

THESIS

PARENTAL CONTRIBUTORS TO CHILDREN'S PERSISTENCE AND SCHOOL
READINESS: TESTING A MODERATED-MEDIATION MODEL

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ABSTRACT

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Parental scaffolding skills were assessed in relation to children's school readiness with children's persistence examined as a hypothesized mediator. Additionally, parenting styles (authoritative and authoritarian) were assessed as moderators of the association between parental scaffolding and children's persistence. School readiness was a latent construct comprised of math and language skills, as well as emotion regulation. In a low-income sample of families from the Early Head Start Research and Evaluation Project ($N= 2977$), parental scaffolding significantly predicted children's persistence at 36 months, and school readiness in prekindergarten. Persistence partially mediated the link between parental scaffolding and school readiness. Neither authoritative nor authoritarian parenting style moderated the mediational model. The results indicate that parental scaffolding can promote children's persistence and later school readiness. The findings and implications from this study provide parents and educators with practical ways to promote school readiness among low-income children.

Key words: school readiness, persistence, scaffolding, parental style

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CHAPTER I

INTRODUCTION

Parenting practices are consistently found to predict children's cognitive development (Gibbs & Forste, 2014; Nievar, Moske, Johnson, & Chen, 2014; Roskam, Stievenart, Meunier, & Noel, 2014; Towe-Goodman et al., 2014), socio-emotional and behavioral adjustment (Guajardo, Snyder, & Peterson, 2009; Rinaldi & Howe, 2012; Walker & MacPhee, 2011), and academic performance (Kiuru et al., 2012; Martin, Ryan, & Brooks-Gunn, 2007; Pettit, Bates, & Dodge, 1997). Factors associated with preparing children for school and later achievement are widely studied, with most being directed towards parenting processes. These associations between the broader rearing environment and children's development have been explored in some detail, yet the mediating and moderating processes involved in preparing children for school are less understood. The purpose of this study was to investigate potential moderating and mediating processes that are associated with children's school readiness. Specifically, this study examined parenting style as a moderator of the association between parental scaffolding and children's task persistence. Task persistence is an aspect of children's development that prepares children for school; thus, this study examined these constructs in relation to indicators of school readiness. As well, this study differentiated, conceptually and methodologically, between parenting styles and parenting practices.

Research distinguishing between parenting practices and parenting styles is helpful in extending knowledge regarding the influence that parents have on children (Lee, Daniels, & Kissinger, 2006). The literature examining this relation historically has focused on *who parents are* and *what parents do* (Tramonte, Gauthier, & Willms, 2015). In her typology of parenting

styles, Baumrind (1966) described three prototypes of adult control to be permissive, authoritarian, and authoritative, and stated that these three prototypes reflect child-rearing practices. Permissive parents try to behave in a nonpunitive, accepting, and positive manner towards their children's behavior. Authoritarian parents value structuring, controlling, and evaluating their children's behavior in line with a set of absolute standards. Authoritative parents attempt to direct children's behavior in a rational, issue-oriented, and give-and-take manner. A later study by Baumrind (1977) included the domain of rejecting-neglecting parents as well. Rejecting-neglecting parents are rejecting of their children's behavior but do not attempt control as authoritarian parents do (Baumrind, 1977). Later, Maccoby and Martin (1983) updated these styles by deconstructing them into the dimensions of demandingness and responsiveness. Demandingness, or control, refers to "the claims parents make on children to become integrated into the family whole, by their maturity demands, supervision, disciplinary efforts and willingness to confront the child who disobeys" (Baumrind, 1991, pp. 61-62). Responsiveness, or warmth and support, refers to "the extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to children's special needs and demands" (Baumrind, 1991, p. 62).

These styles encompass *who parents are*. Parenting styles are not necessarily oriented toward a specific goal-directed outcome; conversely, parenting practices are explained as strategies that include domain-specific, goal-directed parenting behaviors (Lee et al., 2006). An example of a common parenting practice is homework assistance, which is aimed towards promoting academic success in children (Lee et al., 2006). These parenting behaviors can be thought of as *what parents do*.

