ABSTRACT

The early identification of behavior problems is important in ensuring children are given the tools needed for success in kindergarten (Stormont et al., 2005). Research has demonstrated that the transition to kindergarten is a pivotal experience in early childhood development and that a successful transition has lasting effects on behavior and academic achievement (Mirkhil, 2010; Pianta & Cox, 1999). The current study sought to determine how children’s scores on literacy measures are related to their behavior and how these relationships change over time. Further, the current study assessed how gender and enrollment in the free/reduced lunch program were related to behavior. Results indicated that children with problem behaviors tend to have lower scores on literacy measures but this relationship decreases across time. Males were found to have more concerning behaviors than females. Future studies should use multiple measures of behavior to further investigate how children’s behavior evolves over time.

INDEX WORDS: Behavior, Literacy, Transition, Preschool, Kindergarten
BEHAVIORS ACROSS THE TRANSITION FROM PREKINDERGARTEN TO KINDERGARTEN

by

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CHAPTER 1
INTRODUCTION

Recent research has revealed that an increasing number of children are entering kindergarten without the skills needed to succeed (Whitted, 2011). Rather than academic skills, kindergarten teachers rate children’s social and behavioral skills as most important for success (Rimm-Kaufman et al., 2000; Stormont et al., 2005). Strikingly high expulsion rates in prekindergarten lend understanding of how many young children suffer from behavior problems that may interfere with their school success (Gilliam & Shahar, 2006). When not addressed, early behavioral issues can result in immediate and future negative consequences for young children such as low quality relationships with others and low academic achievement (Durlak et al., 2011; Vitaro et al., 2012; Whitted, 2011). Children who suffer from behavior problems in prekindergarten are likely to have a more difficult transition to kindergarten than those that do not (Stormont et al., 2005). Early identification and intervention can help promote a successful transition which has been described as the foundation for future academic and social trajectories (McCabe & Altamura, 2011; Mirkhil, 2010).

Early childhood is a critical developmental period marked by young children’s first experiences with formal schooling. In an age where prekindergarten classrooms are common, most children around three years old are exposed to the precursor of their academic careers. The transition to kindergarten is, for most students, the first introduction to formal schooling (Mirkhil, 2010). Research has identified the transition
from prekindergarten to kindergarten as a pivotal experience in early childhood development. The transition is correlated with one’s experience with school in later years (Mirkhil, 2010; Pianta & Cox, 1999). This period is often laden with discontinuity in the prekindergarten and kindergarten environments which can contribute to it being a generally difficult time for children (Barblett et al., 2011; Yeboah, 2002). When made available, transitional supports assist in promoting successful transitions (Malsch et al., 2011). Several researchers have examined the use of transitional supports with the common consensus being that while some are provided, those that are the most beneficial are rarely used (Fails nelson, 2004; McIntyre et al., 2007; Pianta & Cox, 1999; Schulting et al., 2005). Children most at-risk for behavior and academic difficulties are most in need of transitional supports yet are the least likely to receive them (Stormont et al., 2005).

Behavioral concerns are negatively correlated with academic achievement (Baker, 2006; Howse et al., 2010). Approximately 8% of preschoolers have behavior problems that could warrant a clinical diagnosis (Gilliam & Shahar, 2006). Problem behaviors in prekindergarten are associated with later behavior problems, less positive relationships with peers, lower achievement scores in kindergarten, and less beneficial relationships with teachers (Gilliam & Shahar, 2006; Stormont et al., 2005; Zhang & Sun, 2011). Children from low SES backgrounds are most at-risk of behavior problems in prekindergarten which may negatively impact their social and academic trajectories (Campbell, 1995; McWayne & Cheung, 2009). This same group of children is least likely to receive support during the transition from prekindergarten to kindergarten. Early identification and support for behavior problems can ease the transition to kindergarten
(Huffman, Mehlinger, & Kerivan, 2000). However, behavior problems in prekindergarten are often dismissed as age-appropriate behavior resulting in preschoolers being both under-identified and under-referred for behavioral concerns (Lakes et al., 2010).

The relationship between behavior and academic achievement has been well documented. One study of school-based universal interventions found that social and emotional competencies of young children are directly and positively correlated with academic achievement (Durlak et al., 2011). Another study found that academic achievement is predicted by cognitive maturity, family characteristics, and social experiences in the classroom (Vitaro et al., 2012). After controlling for genetic and shared environmental factors this same study revealed that externalizing behavior problems were correlated with low-quality peer and teacher relationships and decreased academic achievement (Vitaro et al., 2012). Additionally, children with learning and/or behavior problems have been shown to have lower achievement outcomes (Baker, 2006). Interestingly, a recent study found that children with attention-related behavior problems are more at risk for school failure than those with aggressive behavior (Georges, Brooks-Gunn, & Malone, 2011). The established relationship among behavior and achievement stimulates the need to examine how specific behavioral concerns are related to achievement and the most effective ways to address them as early as possible.

Early identification of behavior and academic problems is critical in order to provide necessary supports and interventions. Research has provided evidence that identification of clinical behavior problems against normal behavior problems is possible in young children (Breitenstein et al., 2008). The disconnection between the number of children that may have behavior problems and those that receive support and
interventions alludes to the necessity of identifying key problem behaviors in preschoolers (Perry et al., 2008). Early interventions, especially those occurring in prekindergarten, tend to have the most results because behaviors are less ingrained and behavior control is developing (Fletcher & Vaughn, 2009; Lakes et al., 2010). Identification of true behavior issues versus behavior issues that are due to transient stress, i.e. the transition to kindergarten, is important also because true behavior issues tend to persist if not properly addressed (Campbell, 1995).

Behavior problems in preschool are correlated with lower academic achievement in later grades but this effect is mediated by the continuation of behavior problems in kindergarten (Gilliam & Shahar, 2006). The development of social and emotional skills in the preschool years is related to the emergence of behavior problems and future achievement (McCabe & Altamura, 2011). Prevention and intervention efforts that promote positive social and emotional learning in young children have been shown to have promising results for their social and academic achievement (Durlak et al., 2011). Other research discusses possible achievement gains by addressing attention issues (Georges et al., 2011). Recent research has shown that identification of behavior issues and interventions occurring in prekindergarten can have major gains in social and emotional competence (Graves & Howes, 2011). Others have identified social and emotional competence as the key determinant of the quality of children’s relationships with others (Whitted, 2011). Zhang & Sun (2011) examined the reciprocal relationship between children’s behavior and child-teacher relationships and found that interventions that involve both the teacher and the child are the most effective. The transition to kindergarten involves a shift to an environment which requires self-control and children’s
ability to do so impacts their academic achievement (McCabe & Altamura, 2011; Ponitz & McClelland, 2009). By identifying behavioral concerns and investigating their relationship with academic achievement, researchers can examine which interventions hold the most promising results for young children.
CHAPTER 2
LITERATURE REVIEW

Problem Behaviors in Pre-Kindergarten

It has been estimated that up to one-third of preschool children have significant behavior problems (Gross et al., 1999). Researchers have found that between 8 to 21% of preschool children have behavior problems severe enough to be diagnosed with a behavioral disorder (Gilliam & Shahar, 2006; Lavigne et al., 1996). The sheer volume of young children suffering from behavioral problems and disorders commands attention to the issue. Studies have revealed that parents and childcare providers commonly report concerns of problematic behaviors in preschool-aged children and that several are normative rather than clinically significant (Breitenstein et al., 2008). Some of these commonly reported concerns are “aggression, noncompliance, and tantrums” (Breitenstein, et al., 2008). Other issues involve inattention and difficulty forming and maintaining positive relationships with others (Duncan et al., 2007).

