivations for actions. These observations aligned with the goals of the RULER curriculum and the use of the Mood Meter, which focused on helping children recognize and label their emotions. For example, one student, KA, began the summer exhibiting highly avoidant behaviors in response to triggering situations. By the end of the summer, he was much better able to articulate what was making him upset and transitioned away from avoidant strategies and towards deferral to teachers for help. This was an extremely important transition that seemed to rely heavily on being given the vocabulary to identify and develop strategies for improving negative situations. Similarly, another student, CK, was able to move away from reliance on teachers and increasingly utilize the scripts teachers had provided for him in peer interactions. These observed improvements with individual students, while not objectively demonstrated, are important in developing a concept of socioemotional learning in the classroom as well as anecdotally showing the success of Kindergarten Kickstart in boosting students’ socioemotional preparedness for kindergarten.

Prosociality played into classroom dynamics in a few different ways. There appeared to be a dichotomy between actively prosocial and passively prosocial children. This distinction was not a measure of extroversion and introversion; rather it focused on children’s relative strengths in different
categories of prosocial behaviors. Some students were actively prosocial, seeking out situations in which another child was upset to offer comfort and initiating social interactions with peers. Others were passively prosocial; while they did not initiate many interactions, they were easy play partners as they tended to happily comply with what the other children wanted. It is important to note that the actively prosocial children also tended to have more antisocial qualities and a lower ability to regulate their emotions than the passively prosocial children.

A few examples demonstrate these various methods of prosociality. For example, one student, BW, was very actively prosocial, constantly approaching peers and initiating positive interactions. However, she was prone to crying when wronged by a peer and struggled with missing her mother while at Kickstart. Alternatively, another child, IG, was passively prosocial; while he was often chatting with teachers or happily playing by himself, he was very responsive when others approached him. He was never involved in disagreements with his peers and rarely expressed any negative emotions. Both prosocial children were popular with their peers. This dichotomy between the two provisional types of prosocial children and the observation of prosocial behavior in the Kickstart classrooms lead to questions about the nature of prosociality in classroom settings: In what situations will children exhibit prosocial behaviors? What is the impact of teachers on the amount of prosocial behavior displayed in the classroom? How do children explain why or why they should not exhibit prosociality?
Testing socioemotional development. The Wesleyan Cognitive Development Labs wanted to test the general trend of socioemotional growth in Kickstart students, examining specifically responses to emotionally arousing situations and prosociality. Based upon the anecdotal evidence from Kickstart teachers and community members, there was reason to believe that there would be large growth in students’ socioemotional development over the course of the summer. In the summer of 2016, researchers at the Cognitive Development Labs consulted with researchers at the Yale Center for Emotional Intelligence who developed the RULER curriculum. With guidance from this center, the Affect Knowledge Test (AKT) was chosen as an appropriate measure of socioemotional growth.

The Affect Knowledge Test (AKT) is a measure designed by Denham (1986) that looks at children’s understanding of others’ emotions in the context of typical preschool situations. Specifically, it examines a child’s ability to understand that other children might feel emotions differently than they would in the same situation. The measure involves puppets acting out scenarios in which the main character is placed in an emotionally arousing situation. The experimenter demonstrates the puppet’s emotion, and the child is asked to name how the puppet feels. A high-scoring child would be able to accurately label the puppet’s emotions, such as sad when his mom leaves him at preschool, even if the child him or herself would feel happy in the same scenario.

While anecdotal evidence from 2016 Kickstart teachers confirms that the RULER improved the students’ ability to label, discuss, and regulate their
emotions, this growth was not able to be shown in the AKT as the AKT was only run at pre-test. Post-testing was not pursued because most students received scores just below or at ceiling, with only two of the thirteen students tested receiving a score below 30 out of a total possible score of 34. Even our three youngest participants tested, ranging from 54 months to 56 months, all achieved scores of 30 or above. Due to the subjects’ high scores at the beginning of the summer, it did not make sense to try to collect post-test data for these students as there was little to no room for improvement.

Through using the AKT in conjunction with my experience teaching at Kindergarten Kickstart, I discovered that this assessment lacked some important components of socioemotional knowledge that should be included in a measure. While the four emotions used (happy, sad, scared, and angry) in the task are the emotions that children understand earliest, four- and five-year-olds can understand and discuss more complex emotions (Siegler et al., 2014). By limiting the measure to only four simple emotions, the AKT is unable to account for the development of other emotions as children get older. Secondly, by using the RULER framework, one can see that the AKT does not encompass all parts of effective emotion regulation. While requiring children to Recognize, Understand, and Label the emotions of characters, it lacks the last two elements, Expressing and Regulating emotions. Once children understand the emotions being presented, it is important to investigate how they respond to them. Emotional response can be broken down into two parts as well: whether children know the appropriate way to respond and how children actually behave in emotionally
arousing situations. Both components are ignored by the AKT's sole focus on emotion recognition and labeling. Lastly, the AKT does not look at prosocial behavior. This behavior could be examined in numerous ways including but not limited to knowledge of appropriate behavior, use of appropriate behavior, spontaneous use versus teacher-prompted use, and the differences in the situations that elicit prosocial behavior. The inability of the AKT to adequately test the socioemotional growth of four- and five-year-old Kickstart students and the socioemotional skills missing from the AKT further demonstrate the necessity for the development of a new tool to fill this gap.

The work done at Kindergarten Kickstart helped clarify which skills and knowledge should be the focus of this new tool. The failure of the AKT showed that the assessment had to move beyond simple identification of emotion knowledge. This discovery, along with the observations of myself and my fellow teachers, led to identifying application of emotion knowledge as the main focus of the new measure. In the current study, the measure created seeks to expand on the AKT in two important ways. First, this measure uses questions that relate to a child's knowledge of the appropriate responses to these situations in addition to their knowledge of the emotions being presented. Additionally, it includes situations that are designed to elicit prosocial responses.

**Current Study**

The above overview of the current literature and the observations from Kindergarten Kickstart aim to identify and clarify a gap that the new measure created here hopes to fill. Overall, gaps in the field of socioemotional
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measurement demonstrated the need for a tool that was objective, sensitive, unbiased, and able to be run by an unfamiliar researcher. While teacher and parent questionnaires tap into important resources with a lot of knowledge about the child, this type of measurement is inherently biased and requires that respondents have a high level of familiarity with a child. A measure that directly tests the child avoids bias. By allowing for testing by unfamiliar experiments, this measure can be used at the beginning of interventions. In contrast, laboratory measures solve these two problems by using unfamiliar researchers and extremely unbiased measures. In these types of measures, every child is presented with the same stimuli and the data collected includes objective measures (e.g. time until action). However, these measures are so far removed from the real world that the application of these results to real world situations is improbable. It is imperative to develop a measure that uses stimuli and scenarios familiar to the child in order to adequately test their real-life knowledge and abilities. With these limitations in mind, developing a structured interview presented the best opportunity for an accurate and sensitive way to test socioemotional development at this age.

A significant limitation when using structured interviews is that at this age, a child’s metacognitive abilities are still not fully developed (Schneider, 2008). Children might not have the ability to really know and to reflect on what they would actually do in social situations. Instead of tracking what a child actually does, the current measure looks at another level of skill: what a child knows about appropriate reactions. By using questions that ask children what
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the protagonist “should” do, this measure focuses on their ideas about the correct way to act, which reflects their knowledge of social scripts and appropriate behavior. During social interactions and classroom experiences, this knowledge is put to use in actual social situations and is necessary for appropriate action. For example, if a child does not know or understand that sharing is the appropriate behavior, they cannot apply this understanding and share when the situation arises. This knowledge base is easier to tap into than the behaviors themselves as it does not require specific circumstances to obtain a child’s responses.

The current measure collects information about a wide variety of knowledge: emotion identification, prosocial behavior scripts, and appropriate responses to negative emotions and positive emotions. Further, the current measure digs deeper into socioemotional understanding by asking not only if the child knows the action, but if the child understands the motivation behind the action. These questions target the underlying understanding of whether a child performs prosocial or positive behavior simply because this is the social script they have been taught by teachers and parents or because they actually understand the empathetic and relationship-building motivations for these behaviors. All of these levels of knowledge taken together provide researchers with a well-rounded and multifaceted understanding of a child’s socioemotional abilities.

**Purpose.** The goal of the current study is to develop and begin to validate a new measure that accomplishes the following goals:
1. This measure should be sensitive enough to track changes over a short period of time.

2. This measure should not require any prior knowledge of the child to ensure objectivity and lack of bias and to allow for testing by an unfamiliar researcher.

3. This measure should track children’s knowledge of their and others’ emotions and how to appropriately respond to these emotions.

4. This measure should allow for and prompt descriptive responses that provide deep understanding of a child’s thought processes and socioemotional tendencies.