Distinguishing Between Style and Practice

Research demonstrates that warm, authoritative parenting is optimal for children's and adolescents' academic achievement (Aunola, Stattin, & Nurmi, 2000; Dornbusch, Ritter, Leidermann, Roberts, & Fraleigh, 1987; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Nyarko, 2011; Weiss & Schwartz, 1996). However, some research also finds that children's outcomes related to parenting styles may vary with culture and the particular outcome domain. For example, aspects of authoritarian rearing have been found in some studies to be detrimental to developmental outcomes such as behavior problems, maladaptive personality traits, social development, or theory of mind (De la Torre-Cruz, Garcia-Linares, & Casanova-Arias, 2014; Hibbard & Walton, 2014; Lee, Zhou, Main, Tao, & Chen, 2014; O'Reilly & Peterson, 2014; Rothrauff, Cooney, & An, 2009) but others do not (for a review see Deater-Deckard & Dodge, 1997; Lamborn et al., 1991; Steinberg, Blatt-Eisengart, & Cauffman, 2006). Some studies also reveal ethnic and cultural differences to be associated with variations in children's outcomes related to school achievement, adjustment, and personal competence (Baumrind, 1973; Dornbusch et al., 1987; Garcia & Garcia, 2009; Watabe & Hibbard, 2014); however, other studies do not reveal this association (Knight, Viridin, & Roosa, 1994; Mason, Cauce, Gonzales, & Hiraga, 1996; Steinberg, Mounts, Lamborn, & Dornbusch, 1991). These findings highlight mixed perspectives regarding the influence that parenting has on children's outcomes.

The mechanisms by which parents' general rearing styles contribute to specific practices to influence children's academic achievement are unclear. This may be due, in part, to the fact that limited research distinguishes between them conceptually. As a result, most researchers use the terms interchangeably (Maccoby & Martin, 1983). In response, Darling and Steinberg (1993) called for researchers to distinguish between parenting practices and parenting styles

because they both serve children in contextually different ways. Parenting styles are "aggregates or constellations of behaviors that describe parent-child interactions over a wide range of situations and that are presumed to create a pervasive interactional climate" (Mize & Pettit, 1997, p. 312). In this way, styles reflect parents' values and attitudes towards parenting and their children that are consistent across time and context. Examples of the values and attitudes examined in past research involving parenting styles include: accepting versus rejecting; child-versus parent-centered; democratic versus autocratic; dictators, cooperators, and appeasers; facilitator versus regulator, involved versus autonomous, lax versus strict disciplinarian; overprotective, indifferent, and conflicted; and sensitive, less sensitive, and hypersensitive (Holden & Miller, 1999). Parenting practices, on the other hand, are specific strategies parents use within a given context and can change over time.

Research that attempts to relate parenting styles to children's outcomes has been critiqued in the past (see Lewis, 1981; Maccoby & Martin, 1983). Parenting styles are a useful starting point for research examining relationships between parenting and children's outcomes; however this approach alone is too ambiguous to capture the precise parenting processes at play (Holden, 2010). There is therefore a need to further delve into the specific parenting processes that are implicated in the associations between parenting styles and children's outcomes.

Distinguishing between parenting practices and parenting styles includes methodological implications as well (Lee et al., 2006) because parenting styles and parenting practices are measured differently. For example, parenting practices tend to be measured by the content and frequency of specific strategies (Stevenson-Hinde, 1998). Conversely, parenting style measurements typically refer to the quality of the parent-child relationship (Stevenson-Hinde, 1998) such as the warmth, tone of voice, engagement, or body language involved (Darling &

Steinberg, 1993). In summary, measures of parenting practices include specifically *what parents do* whereas measures of parenting styles tend to entail *how parents do it* (i.e., with warmth, hostility; Locke & Printz, 2002). It may be difficult for parents to accurately identify the climate in which their parenting practices exist. Therefore, the extent to which self-reported parenting styles are reliable in predicting parenting practices in real-world contexts is unclear. However, researchers have identified that there is relatively little overlap in the sources of variance between self-reports and observations (Cairns & Green, 1979; Lakes & Hoyt, 2008), which suggests that styles and practices may not be that highly correlated.