Behavior problems occurring in prekindergarten are evidenced in the high expulsion rates reported by preschool teachers and childcare providers (Gilliam & Shahar, 2006; Perry et al., 2008). More children are expelled, meaning permanent removal, from prekindergarten environments than are children in grades K-12 (Gilliam & Shahar, 2006). Prekindergarten classes are meant to provide environments in which children can gain the necessary skills to be ready for kindergarten. When young children
are expelled due to behavior concerns, they miss out on the opportunity to participate in these pivotal early experiences.

Disruptive behaviors occurring during the early years of life have been correlated with later development and adjustment (Campbell, 1995). Early behavioral problems are related with short and long-term consequences including later behavior problems and negative academic and social achievement (Durlak et al., 2011; Vitaro et al., 2012; Whitted 2011). Similarly, young children that display signs of academic difficulties are at risk for behavior problems (Yoshikawa, 1995). Children that exhibit behavior or academic problems in prekindergarten that are unaddressed or result in exclusion of services are prone to experience an unsuccessful transition to kindergarten (Stormont et al., 2005). An unsuccessful transition can set children on a negative trajectory both academically and socially (Mirkhil, 2010).

The Transition from Pre-Kindergarten to Kindergarten

The transition from one environment to another undoubtedly is faced with mixed emotions. Anxiety, confusion, and excitement are among the feelings one may encounter when undergoing a transition. The transition to kindergarten has been repeatedly cited in the literature as one of the most important transitions young children will make. The transition to kindergarten is, for most students, the first introduction to formal schooling (Mirkhil, 2010). Although the term transition has been defined in numerous ways, the consensus in the majority of the research is that there are a variety of meanings for transition (Vogler et al., 2008). In terms of education, transition usually refers to moving from one school to another school or from one grade to another (Vogler et al., 2008). The transition from preschool, home, daycare, or other prekindergarten settings to
kindergarten is the first major transition in a young child’s life and the success or failure of this process is correlated with one’s experience in school in later years (Mirkhil, 2010).

Transitioning from prekindergarten settings to kindergarten settings is often marked by discontinuity. Prekindergarten settings, such as home or preschool, are often less structured environments than children experience once in kindergarten. The transition to kindergarten means more academic and social expectations (Stormont et al., 2005). Other discontinuities children encounter during this transition are changes in physical environment, differences in classrooms, different curriculum content, new teaching strategies, and new relationships (Barblett et al., 2011). Yeboah (2002) reported that the transition to kindergarten is a generally difficult time for children. Due to the overwhelming new experiences children encounter in kindergarten, researchers have long made the argument that providing support during this transition is critical. Malsch et al. (2011) reported that transitions that occur with support most often result in successful transitions. Additionally, researchers have argued that the transition to kindergarten should be considered a process instead of a one time event. Understanding this transition as a process has important implications for transition activities. Consequently, much of the research shows that transition activities are most beneficial when they occur over time, not just on one occasion. Ramey & Ramey (1994) advocated this view by stating that viewing transition as an extended process lends understanding to the most helpful transition activities.

Optimal transition activities seek to improve the continuity a child experiences during the transition to kindergarten. Activities that involve families and parents are one often studied way of bridging oft encountered discontinuity. Mirkhil (2010) stated that
transitioning to kindergarten is an important change for both children and their families. Vogler et al. (2008) emphasizes an ecological approach to understanding the transition by underscoring the fact that a child is influenced by the interaction of the different environments he or she encounters. Vogler et al. (2008) discusses Urie Bronfenbrenner’s ecological theory in promoting the importance of the home environment on the school environment, and vice versa. Further, Stormont et al. (2005) reported that early family involvement is critical. The importance of family involvement during the transition process is well documented and several researchers have attempted to identify the most effective transition activities that involve the family.

In a study where transition activities were found to have a profound effect on student achievement, the authors noted that this effect was partially due to parental involvement (Schulting et al., 2005). This same study highlighted the fact that children from low SES backgrounds are often the most at-risk for having negative transition experiences. Schulting et al. 2005 concluded that their results speak to the need for educational policies to include transitional activities that seek to foster parental involvement early on. However, other studies have found that most schools do not offer transition plans that connect teachers with student’s families (Fails nelson, 2004). In a study by McIntyre et al. (2007), the authors sought to uncover families’ feelings regarding the transition process. This study found that the majority of parents wished to be involved in the transition process but were unaware of how to get involved. The lack of transition activities that bridge the gap between parents and teachers has devastating consequences on children. At home, children may not be expected of the same behaviors he or she is expected of at school. This discontinuity contributes to an unsuccessful
transition and should be addressed by proper transition activities. McIntyre et al. (2007) reported that poorer families were found to have less involvement in transition activities than more affluent families. Researchers have sought to discover how transition activities can be focused towards families, especially those families of at-risk children.

Head Start centers are typically found in low income environments and provide educational and support services for families and their children. Much research has been collected about children involved with Head Start and their families. Pianta & Cox (1999) found that Head Start centers play an important role in the transition process by advocating important transition activities. In this study, Pianta & Cox (1999) found that teachers in low-poverty areas were more likely to conduct home visits. The authors contributed this finding to the involvement of Head Start centers. This same study also produced less encouraging findings. Pianta & Cox (1999) reported that low-intensity, and therefore less effective, transition activities were most often used in all contexts. Even more disheartening was their finding that the quantity of transition activities used in low-income areas was far less than in more affluent areas. Stormont et al. (2005) reported that many at-risk children that have behavior problems are from low SES environments. The negative outcomes associated with children from low-income environments would lead one to conclude that these children are at high need for receiving transition activities. Sadly, the majority of research in this area has found that these children receive the least transition activities when compared with other children. Transition activities that seek to promote family involvement, and be used in low-income areas, are imperative for ensuring all children receive the opportunity to benefit from a successful transition to kindergarten.
Risk Factors for Behavior Problems

Children with behavior problems face an additional hurdle to a successful transition to kindergarten. These children often lack the social skills needed to form positive relationships with peers and teachers (Stormont et al., 2005). Further, children that exhibit early behavior problems are “commonly affected by additional factors that perpetuate their risk for maintaining such behavior” (Stormont et al., 2005). At-risk children are typically those living in poverty or that have been diagnosed with an attention deficit disorder (McWayne & Cheung, 2009). A review of the literature on risk factors in early childhood development shows a strong negative association between living in poverty and child development (Ayoub et al., 2009). The research shows that children living in poverty are most at-risk for behavior problems, which can impact their achievement in multiple domains (Gilliam & Shahar, 2006). In line with this research, Ayoub et al. (2009) reported that poverty is negatively linked with cognitive skills. These findings highlight the importance of further investigating the relationship between early behavioral concerns, early academic difficulties, and later outcomes.

The relationship between early behavior problems and academic achievement has been thoroughly demonstrated in the development research (Baker, 2006; Howse et al., 2010). Children that exhibit early behavioral concerns often experience lower scores on measures of academic achievement, and the two types of concerns often co-occur (Baker, 2006). A study examining the high expulsion rates of preschoolers revealed that children living in poverty and those that spend more time in childcare are at a high-risk for developing behavior problems (Perry et al., 2008). These facts lead one to the conclusion that children living in poverty are at-risk for behavior and academic difficulties. Early
identification of problem behaviors and academic difficulties are, therefore, of a primary concern for these children so that effective interventions and supports can be put in place.