**Risks.** Despite attempts to align this measurement with real-world scenarios, there is an inherent limitation to how much researchers can learn about a child’s behavior pattern from a measure of this type. Laboratory measures use a child’s response to an adult researcher or a hypothetical peer as evidence for their socioemotional abilities. This is inherently different from what occurs in a classroom setting with true peer interactions. However, this type of testing allows for a standardized and controlled environment with highly objective measures, such as how many seconds elapse until a child helps the experimenter. A structured interview that involves conversing with a child and relying on their verbal responses is much more unpredictable and uncontrollable.

On the other end of the spectrum, measures that look at a child in completely naturalistic settings, such as teacher questionnaires or observations,
are able to track children’s peer interactions without situational transfer
confounds. This type of real-life situation is lost in a structured interview like the
current measure. Researchers must assume that the child is able to transfer the
scenarios from the story into his or her real life. This limitation means that the
responses are more reflective of how a child thinks one should respond, rather
than how they actually respond. While this distinction is important to recognize,
it is also imperative to understand how much information this type of measure
can provide about social knowledge, even without the guarantee of natural
behavior.

There are inherent limitations to this type of measure that cannot be
ignored. However, these limitations do not prevent this assessment from
providing rich and descriptive information about a child’s socioemotional
knowledge. The success of this assessment will impact the way in which
researchers and educators are able to understand children’s socioemotional skill
level as well as track the success of interventions, both short- and long-term. All
assessments must negotiate the balance between realism and experimental
control. The current measure accomplishes this goal by creating standardized
stimuli, presented in the same way to all subjects, while also allowing for the
flexibility to gain a realistic and descriptive understanding of the child’s
thoughts. The rewards and possibilities opened up by this assessment far
outweigh the limitations inherent to a structured interview of this type.
Methods

Participants

A total of 27 children were tested across seven classrooms in three different preschools in Middletown. The average age of students tested was 50.3 months (range = 38.0 – 59.8 months). Fifteen of the children tested were female. The purpose of testing was twofold: successful use of the measure with a variety of children and validity of the measure. The three preschool settings varied across socioeconomic status, which tested the ability to use this measure in a variety of settings with many different children. A subset of these children (n=13) were only tested on the Socioemotional Assessment (SEA). For the rest of the subjects, additional data was collected to look at validity. For a total of 14 subjects across two different preschool settings, teacher ratings on the Social Competence and Behavior Evaluation – 30 Items (SCBE-30; LaFreniere & Duman, 1995) and the Childhood Prosocial Assessment (CPA; K. Dunfield, personal communication, January 23, 2017) were collected. Of those, eight subjects were also observed using the Minnesota Preschool Affect Checklist – Teacher (MPAC-T; Christensen, 2015).

A total of eight subjects were excluded from analysis due either to an inability to provide enough adequate responses to the questions (i.e. responded with “I don't know” and would not respond to additional prompting) or to their desire to stop testing early. Testing was stopped immediately after a child demonstrated a desire to stop testing and return to their classroom.
Participants were tested at their preschool in a quiet space either in the classroom, hallway, or office. Assessments were administered by trained researchers and were observed by coders and often a teacher or director, in line with the rules of the preschool.

**Measure Iterations**

The SEA went through three versions, and the third version was ultimately used for the study. Because of this development, two subjects were tested twice, once on the first version and then again on the final version. The testing sessions for these subjects occurred more than a month apart and only data from the second testing session was used for analysis. Additionally, three subjects were tested on the second version instead of the final version. The changes between these versions were the slight clarification of the drawing of a facial expression on one of the pages and the switching of one question on the first page from being about the subject (i.e. “How would you feel?”) to being about the protagonist (i.e. “How does Nancy/Johnny feel?”). Due to the minimal nature of these changes and our assessment that these did not substantively change the children’s scores, these three subjects were included in the analysis.

**Measure**

**Socioemotional assessment.** The Socioemotional Assessment (SEA) was created for the purpose of this study. Despite the limitations of structured interviews, the format was used here for various reasons. First, this format fits the needs of measuring a short-term intervention. The measure can be administered by researchers unfamiliar to the children, providing benefits for
quick assessment of a child’s skill set without needing to previously establish a relationship. This allows for the possibility of pre-testing without previous contact with the children as well as post-testing unbiased by prolonged contact and familiarity. Additionnally, the open-ended nature of the measure allows for a variety of descriptive and multifaceted responses, giving teachers and researchers a layered view into the mind of their students.

**Creation of scenarios.** Many of the scenarios presented in SEA have a basis in the Affect Knowledge Test (AKT; Denham, 1986). These scenarios were modeled after a typical preschool day and were adjusted to fit the storybook format of the SEA. Data collected at Kindergarten Kickstart indicated situations in which most or all children tested would feel one particular emotion about a situation (i.e. most children tested would feel happy going to preschool, even if it meant leaving their parent, which could lead to sadness). First, these data were used to create situations in which the character in the story would be likely to have an emotional response different than the child’s response. Second, we adapted the format of the AKT for the SEA training section, asking children to identify the emotions of faces and training them to connect the emotion to the pictorial representation for use in the rest of the measure. Third, like the AKT, subjects have an emotion-knowledge score as a result of their responses to the question “How does Nancy/Johnny feel?” relating to various scenarios.

**Picture book format.** The SEA uses a picture book format instead of puppets to depict various scenarios. Each page includes an illustration of the situation with the target emotion demonstrated in the character’s facial
expression. The page also includes a short description of the situation, much like a story, for the experimenter to read before providing the child with prompts about each page. This simulates a shared book-reading experience between the child and the experimenter.

Book reading has proven to be an effective way to learn new information (Barry & Burlew, 2014; Ganea, Pickard, & DeLoache, 2008; Richert, Shawber, Hoffman, & Taylor, 2009; Walker, Gopnik, & Ganea, 2015). Children as young as 15 months old are able to learn the names of objects in books and transfer that knowledge to their real-life counterparts (Ganea et al., 2008). Studies have also shown that children as young as preschool-aged are able to learn strategies for physical and social problem solving through stories and transfer them to real-life problems (Barry & Burlew, 2014; Richert et al., 2009). This transfer of information is most effective with more realistic situations instead of fantasy situations (Richert et al., 2009; Walker et al., 2015). Additionally, Ganea et al. (2008) found that drawings led to significantly better transference from stories to real-life than cartoons, but there was no difference between drawings and photographs.

Given this research, the SEA was created in picture book format. All of the scenarios were realistic situations that the child was likely to have experienced in their everyday life at preschool. The drawings were made to look realistic and identification of the child with the protagonist was established through similar age, gender, race, and location.
Procedure. The SEA includes two parts: a training section and a story section. There are four versions that differ only in the skin color, hair length, names, and genders of the protagonist and their main friend. The version chosen matched the race and gender of the participant as closely as possible. In the female version, the protagonist is named Nancy, and her friend is named Katie. In the male version, the protagonist is named Johnny, and his friend is named Bobby. Each set includes a set of four face cards showing the protagonist’s face depicting the emotions of happy, sad, angry, and scared as well as 16 story pages. The images of the emotion faces and the story pages are shown in Appendix A, and the experimenter script can be found in Appendix B.

During the introduction phase, the child is shown the four emotion faces and asked to identify each face with the prompt “How does Nancy/Johnny feel?” Afterwards, the experimenter labels the emotions depicted in each face and demonstrates these emotions with her own body language and facial expression. The child is again tested, this time asked to point to each of the faces (e.g. “Point to the happy face”). This section tests the subject’s ability to recognize and attach facial expressions to emotions. This section also provides training and familiarity with the emotion faces so that subjects, specifically those who are shy or have lower verbal ability, can use these faces for non-verbal responses later in the measure.

The story section is divided into three main parts. The first two pages of the measure mimic the AKT, focusing on emotion understanding. After reading the page, the experimenter asks the child “How does Nancy/Johnny feel?” and
prompts them to identify a face if they did not verbalize an emotion. The next four pages focus on prosociality. The scenarios presented are designed to elicit a prosocial behavior directed at the protagonist’s main friend in the story. After reading the page, the experimenter asks “What should Nancy/Johnny do?” and subsequently asks “Why should Nancy/Johnny do that?” The remainder of the book presents eight scenarios meant to elicit one of the four target emotions from the protagonists. After reading the page, the experimenter asks, “How does Nancy/Johnny feel?”, “What should Nancy/Johnny do?”, and “Why would Nancy/Johnny do that?” The experimenter then explains that the character accomplished what the child suggested they do (e.g. “Ok, Nancy yelled for the teacher”) and asks “How does Nancy/Johnny feel now?” If the child does not answer any of the prompts verbally or appropriately, the experimenter prompts the child again, and offers the use of either the emotion faces for the emotion-related questions or puppets for the behavior-related questions if needed.