More research is warranted that links parent-report measures to observational assessments in order to examine discrepancies between the two and to develop frameworks inclusive of both methods (Locke & Printz, 2002). This type of research has the potential to capture both parent-reported, trait-like style as well as dynamic processes of parenting practices. Including both methods provides the opportunity to better understand how parents' reports of who they are and what they do relate to what they actually do in a given context. This study utilized both observed and self-reported measures of parenting styles. In addition, parenting style typologies encompass several parenting practices, making it difficult to ascertain which are associated with specific outcomes, such as children's achievement (Lewis, 1981). It is beneficial, therefore, to examine specific parenting practices that are related to specific outcomes, although with careful consideration given to the unique contribution of parenting styles as well. In short, research is needed in order to identify how "Practice A, expressed through Style B, is associated with Outcome C" (Locke & Prinz, 2002, p. 897). Understanding specific parenting processes that promote school readiness can provide parents, educators, and interventionists with targeted methods to prepare children for the transition to formal schooling.

The intention of this study was to investigate the mechanisms by which parenting is associated with children's task performance and subsequent school readiness. Although the field is attending more often to evidence of an association between parenting styles and practices, most of the research to date has included primarily White, middle-class families. Researchers exploring this issue indeed found that low-income youth are less likely to be included in studies involving normative development (MacPhee, Kreutzer, & Fritz, 1994). Conversely, minority youth are more likely to be involved in research if the focus is on social problems (MacPhee et al., 1994). It is unclear whether the results of research using homogenous samples in studies of normative development, such as in studies of school readiness or parental promotive factors of academic achievement, are applicable across the population without including samples of low-income or minority families as well. In order for findings to be generalizable, the samples examined should be representative of the population at large, or additional research should be done representing diverse samples as well.

This study examined normative developmental processes involved in parenting and school readiness in a sample inclusive of low-income and minority families. Specifically, this study tested a model in which parenting style was examined as a moderator of the relation between specific practices that involve parental scaffolding during a task and children's school-related performance. Scaffolding is a process in which an experienced individual or adult guides a novice in achieving a goal or task that is beyond the child's unaided efforts (Wood, Bruner, & Ross, 1976). Although a *scaffold* is a temporary structure that supports a building during the construction process, metaphorically *scaffolding* is the process in which temporary support is provided to a learner until it is no longer required (Boblette, 2012). Though Darling and Steinberg (1993) published their ideas about how parenting styles interact with parenting

practices and children's outcomes over 20 years ago, these ideas have not been systematically tested. However, theoretical frameworks defining the processes of early parental socialization provided support for the current study.

Theoretical Basis

Social learning theory posits that novel behaviors can be acquired through direct experience such as didactic instruction or through observing other individuals' behavior (Bandura, 1971). Through observation, individuals make assumptions about which behavioral strategies are most likely to be successful (Bandura, 1971). Bandura (1971) suggested that effective models of behavior are selected and unsuccessful models are discarded. Furthermore, children model themselves after individuals they trust and admire (Bandura, 1971). Therefore, to the extent that responsive, warm parenting inclusive of reasoning results in children's reciprocity and compliance (Grusec, 2011), it can be inferred that children turn to their parents as models and internalize their behaviors, values, and socialization goals. From this theory, it can thus also be inferred that children who experience harsh or ineffective parenting styles may ignore or not internalize their parent's attempts at socialization during scaffolding practices, weakening the relation between the two. Conversely, children who experience supportive parenting styles may be more willing to accept their parent's scaffolding practices, resulting in a stronger relation between the two. In this regard, over time, parenting styles may modify parents' ability to socialize their children by altering the effectiveness of their practices and children's receptiveness to their guidance (Darling & Steinberg, 1993).