Several studies have sought to uncover risk factors for early behavior problems. According to the authors of one study, “the various domains implicated in the development of early problem behaviors include: characteristics of the child (e.g., gender, temperament), characteristics of the parent (e.g., mental health, antisocial behavior), parenting practices (e.g., teaching skills, child control strategies, attitudes), parent-child relationship (e.g., attachment, emotional availability), and family ecology (e.g. socioeconomic status [SES], stress, martial relations)” (Keller, Spieker, & Gilchrist, 2005). The general consensus is that the presence of multiple risk factors increases the chances of exhibiting behavior problems. One must take into consideration multiple areas of a child’s development to form a complete understanding of his or her developmental trajectory. Keller, Spieker, & Gilchrist (2005) propose that early attachment patterns interact with other risk factors and can serve as either an influential risk factor or protective mechanism. Greenberg et al. (2001) also emphasize the importance of the parent-child relationship on the development of early behavior problems. The model of risk proposed by these authors includes “four domains of risk: child characteristics, parenting practices, attachment, and family ecology” (Greenberg et al., 2001).

Multiple risk models are based on the finding that the presence of multiple risk factors is related to a more difficult adjustment for children (Rutter, 1979). In this sense, children that are exposed to multiple risk factors for developing behavior problems are more likely to exhibit early behavioral concerns than children exposed to fewer or no risk factors. Children from low-socioeconomic status backgrounds or those that live in
poverty are often subject to a larger combination of risk factors than other children. In line with developmental research findings, children from poverty are more likely to be expelled during preschool, have difficult transitions to kindergarten, and have lower academic achievement scores and lower-quality relationships with teachers and peers (Gilliam & Shahar, 2006; Durlak et al., 2011; Vitaro et al., 2012; Whitted, 2011). The susceptibility is higher for children living in poverty based on the fact that these children are often exposed to multiple risk factors. However, not all children living in poverty develop behavior and academic problems. The interaction among several risk factors resulting in behavior problems is extremely complex and differs based on the individual.

One domain in which children may be evaluated for risk is characteristics of the child. Several child-specific characteristics can be classified as risk factors for the development of behavior problems. Children suffering from neurodevelopmental issues, such as maladaptive development of the prefrontal cortex resulting in executive functioning deficits, may be more prone to behavioral issues (Greenberg et al., 2001). This is related to another child-specific characteristic, the ability to regulate emotion and behavior, which is correlated with behavior problems (Breitenstein et al., 2008). Emotion regulation typically develops as a child matures but children suffering from neurodevelopmental issues may be less able to develop this ability. Other children that do not have neurodevelopmental issues can still have trouble with emotional regulation which is related to the development of behavior problems (Duncan et al., 2007). Studies linking gender with behavior problems are conflicting, although more boys are expelled in preschool for behavioral concerns than are females (Gilliam & Shahar, 2006).
Parenting practices have been researched extensively in order to identify their potential contribution to behavior patterns in young children. Unsurprisingly from a developmental perspective, parenting practices that involve negative interactions with children are related to the presence of behavior problems in children (Campbell, 1995; Stormshak, Bierman, & Lengua, 2000). Inconsistency is a parenting trait that is also related to behavioral concerns (Stormshak, Bierman, & Lengua, 2000). Maternal responsiveness and parental warmth are associated with fewer behavior problems and more successful transitions during early childhood (Campbell, 1995). Hart et al. (1990) reported that parental aggression is related to children’s expression of aggression. A study examining the correlations of parenting practices on distinct behavioral trajectories concluded that “early deficits in warmth and involvement may be critical to the development and maintenance of oppositional and aggressive behavior (Stormshak, Bierman, & Lengua, 2000). Overall, harsh parenting practices can be a risk factor for children’s development of behavioral problems. Several studies have also examined the relationship between the parent-child relationship and behavior problems. Children that experience insecure-attachment are more at-risk of developing externalizing behavior problems than children with secure attachments (Greenberg et al., 2000). Keller, Spieker, & Gilchrist (2005) examined the effects of attachment on problem behavior and found that attachment was strongly correlated with the development of behavior problems.

When evaluating a child’s behavior problems, one must also consider his or her family background. This is a broad domain described by Greenberg et al. (2000) as composed of several constructs related to the family. Socioeconomic status, parental mental health, negative life events, and transitions are among the factors that compose
this domain (Greenberg et al., 2000). Children living in poverty are likely to be exposed to multiple risk factors in this domain. Research in this area implicates familial support and education as a possible protective mechanism for poor children developing behavior problems.

**The Role of Social and Emotional Competencies**

Social and emotional competencies are related to school readiness (Duncan et al., 2007). Readiness for school has been said to occur when “children are in a position to participate fully in school life” (Ramey & Ramey, 1994). Children who are socially and emotionally competent are more likely to behave in ways that contribute to success both socially and academically (Durlak et al., 2011). Durlak et al. (2011) reported that mastery of social and emotional competencies is related to internal regulation of behavior. Young children that are able to regulate their emotions and behavior have been found to show higher scores on measures of achievement in kindergarten (Howse et al., 2010).

Kindergarten teachers emphasize the importance of social and emotional competencies for school readiness (Graves & Howes, 2011; Pianta & Cox, 1999). All of these findings lend understanding of the importance of the development of these skills to build the foundation of a positive social and academic trajectory in kindergarten.

Children that are unable to meet behavioral expectations are at-risk of rejection from peers and teachers, which can set a trajectory of school failure (Whitted, 2011). Research has shown that a child’s experiences in kindergarten influence their perceptions of school that tend to persist over time (Ladd & Price, 1987). Children that enter school unprepared to deal with the demands may develop negative associations with school that can persist if not addressed early. Hamre & Pianta (2001) found that early interactions
with teachers can effect social, emotional, behavioral, and academic functioning. Therefore, children that lack social and emotional skills are at-risk of developing low-quality relationships with their peers and teachers that can hinder their achievement. Zhang & Sun (2011) defined the relationship between children’s behavior problems and the teacher-child relationship as reciprocal in nature. These authors found that conflict with a teacher is more influential than closeness (Zhang & Sun, 2011). This finding was validated in a study conducted by Vitaro et al. (2012) that reported conflict within the child-teacher relationship was negatively correlated with academic achievement. Baker (2006) reported that the child-teacher relationship is less beneficial for children with behavior problems. Children that lack social and emotional skills are at-risk of social and academic failure partially due to their influence on their ability to form quality relationships with others.

Positive social behaviors in preschool and kindergarten are correlated with later peer acceptance (Ladd & Price, 1987). Further, interpersonal behaviors and relationships in preschool are predictive of kindergarten ratings of peer and teacher acceptance (Ladd & Price, 1987). The study that produced these findings also cited that children that begin their kindergarten year without the necessary social and emotional skills to navigate the behavioral demands of school are at-risk of developing a negative reputation that may follow them for years to come. Stormont et al. (2005) reported that kindergarten teachers rate social skills as the most important skill for success in kindergarten. Children that lack these essential skills are likely to begin on a negative developmental path both academically and socially unless interventions are put in place.
In addition to the child-teacher relationship, there are other factors that may serve as risk-factors for children showing social and emotional skills deficits. Gilliam & Shahar (2006), who examined the expulsion rates of children in preschool, found that African American children were expelled at higher rates than any other group of children. Graves & Howes (2011) report that there are significantly more African American children diagnosed with an emotional or behavioral disorder than from any other group. Due to the high overlap between ethnicity and socioeconomic status, one can infer that living in poverty is related to social and emotional skills deficits (Graves & Howes, 2011). Whittaker et al. (2010) discussed how children from low-income environments are prone to experience more difficulties with social and emotional skills due to their exposure to high-risk environments. This same study conducted with Early Head Start children reported that maternal sensitivity served as a mediator for these children exhibiting social and emotional skills deficits. Watamura (2011) found that children living in poverty and attending low-quality child care were most at-risk for social and emotional deficits leading to problem behavior. This study also revealed that a protective factor for children living in poverty experiencing social and emotional difficulties is their involvement in high-quality child care. The findings of Whittaker et al. (2010) and Watamura (2011) again allude to the fact that early teacher-child relationships that foster social and emotional skills can have profound effects on the developmental trajectories of at-risk children.