**Quantitative Coding**

**Scoring rubric.** Questions on the SEA were coded in various ways. The emotion questions were rated on a 2-point scale. In this scale, 2 points corresponded to a correct response, 1 point was for an incorrect response with a correct valence, and 0 points represented a completely incorrect response with an incorrect valence. This scoring system followed the scoring of the AKT, on which these questions were based.

A rubric was developed for scoring the open-ended action responses from the SEA (i.e. children’s responses to the question “What should
Nancy/Johnny do?". The primary researcher analyzed the transcripts of children's responses to the open-ended question and identified common patterns. These patterns yielded the following categories: positive, interpersonal, empathetic, deference to adult, and reference to emotion. Then, eight independent research assistants rated children's responses according to these criteria. Each response was evaluated for whether it contained each one of these criteria, meaning that it could contain all or none of them. Responses were deemed to fall into a certain category if six out of the eight respondents agreed.

The research assistants’ responses revealed the need for some adjustments to the rubric. For example, due to the existence of an “interpersonal” and a “deference to adult” category, some responses that described discussion with an adult caused confusion among responders and were not coded as interpersonal by six or more people. These slight adjustments to the coding rubric contributed to the creation of a more consistent coding system. Further, these changes were made in collaborative discussion with two additional lab members to ensure logic and higher levels of objectivity.

Due to the few responses that were coded as falling into the empathetic, deference to adult, and reference to emotion categories, these criteria were excluded from analysis. These categories are interesting ways to look at and interpret answer patterns in individual children. Deference to adult without any sense of personal responsibility describes a specific way of dealing with social problem solving. Further, in response to an intervention like the RULER, an increase in explicit reference to emotion would be expected and would signal
success in increasing students’ labeling and dialogue surrounding emotions. However, due to the low frequency of responses fitting these criteria, we decided to only use the positive and interpersonal criteria to score the subject responses for these analyses. The positive subscale was relabeled as “adaptive” to better reflect the construct being measured.

The initial rubric created was used to code the SEA data. Afterwards, a general coding rubric was created that used this initial rubric to identify and describe the criteria used to code each response. This was created so that all possible responses could be coded, not only those that were in the initial data.

Based on the coding scheme, various subscales were created. Table 1 outlines the types of scenarios and subscales. The three main subscales - Emotion Total, Interpersonal Total, and Adaptive Total - were based on how items were coded. Further, the Adaptive Total subscale, which tracked how positive and effective a child’s approach to a situation was, was further broken down by question type. These subscales were used for the analyses described in the next chapter.

**Reliability**

**Inter-rater reliability.** After the creation of the general coding rubric, two lab members familiar with the study acted as reliability coders using this rubric. Three random subject numbers were generated for each coder, and coders were provided with the transcripts for these subjects and the general coding rubric. The reliability coding between the primary researcher and the reliability coders yielded a 95% and an 89% similarity rating.
Table 1. Descriptions of the types of SEA scenarios and the various subscales used.

<table>
<thead>
<tr>
<th>SEA Scenarios</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotion Scenarios</td>
<td>Includes all scenarios in which the only question asked was “How does Nancy/Johnny feel?” (n = 3).</td>
</tr>
<tr>
<td>Prosocial Scenarios</td>
<td>Includes all scenarios that were meant to prompt prosocial behavior and for which the only questions asked were “What should Nancy/Johnny do?” and “Why should Nancy/Johnny do that?” (n = 4).</td>
</tr>
<tr>
<td>Reaction to Emotion Scenarios</td>
<td>Includes all scenarios that were meant to elicit a certain emotion (sad, mad, scared, or happy) and for which the questions asked were “How does Nancy/Johnny feel?”,”What should Nancy/Johnny do?” “Why should Nancy/Johnny do that?” and “Ok Nancy/Johnny [rephrases child’s action answer]. How does Nancy/Johnny feel now?” (n = 8).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEA Subscales</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEA Total</td>
<td>Includes all items in the Emotion, Interpersonal, and Adaptive subscales (n = 43). Points are calculated as they are in the subscales (score range: -12 to 62).</td>
</tr>
<tr>
<td>SEA Emotion Total</td>
<td>Includes answers to the training questions (“How does she/he feel?” and “Point to the _____ face”) for all four emotions as well as answers to the question “How does Nancy/Johnny feel?” for both emotion scenarios and reactions scenarios (n = 19), coded on 2 point scale with 1 point for correct valence and 2 points for correct answer (score range: 0 to 38).</td>
</tr>
<tr>
<td>SEA Interpersonal Total</td>
<td>Includes all answers to the question “What should Nancy/Johnny do?” for both prosocial scenarios and reaction scenarios coded for whether the action describes interaction with another person (n = 12), coded as 0 for no interaction with others and 1 for any interaction with others (score range: 0 to 12).</td>
</tr>
<tr>
<td>SEA Adaptive Total</td>
<td>Includes all answers to the question “What should Nancy/Johnny do?” for both prosocial scenarios and reaction scenarios coded for how effective the action is in dealing with either the situation or the emotion elicited by the situation (n = 12), coded as -1 for a negative response, 0 for a neutral response, and 1 for a positive/effective response (score range: -12 to 12).</td>
</tr>
</tbody>
</table>
### SEA Adaptive Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEA Adaptive Reaction Scenarios</td>
<td>Includes all Adaptive scores to responses on Reaction to Emotion scenarios (n = 8, score range: -8 to 8).</td>
</tr>
<tr>
<td>SEA Adaptive Prosocial Scenarios</td>
<td>Includes all Adaptive scores to responses on Prosocial scenarios (n = 4, score range: -4 to 4).</td>
</tr>
<tr>
<td>SEA Adaptive Peer-Directed Scenarios</td>
<td>Includes all Adaptive scores to responses to scenarios that included explicit interaction with peers (n = 7, score range: -7 to 7).</td>
</tr>
<tr>
<td>SEA Adaptive Negative Scenarios</td>
<td>Includes all Adaptive scores to responses on Reaction to Emotion scenarios that elicited negative emotions (n = 6, score range: -6 to 6).</td>
</tr>
<tr>
<td>SEA Adaptive Mad Scenarios</td>
<td>Includes all Adaptive scores to responses on Reaction to Emotion scenarios that elicited madness (n = 2, score range: -2 to 2).</td>
</tr>
<tr>
<td>SEA Adaptive Sad Scenarios</td>
<td>Includes all Adaptive scores to responses on Reaction to Emotion scenarios that elicited sadness (n = 2, score range: -2 to 2).</td>
</tr>
<tr>
<td>SEA Adaptive Scared Scenarios</td>
<td>Includes all Adaptive scores to responses on Reaction to Emotion scenarios that elicited fear (n = 2, score range: -2 to 2).</td>
</tr>
<tr>
<td>SEA Adaptive Positive Scenarios</td>
<td>Includes all Adaptive scores to responses on Reaction to Emotion scenarios that elicited positive emotions (n = 2, score range: -2 to 2), note: this subscale includes the same items as the SEA Adaptive Happy Scenarios subscale and is included only for organizational purposes.</td>
</tr>
<tr>
<td>SEA Adaptive Happy Scenarios</td>
<td>Includes all Adaptive scores to responses on Reaction to Emotion scenarios that elicited happiness (n = 2, score range: -2 to 2).</td>
</tr>
</tbody>
</table>
Internal reliability. Internal reliability was calculated by finding Cronbach’s alpha. This calculation was specifically essential to this study as it demonstrates the successful creation of a new measure. Achieving a high internal reliability has implications for how well this measure assess at the construct of socioemotional ability.

Validity

Teacher questionnaires and observations were both used as tools to assess the validity of the measure. Using these tools allows us judge the effectiveness of the SEA in comparison to well-established measures of socioemotional development.

Teacher questionnaires. Teachers were asked to complete two teacher-rating questionnaires for each child tested in their classroom. First, they completed the Social Competence and Behavior Evaluation - 30 Items (SCBE-30; LaFrenier & Dumas, 1995), which asks for ratings on behaviors such as prosocial behavior, antisocial behavior, and emotion expression and regulation. Each behavior was rated on a six-point scale for how much the child exhibited the behavior in question. Teachers also completed the Childhood Prosocial Assessment (CPA; K. Dunfield, personal communication, January 23, 2017), which focused on prosocial behaviors. This questionnaire included 45 questions rated on a five-point scale assessing how often the child engaged in these behaviors or how well the description fit the child. The questions span prosocial behavior, rejection of prosocial opportunities (e.g. “will not share their sweets with me even if I ask them to”), and reasoning for prosocial actions (e.g. “they
want to be good” or “they are concerned about others”) (K. Dunfield, personal communication, January 23, 2017).