These ideas are consistent with a transactional model in which parents' behavior and children's behavior bidirectionally contribute to the socialization relationship. Transactional models examine development as a process, one in which an individual's behavior influences, and

is influenced by, their experiences and contextual environment (Sameroff & Mackenzie, 2003). Transactional models are examined in response to previous research that solely focused on developmental processes of individuals statically, or how an individual's developmental processes influenced another's, unidirectionally (Sigel & Park, 1987). By using a transactional model, researchers can capture how processes operate in tandem, bidirectionally over time. In this way, an outcome of interest such as children's school readiness could be studied as product of individual factors such as persistence, in-the-moment experiences such as parental scaffolding practices, and contextual experiences such as parental style. Therefore, in essence research utilizing transactional models attempts to find instances where children's behavior alters caregivers' responses, and their behavior is also changed by the caregiver (Sameroff & Mackenzie, 2003).

For example, research demonstrates that low-achieving children elicit intrusive-support parenting practices (Pomerantz & Eaton, 2001). In other words, mothers are more likely to utilize intrusive practices when their children are performing poorly in school than when they are performing well. The authors hypothesized that the underlying reasons are due, in part, to parental worry about their children's achievement and children's uncertainty about how to improve (Pomerantz & Eaton, 2001). This research supports the idea that examining parenting styles as related to children's achievement is not sufficient. There is a dynamic interplay between parenting practices and children's achievement outcomes, which takes place on a daily basis and is contingent on a variety of contextual factors.

Parenting Style as a Contextual Factor

An example of a contextual factor is parenting style. Darling and Steinberg (1993) proposed that parenting styles are best understood, conceptually, as part of the context that

moderates the influence of specific parenting practices on children. Using authoritative parenting as an example, the authors suggested that this context, where explanation, reasoning, and open communication are normative, creates a more effective climate for instructing children during academic tasks than does an authoritarian context of parenting. Thus, possibly the authoritative context is more conducive for parenting practices that are academically instructive than is an authoritarian context. In this way, the authors suggested that parenting style is an attribute of a parent and a characteristic of a child's environment (Darling & Steinberg, 1993). For example, a parent's embodiment of a specific parenting style could impact both the strategies that he or she uses in the socialization process as well as the child's responses to such strategies, subsequently altering the parent-child relationship.

In line with Darling and Steinberg's (1993) model, the current study hypothesized that parenting styles moderate the relation between parental scaffolding practices and children's task outcomes. Effective parenting practices may shift depending on the current context of the parent-child dyad (Grusec, 2011) such that, for example, in an unsafe context parents may utilize more controlling practices in an attempt to gain immediate compliance but in a safe context, parents may be able to utilize more reasoning and communicative practices to gain compliance. Children's compliance, through perceptions and acceptance of socialization practices, are contingent on a variety of factors as well (Grusec, 2011). Children need to believe that their parents are accepting, responsive, understanding, and supportive of their needs, and that their parents are not hostile or intrusive (Grusec, 2011). These traits of parents are aspects of parenting styles. Children's feelings towards parenting styles are critical in determining the meaning that children assign to specific parenting practices (Grusec, 2011). The same parenting practice can have very different affective connotations for children, and this influences their internalization of

the message (Mason, Walker-Barnes, Tu, Simons, & Martinez-Arree, 2004). It can thus be inferred that children's interpretation of their parents' attitudes and beliefs towards parenting alter their perception of the specific practices they employ.