Another Factor to Consider: Attention

A recent study by Georges, Brooks-Gunn, & Malone (2011) examined the relationship between young children’s behavior and achievement. This study was
different from previous studies in that it evaluated the effects of problem behavior on achievement both at the child and classroom levels. The study revealed that attention was more closely related to achievement than aggressive behaviors. Attention in preschool and kindergarten has been cited as correlated with academic achievement and school readiness (Duncan et al., 2007). This study confirmed that finding by revealing that “in isolation, attention is a significant predictor of test scores” (Georges et al., 2011). Similarly, the authors found that inattention in the classroom was more influential on classroom achievement than the presence of aggression (Georges et al., 2011). Children that had aggressive behavior and/or attention problems were disproportionately from low-SES backgrounds. The authors of this study promote interventions and preventive efforts that target attention skills in preschool and kindergarten.

Rhoades et al. (2010) have also promoted the implementation of preventive and intervention efforts that target attention skills in addition to social and emotional skills in order to support positive academic achievement. This longitudinal study focused on the role of two specific skills in academic achievement: early emotion knowledge and early attentional skills (Rhoades et al., 2010). The authors hypothesized that children with early emotion knowledge would have better attentional skills, both contributing to higher academic achievement. Results from this study revealed that early emotion knowledge and early attention skills are important for early academic success (Rhoades et al., 2010). Findings from the Rhoades et al. (2010) study and the Georges et al. (2011) study expand understanding of some of the key components of academic achievement. By continuing to research the specific skills, competencies, abilities, and problems that are correlated
with early achievement, researchers can develop and implement effective preventive and intervention measures.

**Interventions**

The importance of identifying behavior difficulties as early as possible cannot be overstated. Early childhood experiences, such as those occurring in preschool and kindergarten, are important in determining later life events. Research has revealed that children living in poverty are at-risk for early behavior and academic difficulties (Gilliam & Shahar, 2006). Studies have exposed several important components of early social and academic success including social and emotional competence and attention skills (Durlak et al., 2011; Georges et al., 2011; Rhoades et al., 2010; Watamura, 2011; Whittaker et al., 2010). An important goal of developmental research is to continue investigating the relationships among specific early skills and/or deficits and achievement. As the research continues to develop, preventive and intervention models will likely evolve. The most effective preventive and intervention models should be evidence-based and focus on the primary skill areas necessary for success in school.

Transition supports for at-risk students have been correlated with more successful transitions to kindergarten (Malsch et al., 2011). Successful transitions are indicative of better social and academic achievement both in kindergarten and later years (Mirkhil, 2010). Optimal transition activities are those that occur on multiple occasions, occur before the beginning of the kindergarten year, involve the family, are individualized, and take into consideration the importance of social and academic skills (Early et al., 2001; Pianta & Cox, 1999; Schulting et al., 2005; Stormont et al., 2005). Sadly, researchers have found that optimal transition activities are rarely used and at-risk children are the
least likely to be involved (Fails nelson, 2004; McIntyre et al., 2007; Pianta & Cox, 1999; Schulting et al., 2005; Stormont et al., 2005). The need for a widespread transition plan, available training for teachers and family education cannot be overemphasized in the rectification of this issue (Wright et al., 2000). Research has clearly identified the transition to kindergarten as a pivotal experience for children that can have lasting effects on future social and academic achievement (Mirkhil, 2010; Pianta & Cox, 1999). Together these findings highlight the importance of implementing transition activities to support children, especially those that are at-risk, in the beginning of their academic careers.

The passage of the No Child Left Behind Act in 2002 as well as the Individuals With Disabilities Education Act in 2004 has placed greater emphasis on early interventions and accountability for academic achievement (Fletcher & Vaughn, 2009). The implementation of Response to Intervention models has targeted behavior and academic problems in children by screening all children, monitoring their progress, and providing necessary interventions (Fletcher & Vaughn, 2009). With Response to Intervention models, all children are screened. This is different from traditional models in that it does not rely on referrals (Fletcher & Vaughn, 2009). Other intervention efforts should be influenced by this model in that all children should be screened for early signs of critical behavioral, social, emotional, and/or academic problems so that early interventions can occur. This is imperative based on research showing that early interventions that occur during preschool and kindergarten have the most results (Breitenstein et al., 2008; Graves & Howes, 2011; Fletcher & Vaughn, 2009).
A study by Durlak et al. (2011) found that the implementation of social and emotional learning instruction in schools resulted in an 11% gain in achievement. The researchers of this study discussed that social and emotional interventions were as effective, if not more effective, in improving academic achievement that educational interventions alone (Durlak et al., 2011). Another study revealed that emotion and behavior regulation in kindergarten was related to all measures of achievement (Howse et al., 2010). Researchers should continue to investigate ways to measure and address social and emotional competencies in young children. Perhaps the most effective interventions will be those that integrate behavior and academic components (McCabe & Altamura, 2011; McWayne & Cheung, 2009).

Addressing attention problems in early childhood is another critical step in supporting a positive academic and social trajectory for young children. A study by Lakes et al. (2010) examined the effects of a parent training program on reducing attention and behavior problems in preschool-aged children. The authors stated that negative parenting is associated with attention-deficit hyperactivity disorder symptoms (Lakes et al., 2010). Other researchers have supported this by showing a correlation between harsh parenting and the existence of behavior problems in children (Campbell, 1995; Stormshak, Bierman, & Lengua, 2000). The Lakes et al. (2010) found that parent interventions significantly affected child outcomes. Parents that participated in this study reported that their children had “decreases in emotional difficulties, conduct problems, hyperactivity/inattention, and peer problems” (Lakes et al. 2010). Based on these results, preventive and intervention efforts should include attention skills training, and should seek to include families and teachers in addition to children.
Research on the results of early behavior problems shows a negative correlation with the quality of the child-teacher relationship (Whitted, 2011; Zhang & Sun, 2011). Carr, Taylor, & Robinson (1991) focused on how children’s behavior problems affect the teaching behavior of adults and found that teachers are less likely to place demands on these students which can impact both their academic achievement and their behavior. The authors of this study stated that children with behavior problems are likely to receive less instructional times than students without behavior problems (Carr, Taylor, & Robinson, 1991). Others have reported similar findings by stating one way behavior problems impede academic achievement is by decreasing time involved in learning activities (Stormont et al., 2005). The established relationship among children’s behavior and teacher’s behavior speaks to the necessity of developing interventions that include teacher education as well as child intervention (Zhang & Sun, 2011).
CHAPTER 3