These measures were chosen based on their fit with the current study. Both questionnaires rate children on Likert scales, a six-point Likert scale for the SCBE and a five-point Likert scale for the CPA; this allowed for a large degree of distinction between subjects. The SCBE has been widely validated and includes three subscales: anxiety-withdrawal, anger-aggression, and social competence (Kotler & McMagon, 2002). These subscales are useful in looking at various parts of socioemotional development and are important in identifying possible correlations for the measure. A total positive socioemotional competence score was obtained as well by including all questions, reverse coding the Anxiety-Withdrawal and Anger-Aggression questions.

The CPA is a fairly new assessment in its initial stages. However, this measure is important as it looks deeply and descriptively at prosocial behavior. Prosocial behavior is not often measured in typical socioemotional questionnaires, and given its importance in the SEA, the CPA was an essential tool for comparison to a child’s behavior in a typical setting. Analyses focused on the first 28 questions that asked about prosocial behaviors or rejection of opportunities for prosocial behaviors (K. Dunfield, personal communication, January 23, 2017). Questions were divided into subcategories based on whether they described comforting, sharing, or helping behavior, with antisocial or non-prosocial behaviors reverse coded (K. Dunfield, personal communication, March
21, 2017). The CPA also yielded a total prosocial score, again reverse coding the negative responses.

**Observations.** Observations of each child were done using the Minnesota Preschool Affect Checklist Teacher version (MPAC-T; Christensen, 2015). This checklist looks at emotion expression, classroom involvement, antisocial behavior, and prosocial behavior. For each child, a period of five minutes is observed and items are checked if they occur any time during those five minutes. This is repeated four times for each child, with each session occurring at least a week after the previous session. The MPAC-T has four subscales composed of behaviors over all the observation periods. These subscales are emotion expression, involvement in class activities, reaction to frustration, and interactions with others (Christensen, 2015). Positive items added to these subscales, and negative items subtracted from them.

Observations were done as they can be an objective way to look at subjects across time. While they cannot effectively measure change across a short-term intervention, they can be extremely informative. They are particularly objective in that they require observers to simply check a box if the target behavior is seen during the five-minute observation period. This format eliminates the effects of bias based on race, gender, or ease of having the child in the classroom. Further, while this version was created for teachers, the format allows observations to be performed by researchers unfamiliar with the children, eliminating the requirement for high familiarity, a barrier that impacts the ability to pre-test children.
Results

The main purpose of this study was threefold, and the analyses performed addressed each of these purposes. First, we aimed to initiate the development of the SEA. We conducted analyses to look at how the items of the SEA related to each other. An exploratory analysis was conducted to determine the best methods to code the SEA and create subscales. Second, we compared the SEA to teacher questionnaires and researcher observations to test its validity and its use in the field. Lastly, in order to examine how this measure could be used across different settings, we included three different types of preschool environments that employ different organizational techniques and are comprised of children from various socioeconomic backgrounds.

Successful Use of the Measure

An essential criterion of the success of the SEA is the ability to test effectively. In creating a child measure, it is imperative to look at how interesting, engaging, and enjoyable it is. A testing session took anywhere from 8 minutes to 27 minutes (M = 15:28), depending on distractions and how quickly and concisely the student answered each question. While initially we were worried about the length of the measure, the children remained interested and engaged in the material throughout the testing session. Twenty-seven out of the 35 students tested were successful in finishing the measure. A t-test comparing those excluded from analysis to those included showed that subjects who successfully completed the measure (M = 50.30 months, SD = 6.562) were significantly older than students excluded from analysis (M = 44.63 months, SD =
5.263, t(33) = 2.522, p<.05. This implies that younger children had considerably more difficulty in successfully responding to the questions and finishing the measure. This finding is in line with our hypothesis that age would impact success on a child measure. However, the overall success of testing was proof of the engaging nature of the SEA.

Table 2 provides example responses to three scenarios. In Prosocial Scenario 1, Nancy/Johnny and their friend both want to play with a shovel, but there is only one shovel. In Reaction to Emotion Scenario 6, Nancy/Johnny’s friends tell them they do not want to play with them (target emotion: sad). In Reaction to Emotion Scenario 7, Nancy/Johnny’s friend jumps up behind them and says “boo” (target emotion: scared). To view the illustration and full description of each page, see Appendix A.

### Table 2. Examples of responses to the question “What should Nancy/Johnny do?” coded first on how adaptive and interpersonal it is.

<table>
<thead>
<tr>
<th>Prosocial 1:</th>
<th>Reaction to Emotion 6:</th>
<th>Reaction to Emotion 7:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adaptive Subscale</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptive</td>
<td>he should share it</td>
<td>just play with somebody else</td>
</tr>
<tr>
<td>Neutral</td>
<td>they needed another shovel</td>
<td>[they] need to let him in the game</td>
</tr>
<tr>
<td>Not Adaptive</td>
<td>she should grab it</td>
<td>she needs to fight [them]</td>
</tr>
<tr>
<td><strong>Interpersonal Subscale</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpersonal</td>
<td>they should ask the teacher to give them two</td>
<td>she needs to fight [them]</td>
</tr>
<tr>
<td>Not Interpersonal</td>
<td>play somewhere else</td>
<td>he can run away</td>
</tr>
</tbody>
</table>
These responses provide examples for both a typical child response and for how coding was accomplished. Of particular note are the comparisons between adaptive responses, neutral responses, and not adaptive responses. While adaptive responses improved the situation in some way (e.g. sharing the shovel or communicating effectively), not adaptive responses actively made the situation worse (e.g. fighting her friends or scaring her friend back). Neutral responses fell somewhere in the middle, either suggesting a passive response that does not accomplish any goals (e.g. there should be another shovel) or demonstrating an action that does not deal with the situation at all (e.g. go off the playground). The table also demonstrates the variety of possible interpersonal responses. The other subject can be a teacher, parent, or child. It can also be an adaptive response (e.g. say “I don’t like that”) or a not adaptive response (e.g. fight them).

Anecdotal evidence from teachers and educators confirmed that the measure was not only successful in engaging the children tested, but also in tracking their real-life behaviors. A teacher and preschool director both observed multiple testing sessions and commented on how the responses matched the actual behaviors of the students. While anecdotal, this demonstrates successful transfer of the scenarios to real life. Overall, the process of testing and coding together successfully demonstrates the effective use of the SEA measure.
Evaluating the Measure

It is necessary to look at the SEA and how the various items and possible subscales relates to each other. Cronbach’s Alphas for each of the main subscales and a Principal Component Analysis were calculated to look at the relationship between items. Next, correlations between various subscales are reported.

**Inter-item reliability.** Inter-item reliability was analyzed by finding Cronbach's Alphas for the three main subscales: Emotion, Adaptive, and Interpersonal. The Emotion subscale consists of 15 items (α = .695). The Adaptive subscale consists of 12 items (α = .738). The Interpersonal subscale consists of 12 items (α = .708).

**Principal component analysis.** A principal component analysis was performed to look at whether the components found matched with the predicted subscales. While some of the components show a few patterns in the question type (e.g. one component contains mostly scenarios directly involving teachers), these components did not readily match with the predicted subscales of Emotion, Adaptive, and Interpersonal. A possible explanation for this mismatch is that the SEA addresses other or additional constructs that were not described by the chosen subscales. More work must be done to look at the items in each component and their relationships with each other. The constructs found can factor into changes made for the next iteration of this measure.

**Subscales correlations.** In looking at the items of the SEA, there are various ways to create subscales. Given the nature of the subscales, there was much overlap in the items, which caused a high number of significant
correlations reported in Table 3. There are a couple of important correlations to note. The Emotion subscale and the Adaptive subscale were significantly correlated, \( r (25) = .574, p < .01 \). This demonstrates that children with strong emotion knowledge also tended to answer with adaptive solutions. Similarly, the Interpersonal subscale and the Adaptive subscale were significantly correlated, \( r (25) = .611, p < .001 \), suggesting that children who had adaptive responses also tended to opt for responses that involved interaction with others. Lastly, the Adaptive Reaction subscale, which calculated the number of adaptive action responses to Reaction to Emotion scenarios, and the Adaptive Prosocial subscale, which calculated the number of adaptive action responses to Prosocial Scenarios, were significantly correlated, \( r (25) = .503, p < .01 \).

**Qualitative data.** The qualitative data consisted of the questions “Why should Nancy/Johnny do that?” asked after every Prosocial and Reaction to Emotion scenario and the change of emotion question that repeated the child’s response to “What should Nancy/Johnny do?” and then asked “How does Nancy/Johnny feel now?”. These questions were asked both to provide further information about the thought processes of the children and to explore what children think and know about justifications and the cause-and-effect nature of emotion. While a full analysis of the qualitative data was not possible due to time restraints, here I outline some examples of the types of responses.