Pathways of Parental Influence

Grusec and Goodnow (1994) developed a model to explain how children determine the appropriateness of parent discipline practices. The authors posited that there are two factors involved: accuracy of the perception of the message and acceptance or rejection of the message. Children's accuracy of perception depends on the clarity of what the parent says or does (Grusec & Goodnow, 1994). In terms of scaffolding practices, this would mean that children need to understand parents' verbal instructions in order to accurately appraise the message. Supporting a model of moderation, children's acceptance or rejections of parents' practices and messages are influenced in part by the level of warmth within the parent-child relationship (Grusec & Goodnow, 1994). Children thus appraise parenting practices differentially depending on the style of parenting they are used to.

Although Grusec and Goodnow's (1994) model involves parent disciplinary practices, the major assumptions of the model are applicable to parent scaffolding practices as well. Scaffolding requires children to understand parents' messages involving a task, and to subsequently determine whether their suggestions are appropriate in order to accept or reject them. Children may call on past perceptions of their parents' style (e.g., consistent, flexible, harsh, warm) in order to determine whether the scaffolding practice is legitimate. Grusec and Goodnow (1994) suggested that children's judgments of the appropriateness of their parent's practices varies based on children's developmental level, and that it may be less important to

investigate it in children younger than age 3. However, it can also be argued that understanding the development of this process is equally as important.

Findings from a sample of Head Start children found that stability and change in children's profiles of school readiness were predicted by both child and family factors (i.e., child age, maternal education, family make-up) as well as contextual factors including parenting style (McWayne, Hahs-Vaughn, Cheung, & Green Wright, 2010). For example, children with average academic achievement at school entry who had authoritarian, low-educated mothers were likely to remain in the average-achievement group or move into an at-risk group; having an authoritative mother did not predict change in group membership (McWayne et al., 2010). This work provides evidence that some parenting styles are contextual predictors of stability and change across time in children's school readiness and achievement; however, understanding the underlying mechanisms involved is critical. This is true especially for programs such as Head Start, which have the opportunity to intervene in order to better prepare children for school success (McWayne et al., 2010). The authors measured parenting styles through self-reported assessments, making it impossible to unveil the dynamic, real-time practices by which parenting predicts children's school readiness outcomes. Thus, additional work is necessary to explain the patterns of school readiness profiles elucidated (McWayne et al., 2010).

Much of the parenting literature examines associations between styles and children's outcomes, or practices and children's outcomes. With a clearer understanding of the processes involved in parenting styles and parenting practices, researchers could better identify key mechanisms of each and how they might interact to influence children's development. Without those key distinctions, however, there is little ability for empirical evidence to elucidate the conditions under which the same parenting style may contribute to children's development in

different ways (Darling & Steinberg, 1993). This contribution has been theorized to occur by transforming both the parent-child interactions as well as children's personality through their openness to socialization (Darling & Steinberg, 1993). Children's openness to socialization is an aspect of the parent-child relationship. Within this crucial socialization relationship, the organization of affect, cognitive processes, and behavioral skills necessary for positive school adaptation is attained (Bornstein, 1995). Broadly speaking, the extent to which a child is prepared for positive school adaptation at school entry is referred to as school readiness.

School Readiness and Parental Scaffolding

Researchers and practitioners have yet to agree upon one definition encompassing all domains of school readiness (Dotterer, Iruka, & Pungello, 2012). However, broadly speaking, school readiness is defined as “the state of child competencies at the time of school entry that are important for later success” (Snow, 2006, p. 9). More specifically, the field has identified several indicators of development that are predictive of successful navigation at school entry. Some of these indicators include emergent literacy and numeracy (Welsh, Nix, Blair, Bierman, & Nelson, 2010), executive functioning and emotion regulation (Blair, 2002; Liew, 2012; Sasser, Bierman, & Heinrichs, 2015), persistence (Berhenke, Miller, Brown, Seifer, & Dickstein, 2011), mastery motivation (Turner & Johnson, 2003; Walker & MacPhee, 2011), fine motor skills (Cameron et al., 2012), and physical health (Kull & Coley, 2015). Accordingly, the National Education Goals Panel (1995) developed five dimensions that encompass these indicators of school readiness: physical well-being and motor development, social and emotional development, approaches to learning, language development, and cognition and general knowledge. Multiple dimensions of school readiness (e.g., social competence, approaches to learning, and cognitive development) are interrelated and therefore development across these domains is seen as necessary for children

to successfully transition to a formal school setting (Hirsch-Pasek, Kochanoff, Newcombe, & de Villiers, 2005). Readiness is not only important for the first year of schooling, but successful navigation at school entry is also highly predictive of achievement across the first few years of formal education as well (Alexander & Entwisle, 1998; Cowen et al., 1996). Thus, determining how and when children develop competencies that promote school readiness is crucial.