METHODS

Participants

Children in the current study were recruited from 18 publicly funded pre-kindergarten programs in three different school systems of a southeastern state. The original data set included 482 participants. A number of participants were extracted from the database because of missing information or characteristics that would have confounded the interpretation of the results. Specifically, children who had 85% or more of the data points across the four time periods were included in the study. In addition, children whose first language was not English, with missing demographic information such as gender were excluded from the study. The resulting data set included 285 children. With regard to gender, 52.6% of the children were male \((n = 150)\) and 47.4% were female \((n = 135)\). Information was supplied by parents regarding a child’s race or ethnicity. On this variable, there were a significant number of cases with missing information (39.3%). Of the parents who did report race or ethnicity information, the majority of children included were African American \((n = 132; 76.3\%)\) followed by Caucasian \((n = 34; 19.7\%)\) and Asian, Bi-racial, or Latino \((n = 7; 4\%)\). The primary language spoken by all children in the current sample was English. Children with special education needs were retained in the study as the concerns that were typically presented included speech and language issues. The majority of the sample was typically developing (84.2%) with 9.2% of children either in the referral process or being
considered for additional support, and 6.7% with formal diagnoses. Information was collected from schools regarding children’s enrollment in the free or reduced-price lunch program. In the current sample, 182 children (63.9%) received free or reduced-price lunch while 103 (36.1%) did not. Mothers provided information on their highest level of education. Over 75% of mothers had at least a high school diploma with 15.8% having less than a high school education and 8.8% not providing data on this variable. Teachers in the sample were all certified and had at minimum a bachelor’s degree that would enable them to teach in public school settings. All teachers except one were female.

**Research Questions**

To explore if children’s behaviors are related to their literacy skills and how this relationship evolves during the transition to kindergarten, three main research questions were examined in this study. Previous studies indicate that the transition to kindergarten can be a difficult time for children and that one’s behavior in kindergarten is correlated with later achievement. In light of the importance of early behavior problems and their correlation with achievement, the research questions examined in this study were:

1) How are children’s scores on literacy measures related to their scores on a behavior measure?

2) Are children’s scores consistent throughout the prekindergarten year and into kindergarten?

3) How are certain factors associated with those children identified by their teachers as exhibiting concerning behaviors?
Measures

Data were collected from children’s parents at the beginning of the pre-kindergarten year. Families completed a home literacy questionnaire which provided important demographic information about the children. Data were also collected from children on a number of emergent literacy measures that included the Peabody Picture Vocabulary Test-3 (PPVT; Dunn & Dunn, 1997), the Expressive Vocabulary Test (EVT; Williams, 1997), and the Phonological Awareness Test (PAT; Robertson & Salter, 1997) from which an orthographic knowledge assessment was drawn.

The PPVT is a measure of receptive language normed for individuals from ages 2.5 through adulthood with internal consistencies that range from .80-.95. The test required no reading ability and has pictorial format of four pictures from which the child selects the picture of the word read by the examiner. The measure has a mean standard score of 100 (SD = 100). The EVT is an individually-administered, norm-referenced assessment of expressive vocabulary and word retrieval for children and adults ages 2.5 to 90. The national standard score mean is 100 (SD = 15) with reported internal consistency among national norming groups in the .90s.

A subset of The Phonological Awareness Test (Robertson & Salter, 1997) subscales was used for this study. The scales targeted rhyme discrimination, syllable segmentation, initial phoneme isolation, and phoneme blending because these skills had been found to be statistically significant predictors of early reading ability in preschool children (Bryant et al., 1990; Goswami & Bryant, 1990). The norming population for the PAT test was five through nine year olds; however, the off-level use of this assessment for preschool children was validated by Webb, Schwanenflugel, and Kim (2004). Each
subscale contained 10 items, scored dichotomously. Cronbach alpha internal reliability estimates at prekindergarten entry of .92 on rhyme discrimination, .87 on syllable segmentation, .98 on initial phoneme isolation, and .87 on phoneme blending.

From the PAT, orthographic knowledge was assessed by asking children to name upper- and lower-case letters and to produce the sound of letters. Specifically, the experimenter pointed to each letter sequentially and asked, “What’s this letter?” If the children named the letter, they were asked, “What sound does it make?” If they made the sound first, they were asked, “What’s the letter called?” Items were dichotomously scored for both name and sound knowledge. Cronbach alpha reliability, calculated using upper and lower case letter name and sound knowledge scores, was .81. For this study, two variables from the orthographic assessment are used and are letter-naming total and letter-sounds total. The letter naming score is calculated on the number of upper- and lower-case letters that a child can name with a maximum score of 52. The letters sound maximum score was also 52.

The BASC screener is a 25-item abbreviated version of the 109 item BASC TRS-P (Behavioral Assessment System for Children Teacher Rating Scale – Preschool). This item was created in order to assess emotional and behavioral variables in preschool-aged children (Yanosky et al., 2012). Originally, this screener was created so that teachers could have an emotional and behavioral indicator that could be completed in a short amount of time. An empirical study conducted by the authors found that the 25 item short form of the BASC TRS-P measures social skills, attention/cognition, and affect (Yanosky et al., 2012). The BASC screener was used in the PAVEd for Success study from which the data in the current study was obtained. In that study, the BASC screener was used to
track emotional and behavioral issues throughout the preschool year and into kindergarten. An evaluation of the BASC screener found it to have high internal consistency across long intervals of time (Yanosky et al., 2012). This same evaluation found that general education students consistently scored lower on the screener than those in special education (Yanosky et al., 2012). The 25-item abbreviated version of the BASC TRS-P is a useful tool for identifying emotional and behavioral problems in a short amount of time and has been shown to have good reliability and consistency.

**Data Collection**

Data for the current study were collected three times during the pre-kindergarten year in the fall (baseline), winter, and late spring. Data for kindergarten were collected in the fall of the kindergarten year. Trained assessor collected the standardized test score data and teachers were provided with packets of rating scales that included the BASC for which they received a stipend for completion. Assessors completed a rigorous training session for administration of the standardized instruments. Once data were collected, individual assessments were scored and entered into SPSS for subsequent analysis.

**Data Analysis**

Data were accessed from the PAVEd for Success study database. Participants were included in the sample if they had 85% or more of necessary information. Frequency counts were conducted to determine demographic information of the participants. In order to address the three research questions correlation analyses and analysis of variance (ANOVA) through repeated measures were used in the current study,
CHAPTER 4

RESULTS

This chapter summarizes the results obtained in reference to the three proposed research questions of the current study. Correlation analyses were used to examine the relationship among teacher’s ratings of behavior and student’s scores on measures of emergent literacy skills. With correlations, a preliminary analysis examining outliers was conducted. In the data set, 4.56% of the cases on the BASC appeared to be outliers in the data set. Of the 13 cases that were considered outliers in the data, seven of the children were not receiving special education services, two had a formal diagnosis, and four were in the identification process. Given the limited number of cases and the fact that six of the cases were associated with children who were either in or being considered for the special education program, these cases were retained in the data set. An analysis of variance (ANOVA) through repeated measures was used to determine how student’s scores on each of the four measures (BASC, PPVT, EVT, and PAT) evolved throughout the prekindergarten year and into kindergarten. An analysis of variance (ANOVA) through repeated measures was also used to examine how certain variables (gender, enrollment in the free/reduced lunch program) were related to BASC scores.