The first question, “why should Nancy/Johnny do that?” provided rich explanations into the action itself as well as the reasoning behind choosing this action. Responses ranged from explaining the result of the action (i.e. Nancy
should get a bandaid because it will make Katie feel better), providing personal justifications for positive behavior (i.e. Nancy should help her friend because it’s nice), and demonstrating deference to authority (i.e. Nancy should eat the orange because the teacher told her to).

The second question elicited responses that tended to be one of two options: maintenance of the original emotion or a return to the base state of happiness. While this pattern mimics individual differences between children, it is unclear whether the SEA is effectively tracking these differences. As mentioned before, the SEA is an instrument that aims to track children’s socioemotional knowledge, not the behaviors themselves. There are bound to be individual differences in children’s ability to de-escalate from a negative emotional arousal. It is unclear, however, whether children are able to effectively understand the question and thus whether the differences in their responses reflect their real-life individual differences.

**Validity**

A correlation matrix, shown in Table 4, was calculated to address the question of whether the SEA and its main subscales correlated with the validity measures collected. The SEA Total and the three main subscales of Emotion, Adaptive, and Interpersonal are included along with the SCBE, the CPA, the MPAC and the subscales from each of these measures.

**SCBE.** The SCBE Total did not yield any significant results with the SEA and its subscales. The SCBE Total and the SEA Total almost reached significance, $r = .498, p<.1$. Similarly, the SCBE Total and the SEA Adaptive subscale almost
Table 3. Correlation matrix between SEA subscales.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SEA Total</td>
<td>1.00*</td>
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<tr>
<td>2. SEA Emotion Total</td>
<td></td>
<td>0.710**</td>
<td></td>
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<tr>
<td>3. SEA Interpersonal Total</td>
<td></td>
<td></td>
<td>0.733**</td>
<td>0.161</td>
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<tr>
<td>4. SEA Adaptive Total</td>
<td></td>
<td></td>
<td></td>
<td>0.938**</td>
<td>0.303*</td>
<td></td>
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<tr>
<td>5. SEA Adaptive Reaction Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.839**</td>
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<td>6. SEA Adaptive Prosocial Total</td>
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<td>0.925**</td>
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<tr>
<td>7. SEA Adaptive Peer-Directed</td>
<td></td>
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<td>0.926**</td>
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<td>8. SEA Adaptive Mad</td>
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<td>0.969**</td>
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<tr>
<td>9. SEA Adaptive Happy</td>
<td></td>
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<td></td>
<td>1.00**</td>
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<tr>
<td>10. SEA Adaptive Sad</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>0.644**</td>
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<td>11. SEA Adaptive Scared</td>
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<td></td>
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<td>0.621*</td>
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<tr>
<td>12. SEA Adaptive Positive Emotions</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00*</td>
</tr>
<tr>
<td>13. SEA Adaptive Negative Emotions</td>
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</tbody>
</table>

* p<.10.  ** p<.05.  *** p<.001
Table 4. Correlation matrix between the SEA and the validation measures.

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>1. SEA Emotion Total</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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Note: n = 27. a = 14, b = 8.
reached significance, $r = .497, p<.1$. Neither the Anxiety-Withdrawal nor the Anger-Aggression subscales of the SCBE reached significance with the SEA Total or its subscales. However, the SCBE Social Competence subscale has three significant correlations with the SEA. The SCBE Social Competence subscale and the SEA Total were significantly correlated, $r = .669, p<.01$. The SCBE Social Competence subscale was also significantly correlated with the SEA Adaptive subscale, $r = .638, p<.05$, and the SEA Interpersonal subscale, $r = .586, p<.05$. These correlations suggest that the Social Competence Subscale, the subscale that tracks positive and prosocial behaviors, is the most closely aligned with the information being collected with the SEA.

Additional correlations done with the various subscales outlined in Table 3 resulted in further correlations between the SEA and the SCBE Social Competence subscale. The SCBE Social Competence subscale was significantly correlated with the SEA Adaptive Prosocial Scenarios subscale, $r = .667, p<.01$, and the SEA Adaptive Peer-Directed Scenarios subscale, $r = .580, p<.05$. The SCBE Social Competence subscale was also significantly correlated with the SEA Adaptive Scared Scenarios subscale, $r = .542, p<.05$, and the SEA Adaptive Happy Scenarios subscale, $r = .577, p<.05$.

**CPA.** None of the correlations between the CPA and SEA yielded significant results. The SCBE Total and the CPA Comforting were almost significantly correlated, $r = .500, p<.1$. However, it is important to note that the CPA and the SCBE had many significant correlations. The CPA Total and the SCBE total were significantly correlated, $r = .693, p<.01$. This correlation is notable as
it provides reliability to the CPA and shows that children’s social skills were rated consistently across the two teacher measures.

**MPAC.** The MPAC observations also yielded no significant correlations with the SEA and its main subscales. The MPAC Interactions subscale was almost significantly correlated with the SEA Emotion subscale, \( r = -0.672, p<.1 \), and the SEA Adaptive subscale, \( r = 0.655, p<.1 \). The MPAC Total and the SEA Interpersonal subscale were almost significantly correlated, \( r = 0.645, p<.1 \). Additional correlations done with the various subscales outlined in Table 3 found that the MPAC Total and the SEA Adaptive Scared Scenarios subscale were significantly correlated, \( r = 0.745, p<.05 \). It is important to note, however, that there were no significant correlations between the MPAC and either of the teacher questionnaires or their subscales.

**Comparisons Among Subjects**

The last theoretical question this study asks is if the SEA can be run on children of different socioeconomic status, in different types of preschools, and children of low and high socioemotional abilities. To test this, analyses were done first to find comparisons among the three schools and then to examine differences between subjects with the highest and lowest scores.

**School comparisons.** Descriptive data was collected to look at the ranges, means, and standard deviations of SEA scores for the full group and across each school. These are presented in Table 5, along with the number of subjects in each school. School 3 has the largest range of SEA Total Scores across the 3 schools, with a minimum of 29 and a maximum of 59. School 3 also a larger
group size (n=13) compared to School 1 (n=8) and School 2 (n=6). An ANOVA was calculated comparing the mean ages from each of the three schools. No significant difference was found (F(2,24) = 1.017, p>.05). School 1 had a mean age of 53.38 months (sd = 4.340). School 2 had a mean age of 49.67 months (sd = 6.623). School 3 had a mean age of 49.46 months (sd = 7.276).

ANOVA calculations were completed comparing the three preschool classrooms in SEA Total Scores as well as the following subscales: Emotion,

**Table 5.** Descriptive statistics for SEA totals and subscales in the overall group and by school.

<table>
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<th>Min</th>
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Interpersonal, Adaptive, Adaptive Reaction Scenarios, Adaptive Prosocial Scenarios, Adaptive Peer-Directed Scenarios, Adaptive Negative Scenarios, Adaptive Mad Scenarios, Adaptive Sad Scenarios, Adaptive Scared Scenarios, and Adaptive Happy Scenarios. Graph 1 shows a box plot of SEA Total scores by school. While the box plot visually demonstrates a slight difference in schools, specifically with a higher mean in School 2 than in the other schools, these differences were not significant ($F(2,24) = .699$, $p > .05$). As shown in the Graph 1 and Table 5, the ranges of SEA scores in School 1 and School 3 were far larger than the range of SEA scores in School 2.

Among the ANOVAs calculated for the various SEA subscales, the only significant results were for Adaptive Prosocial Scenarios and Adaptive Happy
Scenarios. The analysis for Adaptive Prosocial Scenarios was significant (F(2, 24) = 3.912, p<.05). Post hoc comparisons using the Bonferonni test indicated that participants at School 2 (M = 3.67, SD = .516) scored significantly higher than the participants at School 3 (M = 1.77, SD = 1.589). Scores at School 1 (M = 2.50, SD = 1.414) were not significantly different from the scores at School 2 or School 3. Adaptive Happy Scenarios also produced significant results (F(2,24) = 4.794, p<.05). Post hoc comparisons using the Bonferonni test indicated that participants at School 2 (M = .50, SD = .548) scored significantly higher than the participants at School 1 (M = -.25, SD = .463). Scores at School 3 (M = .31, SD = .557) were not significantly different from the scores at School 1 or School 2.

Analyses were also calculated comparing the teacher questionnaire data among schools. Questionnaires were only collected for School 1 and School 2. T-tests found two significant differences among the CPA and the SCBE and their subscales. Students at School 2 (M = 157.00, SD = 15.440) had significantly higher scores on the SCBE Total score than students at School 1 (M = 133.50, SD = 21.706), t(12) = -2.250, p<.05. Students at School 2 (M = 49.33, SD = 4.457) also had significantly higher scores on the SCBE Social Competence subscale than students at School 1 (M = 41.38, SD = 7.927), t(12) = -2.198, p<.05. No other significant differences were found when comparing the schools on the Anxious-Withdrawal or the Anger-Aggression subscales of the SCBE or on the CPA or any of its subscales.