One way children acquire such competencies is through a hierarchical process in which foundational skills are challenged by more complex tasks and evolve into new skills (Bruner, 1973). Children's acquisitions of new skills were once assumed to develop unassisted (Wood, Bruner, & Ross, 1976). However, through seminal work by Wood et al. (1976), the concept of scaffolding was introduced to explain an important way by which children learn new skills. Adults provide temporary support to children through varying levels of intervention (Wood & Middleton, 1975). The interaction should require children to add one additional operation or step to those that they are presently practicing. The region in which this intervention takes place is called *the region of sensitivity to instruction* (Wood & Middleton, 1975). The adult's role in this intervention is to provide support, within this region, contingent on the developmental level of the child. For example, after the child makes an error, the effective teacher provides more guidance through increased instruction (Conner, Knight, & Cross, 1997). Furthermore, after the child successfully completes the instruction, the adult must reduce control (Conner et al., 1997). Although he did not use the term in his work, the concept of scaffolding closely relates to Vygotsky's (1978) zone of proximal development (ZPD).

Theoretically, Vygotsky's (1978) ZPD corroborates the presuppositions of this study. The ZPD is "the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving

under adult guidance or in collaboration with a more capable peer” (Vygotsky, 1978, p. 86).

Vygotsky (1978) argued that parents are responsible for the socialization of their children; therefore, children learn competencies long before they even enter school. Thus, parents support children’s learning and school readiness by utilizing scaffolding techniques based on children’s current level of functioning within their ZPD (Pratt, Kerig, Cowan, & Cowan, 1988).

Parents’ scaffolding practices are related to a variety of dimensions of development set forth by the National Education Goals Panel (1995) as being linked with school readiness. The first dimension, physical well-being and motor development, has not yet been linked explicitly to parents’ scaffolding. For the second dimension, social and emotional development, scaffolding is associated with children’s social competence (Baker, Fenning, Crnic, Baker, & Blacher, 2007; Clark, Menna, & Manel, 2013; Lengua, Honorado, & Bush, 2007). Related to the third dimension, approaches to learning, scaffolding is associated with task persistence (Frodi, Bridges, & Grolnick, 1985; Maslin-Cole, Bretherton, & Morgan, 1993; Neitzel & Stright, 2003). The fourth dimension, language development, is related to children’s language and reading abilities (Dieterich, Assel, Swank, Smith, & Landry, 2006; Evans, Moretti, Shaw, & Fox, 2003). In the fifth dimension, cognition and general knowledge, scaffolding is associated with young children’s executive function (Hammond, Muller, Carpendale, Bibok, & Liebermann-Finestone, 2012; Landry, Miller-Loncar, Smith, & Swank, 2002), problem-solving skills (Conner & Cross, 2003), and cognitive abilities and academic achievement (Mulvaney, McCartney, Bub, & Marshall, 2006). As well, both mothers’ and fathers’ scaffolding, measured by their instruction within the region of sensitivity as well as by appropriately shifting support, is associated with children’s success on a task (Conner et al., 1997).