Time One Data

Children were given three tests of their emergent literacy skills in the beginning of the prekindergarten year. High scoring on these tests indicated a higher level of literacy knowledge. Teachers completed the BASC screener in an assessment of
children’s behavior at the beginning of the prekindergarten year as well. Children with high scores on this measure were exhibiting problematic social and emotional behaviors. All three measures of achievement (PPVT, EVT, and PAT) scores were negatively correlated with scores on the measure of behavior (the BASC mean score at time one was 45.05 with a $SD = 14.062$). Each of these correlations was statistically significant. The mean score for the PPVT at time one was 89.79 with a $SD = 16.721$. The mean score for the EVT at time one was 96.14 with a $SD = 12.609$. The mean score for the PAT at time one was 11.1053 with a $SD = 17.679$. Data for these analyses are displayed in Table 1.

**Time Two Data**

Children were given the same three tests of emergent literacy skills in the middle of the prekindergarten year. Teachers completed the BASC screener to assess children’s behavior at this same time. All three measures of achievement (PPVT, EVT, and PAT) scores were negatively correlated with scores on the measure of behavior (the BASC mean score at time two was 47.89 with a $SD = 11.821$). Each of these correlations was statistically significant. The mean score for the PPVT at time two was 93.38 with a $SD = 15.408$. The mean score for the EVT at time two was 98.25 with a $SD = 13.850$. The mean score for the PAT at time two was 33.2394 with a $SD = 29.399$. Data for these analyses are displayed in Table 2.

**Time Three Data**

Children were again given three measures of literacy skills at the end of the prekindergarten year. At this time, teachers completed the BASC screener to assess children’s behavior. All three measures of achievement (PPVT, EVT, and PAT) were negatively correlated with scores on the measure of behavior (the BASC mean score at
time three was 47.8191 with a SD = 11.93812). However, the correlation between the PPVT and the BASC screener was not statistically significant. The mean score for the PPVT at time three was 94.39 with a SD= 15.255. The mean score for the EVT at time three was 99.76 with a SD= 14.196. The mean score for the PAT at time three was 40.3873 with a SD= 30.62987. Data for these analyses are displayed in Table 3.

**Time Four Data**

After children entered kindergarten, they were again given three measures of their literacy skills (PPVT, EVT, and PAT). Kindergarten teachers used the BASC screener to assess children’s behavior. All three measures of achievement were negatively correlated with scores on the BASC screener (the BASC mean score at time four was 46.5301 with a SD = 11.57686). However, only one of these relationships was found to be statistically significant. The correlation between the PPVT and the BASC and the correlation between the EVT and the BASC were not statistically significant at time four. The mean score for the PPVT at time four was 96.01 with a SD= 12.638. The mean score for the EVT at time four was 98.78 with a SD= 13.058. The mean score for the PAT at time four was 77.4331 with a SD= 24.44578. Data for these analyses are displayed in Table 4.

**Scores on the PPVT from Time One to Time Four**

The Peabody Picture Vocabulary Test was given to students three times during the prekindergarten year and once at the beginning of the kindergarten year. As one may expect, on average, children’s scores consistently increased at each time period. The Peabody Picture Vocabulary test involves students selecting the picture of a word read by the examiner. As the children progressed through prekindergarten and into kindergarten the mean score for this measure increased. When using an ANOVA with repeated
measures with a Greenhouse-Geisser correction, the mean scores for the PPVT were statistically different (F (2.895, 796.224) = 30.496, \( p < .001 \), \( \eta^2 = .100 \)) across the four time periods. Results of the Bonferonni Post hoc test revealed that mean scores on the PPVT were not statistically different from time two to time three (\( p = .271 \)) or from time three to time four (\( p = .103 \)). Data for these analyses are displayed in Tables 5 and 6.

**Scores on the EVT from Time One to Time Four**

The Expressive Vocabulary Test was used at four time periods to assess children’s expressive vocabulary and word retrieval. Children’s mean scores for this measure increased from time one to time three and then slightly decreased at time four. The assumption of Sphericity was violated and a Greenhouse-Geisser correction was employed. Using the Greenhouse-Geisser correction, the mean scores for the EVT were statistically different (F (2.748, 766.767) = 13.436, \( p < .001 \), \( \eta^2 = .046 \)) across the four time periods. Results of the Bonferonni Post hoc test revealed that mean scores on the EVT were not significantly different from time three to time four (\( p = .372 \)). Data for these analyses are displayed in Tables 5 and 6.

**Scores on the PAT from Time One to Time Four**

A subset of the Phonological Awareness Test was used in the current study in conjunction with the other measures of literacy skills. A total score was created from the summation of children’s scores on upper/lower case letter sound and sight recognition. An analysis of variance (ANOVA) through repeated measures with a Greenhouse-Geisser correction revealed that the four groups were significantly different (F (2.438, 685.102) = 892.573, \( p < .001 \), \( \eta^2 = .761 \)) across the four time periods. Data for these analyses are displayed in Tables 5 and 6.
Scores on the BASC from Time One to Time Four

A quick comparison of the mean scores on the BASC screener at the different time periods shows slight differences. Problematic behaviors were reported least at the beginning of the prekindergarten year. Problematic behaviors (or higher BASC scores) were reported the most at the end of the prekindergarten year. While it was expected that behavior problems may become intensified after the transition to kindergarten, BASC scores at the beginning of the kindergarten year were lower on average than those obtained at the end of the prekindergarten year. An analysis of variance through repeated measures with a Greenhouse-Geisser correction showed that the means of children’s scores on the BASC screener were significantly different across the four time periods ($F(2.103,504.724) = 10.363, p < .001, \eta^2 = .041$). The Bonferonni adjustment for multiple comparisons revealed that only mean scores differences from time one to time two ($p < .001$) and from time one to time three ($p < .001$) were statistically significant. Data for these analyses are displayed in Tables 5 and 6.

Other Factors and BASC Scores

An analysis of variance through repeated measures was used to determine if the variables gender and enrollment in free/reduced lunch were related to scores on the BASC screener. The sample included 129 males and 112 females. Males’ mean scores were higher at times one, two, three, and four. As previously reported, a significant time effect was found for the BASC across four time periods ($F(2.103,504.724) = 10.363, p < .001, \eta^2 = .041$). A between subjects analysis revealed that males and females scores significantly differed on the BASC screener ($F(1,239) = 26.215, p < .001, \eta^2 = .099$).
However, there was not a significant interaction effect for time and gender (F (1,239) = 13.371, p = .841).

An analysis of variance (ANOVA) through repeated measures was also conducted to evaluate the relationship of enrollment in the free/reduced lunch program and mean scores on the BASC screener. Surprisingly, results revealed that enrollment in the free/reduced lunch program did not result in significant differences in mean scores on the BASC (F (1,239) = .173, p = .678). An interaction effect for time and enrollment in the free/reduced lunch program was not found (F (2.103,502.610) = .042, p = .964). Data for these analyses are displayed in Table 7.
CHAPTER 5
DISCUSSION

The entrance to kindergarten is often the first major transition in young children’s lives. The success of this transition has been found to be correlated with children’s achievement throughout their academic careers (Mirkhil, 2010; Pianta & Cox, 1999). Identification of early behavior problems can serve as a contributor to students’ success by equipping them with the skills needed to succeed in the kindergarten year (Perry et al., 2008). Previous research has shown that kindergarten teachers most often rate social and emotional skills as more important to success than academic skills (Rimm-Kaufman et al., 2000; Stormont et al., 2005). Children that exhibit problem behaviors in prekindergarten that are not addressed tend to have a less successful transition to kindergarten (Stormont et al., 2005). The established relationship among behavior and achievement alludes to the necessity of identifying and addressing behavior problems as early as possible.