Child comparisons. Another question this study addresses is whether children at the highest and lowest ends of the spectrum can be identified as such
by the SEA. These analyses examine both how well the SEA works for children at different socioemotional skill levels and whether the SEA can be used for identification of children who are both at risk for socioemotional and behavioral problems and those who are gifted in these areas. To do this, subjects were ranked in order of their SEA score. These rankings only included those children who had teacher questionnaire data (n = 14).

The ranking done ordered subjects by SEA Total score. It is important to note that children with the top three and the bottom three scores were all from School 3, which excluded them from the analysis as there was no SCBE or CPA data for them. From those included, the subjects with the top three and bottom three scores were then sorted into two groups, low and high SEA scores. T-tests revealed that there was not a statistically significant difference in the mean scores on the CPA, the SCBE, or any of their subscales. The children who would be identified as at risk or highly gifted based on the SEA does not match with those who would be identified as at risk or highly gifted based on the teacher questionnaires.

**Discussion**

In this discussion, I will first assess how the results fit within the frameworks of socioemotional development. Second, I will discuss the implications of the validation data, specifically focusing on the constructs measured by the SEA. Then, I will examine how the SEA fits into the current field
of socioemotional measurement and its potential uses. Lastly, I will move to the limitations and future directions of the study and the measure itself.

**Fitting into the Framework**

The correlations linking the SEA subscales fall in line with the RULER model of socioemotional development. As previously discussed, this model includes Recognizing, Understanding, and Labeling emotion, which develops early, as well as Expressing and Regulating emotion, which develops later. The results demonstrate significant correlations that link the SEA Adaptive subscale to the SEA Emotion subscale and to the SEA Interpersonal subscale. These results fit into the RULER model. Emotion knowledge is a necessary component for appropriate social responses, so high scores in this area relate to appropriate social strategies. The significant correlation between the Adaptive subscale and Interpersonal subscale hints at the intertwining of learning positive strategies for dealing with emotions and gaining experience with social interactions. The connection between the Adaptive Prosocial Scenarios subscale and the Adaptive Reaction Scenarios subscale demonstrates the similarity between understanding how to deal with emotion-inducing situations and how to take advantage of prosocial opportunities.

** Constructs Measured by the SEA **

Validity analyses are an essential part of this study and are vital to the development of any new measure. These validation analyses have two purposes. First, it is important to investigate if the SEA is testing socioemotional development. The tests in the current field were deemed inadequate for the
purposes needed by Kindergarten Kickstart due to their lack of objectivity and sensitivity and their focus on limited socioemotional abilities (e.g. antisocial behaviors, emotion labeling). However, many of these measures are highly validated and proven to be good measures of socioemotional abilities. By comparing the SEA to these measures, we examine whether or not the SEA is effectively testing socioemotional development. Additionally, it is important to distinguish the uniqueness of the SEA in order to determine whether it tests socioemotional abilities not captured in existing measures.

While the SEA is correlated with some of the validation measures collected, many of the measures do not correlate with the SEA or its subscales. The validation of the SEA and its subscales with the Social Competence and Behavior Evaluation (SCBE) Social Competence subscale demonstrates that the SEA is looking at the same constructs as this portion of the SCBE. However, its departure from measures like the Childhood Prosocial Assessment (CPA) and the Minnesota Preschool Affect Checklist (MPAC) hint at the fact that the SEA focuses on one or more unique facets of socioemotional development. The constructs being tracked by the SEA are not necessarily those that are looked at by the other measures.

The main point of connection between the SEA and the validity measures is the correlations between the SEA and the SCBE Social Competence Subscale. This subscale contains items predominantly regarding positive and prosocial behavior, like comforting others and helping (Kotler & McMahon, 2002). Many of the items involve positive reactions to difficult social interactions with peers,
such as working in a group and compromising (Kotler & McMahon, 2002). The content of the items being measured explains the significant correlations of the SCBE Social Competence subscale with the SEA Interpersonal, Adaptive Prosocial Scenarios, and Adaptive Peer-Directed Scenarios subscales. The two other subscales of the SCBE, the Anxiety-Withdrawal subscale and the Anger-Aggression subscale, track antisocial responses (Kotler & McMahon, 2002). These antisocial reactions were highly uncommon in the SEA responses. While children did not necessarily know the correct, prosocial, or positive way to handle a difficult situation, they rarely offered antisocial solutions. These findings validate that the SEA is measuring constructs of socioemotional development as well as demonstrate what constructs specifically are being tracked by the SEA. These findings also further the idea that the SEA tracks a child’s knowledge of appropriate socioemotional behaviors, not necessarily the behaviors themselves. Lastly, these results shed light on the best uses of this measure, which will be discussed later.

These discussions of validity are especially telling when paired with the finding that the validation measures do not correlate with the SEA scores for children at the lowest and highest end of the SEA scoring range. As noted earlier, these results must be understood in the context of the very small sample size for which we had validation data. As the SEA Adaptive subscale can range in scores from -12 to 12, looking at the students who obtained scores less than 0 can be an important way of identifying children at risk for socioemotional difficulties. Unfortunately, the two subjects who did receive scores below 0 were both at
School 3, for which there is no validation data. Further data collection with children who have been identified as at risk can better address this question. However, by looking at the validation correlation data, the lack of correlation of the SEA with the two antisocial SCBE subscales suggests that the SEA may not be the best measure for identifying children as at risk. This conclusion contributes to an understanding of the situations and people that would benefit from the use of the SEA.

**School Differences**

Another interesting finding is that the only significant differences between the schools are on the Adaptive Prosocial Scenarios and Adaptive Happy Scenarios. These results should again be taken with caution due to the extremely small sample size. However, it is important to note the pattern and how it fits into the differences among these preschools. Scoring highly on prosocial scenarios generally requires the ability to understand the feelings of the peer in the story and know how to take advantage of the situation to act prosocially. The ANOVA demonstrates significantly higher Adaptive Prosocial Scenarios scores for students at School 2 than for students at School 3. This difference could be a reflection on the differing educational philosophies of the schools. While the educational philosophy of School 2 focuses on free play and scaffolding positive interactions among students, School 3 follows a fairly typical, more structured preschool model. The comparison on the SEA Adaptive Prosocial Scenarios subscales falls in line with this difference as it is probable
that students at School 2 have more experience with open, unstructured opportunities to behave prosocially.

The lack of significant differences between schools also provides information about the differences between children of various socioeconomic status (SES) backgrounds. In addition to the SEA, there is a lack of significant differences held across the validation measures as well, with the exception of the SCBE Social Competence Subscale. There is an overwhelming similarity in socioemotional knowledge between children of different SES and at different preschools. However, it is well established that the students from low-income backgrounds tend to have higher rates of identified behavior problems and suspensions (Cooper et al., 2009; Skiba et al., 2002). This begs the question of why? It is important to remember the small sample size being used for analysis here; any true conclusions would require a larger sample size. Assuming this finding holds with a larger sample size, the lack of significant school differences demonstrates that socioemotional knowledge in itself does not cause the difference in behavioral problems. One possibility is that behavior is misaligned with socioemotional knowledge for children from low SES backgrounds. However, what I perceive as more likely is a disparity in how behavior is responded to and handled by teachers and schools. These questions are outside the scope of this study, but it is imperative to think about and further explore what really lies at the roots of these differences.
Use of the SEA

There are two main ways in which the SEA can be a useful and effective measure. First, this instrument can be used for teachers trying to gain more information about the reasoning behind their student’s actions. Second, the SEA can also be employed by researchers attempting to track the success of short-term interventions.

Use by teachers. As noted above, the preliminary data does not suggest that the SEA be used to identify children as at risk for behavioral difficulties. This conclusion cannot be definitely asserted without further data, but I will continue with the assumption that this is the case. Often the measures that do focus on identifying children for behavioral interventions are questionnaires filled out by the teachers, parents, and other adults familiar with the child and the child’s behavior. Teachers generally have a firm grasp on this knowledge because they observe the child everyday and understand their typical behavior. For administrators or researchers seeking this information, questionnaires like the SCBE could be extremely useful. However, a part of the picture not always seen by the teachers is the reasoning behind this behavior. This is where the SEA can be valuable.