The current study examined the relationship among children’s scores on literacy measures and a behavior measure. Children were tested four times: at the beginning of the preschool year, the middle of the preschool year, the end of the preschool year, and the beginning of the kindergarten year. Comparing how children’s literacy skills are related to their behavior is of importance because it allows one to make inferences about future interventions that could promote student success in preschool and kindergarten. The current study posed three related questions: (1) how are children’s scores on literacy
measures related to their scores on a behavior measure, (2) are children’s scores consistent throughout the prekindergarten year and into kindergarten, and (3) how are certain factors associated with those children identified by their teachers as exhibiting concerning behaviors.

**Correlations among Scores on Literacy Measures and a Behavior Measure**

Children’s teachers rated them on the BASC-TRS screener to obtain a perspective on their social, emotional, and behavioral functioning. Children were also assessed on their literacy skills using the Peabody Picture Vocabulary Test (PPVT), Expressive Vocabulary Test (EVT), and the Phonological Awareness Test (PAT). Correlations were drawn between scores on the literacy measures and the behavior measure at each time period. Results indicated that all three measures of literacy skills were significantly and negatively correlated with scores on the behavior measure at both time one and time two. However, at time three, children’s scores on the PPVT were not significantly correlated with scores on the BASC screener. At time four, there was only one statistically significant correlation among the measures of literacy skills and the behavior measure. The significant correlation was among scores on the PAT and scores on the BASC.

At the beginning of preschool children are introduced to an environment in which they are expected to behave in certain ways. One inference that can be drawn from the above data is that as children progress through preschool their behavior becomes more routine and less related to their initial literacy knowledge. The results of the study indicate that at the beginning and middle of preschool, children that exhibit problem behaviors tend to have much lower scores on literacy measures. As children near the end of preschool, and the beginning of kindergarten, however, their scores on literacy
measures become less significantly correlated with their behavior. This information leads one to conclude that on average, children’s scores on literacy measures are negatively correlated with their scores on a behavior measure. However, the correlation among these variables tends to lose power as children progress through preschool and move into kindergarten.

**How Children’s Scores evolve From Prekindergarten to Kindergarten**

Analyses of variance (ANOVA’s) through repeated measures were conducted comparing scores on each measure to themselves across the four time periods. Results indicated children’s mean scores on the PPVT consistently increased from time one to time four. However, the mean differences were not statistically significant from time two to time three or from time three to time four. Children’s mean scores on the EVT increased from time one to time three and slightly decreased at time four. The mean differences were not statistically significant from time three to time four. The change in mean scores on the PPVT across time had a medium effect size ($\eta^2 = .100$) and the change in mean scores on the EVT across time had a small effect size ($\eta^2 = .046$). One explanation for these findings is that when children enter preschool, they are exposed to literacy-rich environments. Consequently, children’s mean scores on the PPVT and EVT are both significantly different from time one to time two. These findings indicate that as children are exposed to vocabulary for longer periods of time there are smaller jumps in their literacy gains. Results indicated children’s mean scores on the PAT consistently increased from time one to time four and all of these mean differences were significantly different. Similarly, the change in mean scores on the PAT across time had a very large effect size ($\eta^2 = .761$). This finding is expected in that children’s gains in phonological
awareness are expected to increase as children progress through preschool and into kindergarten.

Children’s mean scores on the abbreviated version of the Behavioral Assessment System for Children Teacher Rating Scale – Preschool were not very different across time, but slightly decreased from time three ($\mu = 47.82$, $SD = 11.94$) to time four ($\mu = 46.53$, $SD = 11.58$). The change in mean scores on the BASC screener across time had a small effect size ($\eta^2 = .041$). The only statistically significant differences in mean scores were found from time one to time two and from time one to time three. At the beginning of the prekindergarten year, teachers may be less prone to rate children negatively in terms of behavior thus explaining why the BASC screener mean score was lowest at time one. Similarly, kindergarten teachers may be less prone to rate children negatively at the beginning of the year than after being with the children for an extended period of time. Results indicate, however, that ratings of behavior are fairly consistent from preschool to kindergarten. This finding alludes to the necessity of addressing behavioral concerns as early as possible so that children can enter kindergarten with the tools needed for success.

Association between Other Factors and Children with Problem Behaviors

Previous research has indicated that certain factors place children at-risk for behavior problems. Among those cited, living in poverty is perhaps the most detrimental because it exposes children to more risk-factors than those children not living in poverty (McWayne & Cheung, 2009). In order to examine this association, an analysis of variance (ANOVA) through repeated measures was conducted to assess how enrollment in the free/reduced lunch program was related to scores on a behavior measure. A significant time effect was found, but there were not significant interaction or group
effects. Results were uplifting in that those children who were enrolled in the free/reduced lunch program did not have statistically significant mean score differences at any of the four time periods than those who were not enrolled in the program. Since enrollment in the free/reduced lunch program is dependent upon family income, one may expect for those who were enrolled to have higher mean scores on the behavioral assessment. However, results from this study indicated that it is likely that children learn from adaptive models. In this sense, as young children are exposed to children that have important literacy skills and proper behavior, their behavior becomes more like their peers and less dependent on their home environment.

A research study examining expulsion rates of preschoolers found that more boys are expelled in preschool for behavioral concerns than are females (Gilliam & Shahar, 2006). The current study used an analysis of variance (ANOVA) through repeated measures to assess how gender was related to scores on a behavior measure. Results indicated significant time and group effects. Males had significantly different (higher) mean scores on the behavioral assessment, indicating more behavior problems, than females at each time period. This finding contributes to previous research that has cited a gender difference in teacher ratings of behavior. This interpretation should be preceded by a caution, however, that confounding variables may have been present that could have impacted this result.

Limitations of the Current Study and Directions for Future Research

There are several limitations to the current study. One was reported by Yanosky, Kamphaus, & Scwanenflugel (2012) in their assessment of the BASC screener that was used in this study. This limitation was that the sample included almost exclusively
African American and Caucasian children. Future studies should seek to involve children of several more ethnic/racial backgrounds. The composition of the sample used in this study limits the generalizability of findings to children from other backgrounds.

Another limitation of the current study is that only teacher ratings of behavior were used to assess children’s behavior. Future studies should seek to implement observation of behavior by someone other than the teacher and optimally should include multiple sources of behavior ratings. Further, the current study ceased assessment at the beginning of the kindergarten year. Based on results obtained in this study, it would be interesting to contribute the assessment of children throughout the kindergarten year.

The children used in the sample were all members of classrooms in which the importance of the transition to kindergarten was acknowledged by their teachers. Teachers engaged in multiple transition activities such as having their students visit the kindergarten classroom before the beginning of the kindergarten year. Previous research has stated that children that do not receive transitional supports may be more prone to a negative transition as evidenced by increased behavior problems and decreased academic achievement. Future research should seek to compare children from classrooms like those used in this study with children from classrooms in which the importance of the transition is not emphasized.

Overall, results from the current study expand upon the research base investigating how early problem behavior is related to children’s academic success. Generally, children that exhibit concerning behaviors tend to have lower scores on literacy measures but this relationship becomes less significant as children progress through prekindergarten and into kindergarten. Children tend to make large jumps in their
literacy knowledge from the beginning of preschool but show less significant gains as time goes on. The exception to this statement is that children’s phonological awareness tends to steadily increase from preschool to kindergarten. Future studies implementing multiple ratings of children’s behavior can further investigate how children’s behavior across the transition from prekindergarten to kindergarten.
REFERENCES


Yeboah, D. (2002). Enhancing Transition from Early Childhood Phase to Primary Education: evidence from the research literature. *Early Years: Journal of International Research & Development, 22*(1), 51-68

Table 1: Correlations between Three Measures of Literacy Skills and a Behavior Measure for Time One.