The questions asking children for justification of their suggested actions (i.e. “Why should Nancy/Johnny do that?”) can be insightful for understanding a child’s thought process, providing the motivations to better comprehend a certain behavior. More importantly, the measure as a whole is designed to test what the child knows instead of what they actually do. Assuming the teacher
already has a firm grasp on the behaviors themselves, knowing the child’s
socioemotional knowledge base can be imperative in finding the best strategies
to help the child, especially for a child identified as at risk. Understanding what
the child knows can drastically alter a teacher’s approach to handling disruptive
and negative situations. Once children have already been identified with
socioemotional difficulties by teachers or questionnaires, the SEA can provide
the necessary information to help teachers move towards a strategy that meets
the child where they are and moves them forward.

The connections between subscales illuminate another use for teachers. The correlation of all these measures cannot be taken as causation, but their
interrelatedness can help teachers by identifying which areas children are weak
in and by using the child’s strengths to improve their weaknesses. For example,
Subject 4 had an Emotion score of 36 (out of 38), an Adaptive score of 0 (out of
12), and an Interpersonal score of 2 (out of 12). This subject had a firm grasp on
emotion knowledge, as demonstrated by the high score on this subscale, but
very low knowledge in choosing appropriate responses and using interaction
with others as a strategy. A teacher using the results of this test could employ
this information by utilizing the child’s emotion knowledge in discussions about
social interactions. Further, the teacher could attempt to scaffold positive
interpersonal interactions to give the child more practice in choosing these
strategies. Teachers could do similar analyses for children with low emotion
knowledge, high knowledge in prosociality but low knowledge in responding to
emotional situations, etc. This type of insight into the patterns and depth of what children know is what makes the SEA a rich and unique measure.

**Use by researchers.** Researchers can also use this tool for a more in-depth look at a child’s socioemotional knowledge. In a short-term intervention like Kindergarten Kickstart, there is presumably a lot of conceptual growth that happens in the realm of socioemotional development. The children entering Kindergarten Kickstart with little to no preschool background often have had little experience interacting with other same-aged peers in a classroom setting and thus do not have a strong knowledge base of the appropriate behaviors and scripts to use in these interactions. A main goal of Kindergarten Kickstart, like other early childhood settings, is to provide children with this knowledge and to give them the opportunities and scaffolding to practice it. A measure like the SEA is unique in its ability to test these slight changes in understanding. We would predict shifts from not knowing what to do or choosing neutral responses to developing scripts and schema for the appropriate reactions and behaviors.

The implications of this study stretch beyond Kindergarten Kickstart. The use of the SEA to track short- and long-term interventions provides researchers with a method for tracking the changes of children’s understanding over the course of the intervention. The multifaceted understanding provided by the SEA allows researchers to look at what knowledge bases their intervention is expanding and what areas of knowledge are being missed. For short-term interventions, a measure like the SEA will be able to pick up increases in understanding and social scripts that measures such as teacher and parent
questionnaires are not sensitive enough to track. In long-term interventions, the SEA can partner well with questionnaires like the SCBE to give researchers a full picture of how socioemotional knowledge changed and what impact that shift had on children’s actual behaviors. Researchers can use this information to improve interventions and better serve the children their interventions target.

**Limitations**

The SEA provides rich, detailed explanations with an unbiased tool that can be used by researchers unfamiliar with the child. However, there are significant limitations to consider regarding the use of a structured interview like the SEA. Due to the nature of testing and the open-ending format of the SEA, the data collected is inherently messy. While we performed qualitative analysis to create a coding schema to pick through this messy data, there were numerous points of uncertainty. Socioemotional abilities can be somewhat arbitrary and subjective. Whereas in areas like writing ability, it is very clear whether the child tested can or cannot write their letters, socioemotional abilities are not so straightforward. There are many ways to act appropriately and what is or is not appropriate is often dependent on the setting. Due to my experience as a preschool teacher at Kindergarten Kickstart, I had a fairly strong knowledge base of what is and is not appropriate for this age group. However, not every preschool is run like Kickstart, and different rules across different preschool classrooms change the fittingness of a child’s answer.

Some measures, like the Challenging Situations Task (CST), solve the issue of messy qualitative data by asking children to use multiple-choice
answers in their responses (Denham et al., 1994). However, over the course of the current study, the richness and complexity of children’s answers continued to prove why open-ended questions were worth the messiness of the data. Children provided creative problem-solving responses that we had not previously considered. Further, some responses included frequently in the multiple choice options of the CST, such as “hit or push” and “cry,” occurred extremely rarely in our subject’s spontaneous responses (Denham et al., 1994). The inclusion of these antisocial responses as an option may increase a child’s tendency to choose these as their strategy. Lastly, the qualitative data collected, especially from the questions asking for a justification of action, provide a much fuller picture of the mindset of children and the steps they go through when acting in a certain way. This data can be extremely insightful to both researchers and teachers.

**Future Directions**

There are a few important next steps following the current study. First, results from this study, both from testing and from analyses, should inform changes and improvements to the measure. Second, further analysis must look more at the qualitative aspects of this study, specifically the answers to questions about justification and change of emotion. Additionally, this measure should be also used as a pre- and post-test for a short-term intervention as a way to test the sensitivity of this measure in detecting changes over a short period of time. Lastly, further data must be collected to better assess the validity of this measure. Due to the small sample size of this study, and especially the small
What should Nancy do? A Preschool Socioemotional Assessment

number of subjects for whom there were teacher questionnaires and observations, this study was exploratory in nature and the measure requires further validation. Below, I detail each of these suggestions.

**Improvement.** While the measure was briefly piloted at the start of the study and went through minor changes, the process of testing brought up further issues and points of confusion. Some of these future changes are to clarify the story for better comprehension. These necessary clarifications include both the written descriptions on each page as well as the facial expressions of the characters in the book. Children often took cues from the pages themselves to interpret the emotions being expressed by the protagonist, and unclear facial expressions can be misleading.

Some pages caused conceptual confusion, and adjustments should be made to clarify the situations being presented as well. For example, one page included the following description: “Nancy is looking at a caterpillar when all of a sudden Katie sneaks up behind her and says 'boo!' Nancy jumps and screams.” While most of the children understood that the fear was a result of the friend scaring Nancy, some children focused on the caterpillar and gave responses as to how to get rid of or avoid the bug. Similarly, on a page including a jungle gym, the written description expressed a scene slightly different than the one being depicted in the picture. These issues came up numerous times during testing, leading to the necessity for these slight changes. Presumably, slight changes of this type would not change the answers for the vast majority of children, but would simply clarify the scenarios.
The next iteration of the SEA should also use data from the current study to adjust of the scenarios themselves. One modification that should be considered involves scenarios discussing food. These scenarios are often complicated by specific food rules of the preschool (i.e. oranges were a snack food so they would not be eating it for lunch) and are difficult to code without truly knowing a child’s imagined scenario. For example, if a teacher gives a child a food they do not like, and the child does not eat it, what are they doing instead? The scene could range from throwing it on the ground to politely giving it back to the teacher to just disposing of it at the end of the meal. When a child’s response is simply “do not eat it,” this type of scenario does not provide much insight into the child’s emotion regulation strategies.

Additionally, some of the scenarios adapted from the Affect Knowledge Test (AKT) did not fit into the schema of all the children tested. For example, one of the questions involved a child being told by their teacher to stay inside during recess to finish their work. While children overwhelmingly understood that the target emotion was sad, most seemed to have not faced this situation before. This is especially true of students from School 2, a private preschool that follows a model of free play and allows for a large amount of independence. These types of scenarios should be removed or adjusted as to make them easier to understand and more relatable for a large number of children.

Lastly, the final question asked at the end of each Reaction to Emotion scenario involved restating the child’s response to “What should Nancy/Johnny do?” in the form of “Ok, Nancy/Johnny did [child’s response]” and asking “How
does Nancy/Johnny feel now?” This question was somewhat confusing and often children would simply repeat the emotion from earlier question “How does Nancy/Johnny feel?” This was even more difficult for children who had a tendency to look at the page for cues of Nancy/Johnny’s emotion. One subject had the idea of taking the emotion faces and placing them on top of Johnny in the book to answer the questions about how Johnny felt. This idea could be adapted to adjust this final question and include children “changing” Johnny or Nancy’s face to depict his or her new emotional state. This could lead to clearer results and less confusion about this question.

**Qualitative data.** Due to the short timespan of this study, the exploratory qualitative data collected was not fully analyzed. These responses should be more thoroughly combed through for patterns and analyzed to see if it is possible to code these responses easily while still providing descriptive information for teachers and researchers. This information could potentially illuminate helpful patterns demonstrating how well a child understands the reasoning behind their actions. Teachers could use this knowledge in their support of the child’s socioemotional growth.

The last question, “how does Nancy/Johnny feel now?” focuses on the understanding of how actions can impact emotion. However, it is also likely that this question requires a certain degree of storytelling knowledge, making it too difficult for some of the children. The earlier stated adjustment could lead to responses that could be quantitatively coded by prompting children to choose Nancy/Johnny’s new face to put on the page. However, it is also important to
first look through the qualitative responses from the current study. These responses can provide information about how well children understand the question and how well this understanding correlates to their total SEA scores. This qualitative data is important to understanding the possibilities that the SEA can provide for educators and researchers.

**Short-term intervention.** One of the goals of the development of this measure was to create a tool that was sensitive to changes across a short-term intervention period. Considering the nature of this study, pre- and post-tests did not make sense, and this specific goal could not be tested. After the SEA is adjusted as outlined above, the SEA should be used as a pre- and post-test measure to examine its sensitivity and ability to track the changes of an intervention.

**Use at Kindergarten Kickstart.** Kindergarten Kickstart will provide a location for this further testing. This measure should go further than the Affect Knowledge Test (AKT) could as it is hypothesized, based on the current study, that most children will not be at ceiling at pre-test. The SEA can be used to track the changes in children’s socioemotional abilities across the summer. Further, the qualitative data collected from this iteration of testing should be analyzed to see if the improvements of the intervention are tracked in justifications (i.e. responses to “Why should Nancy/Johnny do that?”). Considering the focus of the SEA, we would expect improvements in all subscales but specifically in the Emotion subscale and in the quality of the child’s justification. Teachers at Kickstart, using the RULER framework, focus on helping students understand
and appropriately express their emotions as well as discussing with children the motivations behind their emotions and behaviors. We hypothesize this focus will be reflected both in an increase in quantitative scores as well as more rich and insightful qualitative data as the children learn to better understand and express their motivations.

**Further data collection.** This study allowed for an initial exploration of SEA findings and its validation with other measures. However, to truly show its worth as a measure, the earlier stated improvements must be made and the testing sample must be greatly increased. Further, certain steps should be taken to ensure validation data is obtained accurately. While testing at many schools allowed for the use of the SEA with various populations, it meant that teacher questionnaires were filled out by multiple teachers in different classrooms. Teachers, especially those that work at different schools, may often have different interpretations of the same child’s behavior, making it difficult to truly use these measures to compare children at different schools. It may be possible to avoid this issue by including many children at the same school, providing a brief training session, and leading a discussion between the teachers about how to rate their students. While the validation performed in this study is a first exploration into how the SEA compares to other instruments in the field, a more in-depth and thorough look at this question should occur during a follow-up of this study.

**Conclusion**

This study followed the progression of developing a new measure of
socioemotional development. Based in developmental research, this measure seeks to add a new assessment to the field of preschool socioemotional measurement. The preliminary data represented here points to the SEA as an objective measure that can provide multifaceted qualitative data as well as sensitive quantitative data, giving educators and researchers a full picture of a child’s socioemotional abilities. My hope is that this study provides a tool for both educators and researchers to understand children’s socioemotional knowledge both individually and as a whole and to better serve preschool children in this critical area of development.
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Appendix A

SEA Illustrations

Description: Appendix A includes all four versions of the emotion faces as well as one version of the storybook. Emotions depicted are happy, sad, scared, and mad. The other three storybook versions included the exact same content and changed only in gender, name, and race of the protagonist and gender and name of the main friend.
What should Nancy do? A Preschool Socioemotional Assessment

This is a story about Nancy! Nancy is about to start preschool.

The day before school, Nancy's Mom gives her a new blue backpack. Blue is Nancy's favorite color!
The next day, Nancy is starting preschool. Her mom drops her off at the door and hugs her goodbye. Nancy says, "I don't like it here. I miss my mommy. Don't go mommy!" and she starts crying.

Nancy is playing with her friend Katie in the sandbox. There is one shovel left and Nancy and Katie both want it.

At recess, Nancy goes outside to the playground. All her friends are on the jungle gym, so she goes over to climb the monkey bars. Nancy looks at the monkey bars and says, "I don't like this jungle gym! It's too high! I don't want to climb it!"
Katie is running across the playgroup and falls. She scrapes her knee and starts crying.

Nancy and Katie want to play another game. Nancy wants to play house, but Katie wants to play doctor.

During circle time, everyone gets a bell for a song. Nancy's friend Katie is passing out the bells and drops the box, spilling the bells everywhere.

Nancy is in the bathroom washing her hands for lunch. All of a sudden the lights turn off. Nancy is all alone in the dark!
At lunch, the teacher gives Nancy an orange with her sandwich. Nancy hates oranges and does not want to eat it.

After lunch, the teacher passes out cookies for dessert. Nancy loves cookies!

Later, Nancy is playing with Katie. They are building with blocks. Nancy says "I just finished building this tower, and I really like it. Doesn't it look good?!" Katie says, "no, I think it looks yucky! I'm going to knock it down!" and Katie knocks down Nancy's tower.

At the end of the day, everyone gets to go outside and play on the playground, but the teacher says, "Nancy, you have to stay inside and finish your work."
Nancy finishes her work and decides to go play with some friends outside. They are playing a game with a ball. Nancy asks to join in. They tell her they don’t want her to play with them.

Nancy is looking at a caterpillar when all of a sudden Katie sneaks up behind her and says “boo!” Nancy jumps and screams.

During pickup, the teacher says all the students must stay in their seats until their parents sign out on the sheet and come get them. Nancy looks out the window and sees her mom coming to get her.

At the end of the day, Nancy’s mom gives Nancy a big hug. She asks, “did you have fun today?” Nancy says “yes!” and gives her Mom a big hug!
Appendix B

SEA Script

Description: To avoid experimenters reading off the script, dialogue was not included in the script, but had to be read off the page itself. This better facilitated a shared book experience. Experimenters would read the descriptions on each page and then say the following questions. Both experimenters memorized the questions, so there was no need to use the script during the testing period.

Hi! We are going to play a game with these pictures!

How does he feel? [Point to each face.]

<table>
<thead>
<tr>
<th>Sad</th>
<th>Angry</th>
<th>Happy</th>
<th>Scared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Teaching:

This is ______. [Show felt face and demonstrate on own face.]

<table>
<thead>
<tr>
<th>Sad</th>
<th>Angry</th>
<th>Happy</th>
<th>Scared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Point to the ______ face.

<table>
<thead>
<tr>
<th>Sad</th>
<th>Angry</th>
<th>Happy</th>
<th>Scared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Story:
Ok! Now, we are going to read a book. Are you ready?

[Page 1]
This is a story about Johnny! Johnny is about to start preschool. Johnny is [3/4] years old and he lives in Middletown, just like you!
Backpack: (happy)

How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]

Preschool: (sad)

How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]

Monkey Bars: (scared)

How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]

Sandbox:

What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]

Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]

Knee:

What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]

Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]

House:

What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]

Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]
Bell:
What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]
Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]

Bathroom: (scared)
How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]
What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]
Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]
Ok, Nancy [insert child’s response to what should Nancy do?]. How does Nancy feel now?
[Wait for child response, if doesn’t respond 2x, say, “Point to the face.”]

Orange: (mad)
How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]
What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]
Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]
Ok, Johnny [insert child’s response to what should Johnny do?]. How does Johnny feel now?
[Wait for child response, if doesn’t respond 2x, say, “Point to the face.”]

Cookie: (happy)
How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]
What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]
Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]
Ok, Johnny [insert child’s response to what should Johnny do?]. How does Johnny feel now?
[Wait for child response, if doesn’t respond 2x, say, “Point to the face.”]

[Page 11]
Blocks: (mad)
How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]
What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]
Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]
Ok, Johnny [insert child’s response to what should Johnny do?]. How does Johnny feel now?
[Wait for child response, if doesn’t respond 2x, say, “Point to the face.”]

[Page 12]
Work: (sad)
How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]
What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]
Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]
Ok, Johnny [insert child’s response to what should Johnny do?]. How does Johnny feel now?
[Wait for child response, if doesn’t respond 2x, say, “Point to the face.”]

[Page 13]
Ball: (sad)
How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]
What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]
Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]
Ok, Johnny [insert child’s response to what should Johnny do?]. How does Johnny feel now?
[Wait for child response, if doesn’t respond 2x, say, “Point to the face.”]
Caterpillar: (scared)

How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]

What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]

Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]

Ok, Johnny [insert child’s response to what should Johnny do?]. How does Johnny feel now?
[Wait for child response, if doesn’t respond 2x, say, “Point to the face.”]

Parent: (happy)

How does Johnny feel?
[Wait for child response 2x, if doesn’t respond, say, “Point to the face.”]

What should Johnny do?
[Wait for child response 2x, if doesn’t respond, say, “Show me with the dolls.”]

Why would Johnny do that?
[Wait for child response 2x, if doesn’t respond, move on.]

Ok, Johnny [insert child’s response to what should Johnny do?]. How does Johnny feel now?
[Wait for child response, if doesn’t respond 2x, say, “Point to the face.”]

Hug