<table>
<thead>
<tr>
<th></th>
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<th>T1EVT</th>
<th>T1PPVT</th>
<th>T1PAT</th>
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<td>-.124^b</td>
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<tr>
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</tr>
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<tr>
<td>T1PAT</td>
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</tbody>
</table>

^aT1BASC = Behavioral Assessment for Children; T1EVT = Expressive Vocabulary Test; T1PPVT = Peabody Picture Vocabulary Test; T1PAT = Phonological Awareness Test

^b p ≤ .05; ^c p ≤ .01
Table 2: Correlations between Three Measures of Literacy Skills and a Behavior Measure for Time Two.

<table>
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<td>-.183b</td>
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</table>

*aT2BASC = Behavioral Assessment for Children; T2EVT = Expressive Vocabulary Test; T2PPVT = Peabody Picture Vocabulary Test; T2PAT = Phonological Awareness Test

\(^{b}p \leq .01\)
Table 3: Correlations between Three Measures of Literacy Skills and a Behavior Measure for Time Three.

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</tr>
<tr>
<td>T3PAT</td>
<td>—</td>
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</tbody>
</table>

^aT3BASC = Behavioral Assessment for Children; T3EVT = Expressive Vocabulary Test; T3PPVT = Peabody Picture Vocabulary Test; T3PAT = Phonological Awareness Test

^b p = .059; ^c p \leq .01
Table 4. Correlations between Three Measures of Literacy Skills and a Behavior Measure for Time Four.

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<td>T4EVT</td>
<td>—</td>
<td>.717</td>
<td>.434</td>
<td></td>
</tr>
<tr>
<td>T4PPVT</td>
<td>—</td>
<td></td>
<td>.420</td>
<td></td>
</tr>
<tr>
<td>T4PAT</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a T4BASC = Behavioral Assessment for Children; T4EVT = Expressive Vocabulary Test; T4PPVT = Peabody Picture Vocabulary Test; T4PAT = Phonological Awareness Test

b $p = .148$; c $p \leq .01$; d $p = .244$
### Table 5: Difference of Mean Scores on All Four Measures across Four Time Periods.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
<th>F&lt;sub&gt;TIME&lt;/sub&gt;</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPVT&lt;sup&gt;a&lt;/sup&gt;</td>
<td>89.79 16.72</td>
<td>93.38 15.41</td>
<td>94.39 15.26</td>
<td>96.01 12.64</td>
<td>30.50 ≤ .001</td>
<td>.100</td>
<td></td>
</tr>
<tr>
<td>EVT</td>
<td>96.14 12.61</td>
<td>98.25 13.85</td>
<td>99.76 14.20</td>
<td>98.78 13.06</td>
<td>13.44 ≤ .001</td>
<td>.046</td>
<td></td>
</tr>
<tr>
<td>PAT</td>
<td>11.11 17.68</td>
<td>33.24 29.40</td>
<td>40.39 30.63</td>
<td>77.43 24.45</td>
<td>892.57 ≤ .001</td>
<td>.761</td>
<td></td>
</tr>
<tr>
<td>BASC</td>
<td>45.05 14.06</td>
<td>47.89 11.82</td>
<td>47.82 11.94</td>
<td>46.53 11.58</td>
<td>10.36 ≤ .001</td>
<td>.041</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>PPVT = Peabody Picture Vocabulary Test; EVT = Expressive Vocabulary Test; PAT = Phonological Awareness Test; BASC = Behavioral Assessment for Children; η² values: small effect (.01-.05), medium (.06-.14), large effect (.15 and higher)
Table 6: Mean Differences for Each Measure across All Time Periods.

<table>
<thead>
<tr>
<th>Measure</th>
<th>T1-T2 M.D.</th>
<th>T1-T3 M.D.</th>
<th>T1-T4 M.D.</th>
<th>T2-T3 M.D.</th>
<th>T2-T4 M.D.</th>
<th>T3-T4 M.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPVT a</td>
<td>-3.39*</td>
<td>-4.86*</td>
<td>-6.35*</td>
<td>-1.48*</td>
<td>-2.97*</td>
<td>-1.49</td>
</tr>
<tr>
<td>EVT</td>
<td>-2.17*</td>
<td>-3.74*</td>
<td>-2.78*</td>
<td>-1.57*</td>
<td>-.607</td>
<td>.964</td>
</tr>
<tr>
<td>PAT</td>
<td>-22.16*</td>
<td>-29.33*</td>
<td>-66.36*</td>
<td>-7.17*</td>
<td>-44.19*</td>
<td>-37.03*</td>
</tr>
<tr>
<td>BASC</td>
<td>-3.04*</td>
<td>-3.26*</td>
<td>-1.58</td>
<td>-.22</td>
<td>1.46</td>
<td>1.68</td>
</tr>
</tbody>
</table>

a PPVT= Peabody Picture Vocabulary Test; EVT= Expressive Vocabulary Test; PAT= Phonological Awareness Test; BASC= Behavioral Assessment for Children; T1= Time one; T2= Time two; T3= Time three; T4= Time four; M.D. = Mean Difference

* = The mean difference is significant at the .05 level.
Table 7: Effects of Gender on Mean BASC Scores.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Gender</th>
<th>F_{\text{TIME}}</th>
<th>F_{\text{TIMEXGROUP}}</th>
<th>F_{\text{GROUP}}</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>BASC T1$^a$</td>
<td>47.98</td>
<td>14.86</td>
<td>41.12</td>
<td>11.53</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BASC T2</td>
<td>50.85</td>
<td>12.29</td>
<td>44.34</td>
<td>9.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BASC T3</td>
<td>51.17</td>
<td>13.11</td>
<td>44.45</td>
<td>9.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BASC T4</td>
<td>49.36</td>
<td>12.36</td>
<td>42.92</td>
<td>9.27</td>
</tr>
</tbody>
</table>

$^a$ BASC = Behavioral Assessment for Children; T1 = Time One; T2 = Time Two; T3 = Time Three; T4 = Time Four; $\eta^2$ values: small effect (.01-.05), medium (.06-.14), large effect (.15 and higher)
Table 8: Effects of Enrollment in Free/Reduced Lunch Program on Mean BASC Scores.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Enrollment in Free/Reduced Lunch</th>
<th>( F_{\text{TIME}} )</th>
<th>( F_{\text{TIMEXGROUP}} )</th>
<th>( F_{\text{GROUP}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes ( M ) SD</td>
<td>No ( M ) SD</td>
<td>( p ) ( \eta^2 )</td>
<td>( p ) ( \eta^2 )</td>
</tr>
<tr>
<td>BASC T1(^a)</td>
<td>45.15 14.51</td>
<td>44.11 12.50</td>
<td>9.57 .227</td>
<td>.173 .808</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;.001 .038</td>
<td>.808 .001</td>
</tr>
<tr>
<td>BASC T2</td>
<td>48.02 11.85</td>
<td>47.46 11.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BASC T3</td>
<td>48.33 12.38</td>
<td>47.51 11.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BASC T4</td>
<td>46.35 11.68</td>
<td>46.39 11.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) BASC = Behavioral Assessment for Children; T1 = Time One; T2 = Time Two; T3 = Time Three; T4 = Time Four; \( \eta^2 \) values: small effect (.01-.05), medium (.06-.14), large effect (.15 and higher)