Specifically, the fourth dimension of the National Education Goals Panel's (1995) catalog of school readiness skills, approaches to learning, is comprised of processes related to emotion regulation, persistence, and attention/engagement (McWayne, Fantuzzo, & McDermott, 2004). Parenting practices related to scaffolding, such as parental engagement and guidance, are positively associated with both cognitive and behavioral outcomes in young children (Tramonte, Gauthier, & Willms, 2015). For example, maternal engagement has a protective effect for both inattention and aggression in children; for each 1-point increase (on a 10-point scale) in engagement, children's display of inattention problems decreases by 10% and children's display of aggression decreases by 6% (Tramonte, Gauthier, & Willms, 2015). These results not only indicate that parents' use of the scaffolding practices, but also the quality of the scaffolding practices, have an influence on children's achievement. Parental scaffolding appears to promote underlying processes in children (e.g., attention and emotion regulation) that are subsequently related to their academic achievement.

Attention control and emotion regulation are associated with school readiness (Blair, 2002), and these school readiness skills may have their origins in rearing practices or parenting styles. Scaffolding promotes emotion regulation during problem-solving activities, which allows children to focus and sustain their attention on other cognitive aspects of a task (Blair & Ursache, 2011). Children's persistence and engagement are widely referenced as trademarks of emotion regulation (Clark, Menna, & Manel, 2013). Children's academic competence, for example, has been demonstrated to be positively associated with emotion regulation (Graziano, Reavis, Keane, & Calkins, 2007; Raver, Garner, & Smith-Donald, 2007). An indicator of emotion regulation, persistence, is related to children's school readiness (Berhenke et al., 2011), and specifically math and language skills at school entry (Mokrova, O'Brien, Calkins, Leerkes, & Marcovitch,

2013). It can be inferred that children draw upon emotion-regulation skills to persist at and engage in tasks, and these skills are foundational for successfully transitioning to formal schooling. Therefore, findings that report early cognitive skills as being more important to later achievement (Duncan et al., 2007) may not necessarily be inaccurate, but rather the origins of school-entry cognitive skills might reside in early socio-emotional development.

These skills remain important for children's academic achievement. Findings from individual growth trajectory analyses reveal that children with better approaches to learning at school entry have academic achievement trajectories that grow at faster rates (Li-Grining, Votruba-Drzal, Maldonado-Carreño, & Haas, 2010). Specifically, for each point increase on approaches to learning skills, children experience a .38 point increase in math growth per month, as well as a .56 point increase in reading growth per month (Li-Grining et al., 2010). Effect sizes suggest that these are significant growth patterns, such that children with better approaches to learning as compared to those with lower approaches to learning score .56 standard deviations higher in math and .52 standard deviations higher in reading by the end of fifth grade (Li-Grining et al., 2010). In order for children to have better chances at high-achievement trajectories through middle school, it is important to better understand the processes involved in acquiring such skills. Although it is recognized that parental scaffolding is associated with children's emotion regulation, including persistence and engagement on problem-solving tasks, it less understood what role parenting style may play in this interaction as well.

Scaffolding and Parenting Style

Findings demonstrate that positive versus harsh parenting accounts for variance in contingent scaffolding practices beyond that of maternal education, which is a consistent confound of parenting practices (Carr & Pike, 2012). Additionally, harsh parenting style

accounts for unique variance in noncontingent scaffolding practices (Carr & Pike, 2012). Corroborating these results, findings demonstrate that authoritative parents are more likely to shift their support contingent on children's success during scaffolding processes than nonauthoritative parents, which is also associated with more success on the task outcomes for children (Pratt et al., 1988). Other research reveals that mothers who are high on authoritative parenting are more likely to utilize contingent scaffolding practices (Pratt et al., 1988). Together, these findings provide evidence that parenting styles are related to scaffolding practices, although it is not clear what the mediating mechanisms might be. For example, it is possible that responsive parents, which is one of the defining features of the authoritative parenting style, are more attuned to their children's behaviors as well as successes and failures (for a review, see Strand, 2000). Conversely, evocative effects might be implicated such that children who are more expressive provide more overt cues as to their feelings of frustration or pride in mastery, and also are more likely to engage parents in authoritative practices.

Carr and Pike's (2012) findings support a model of socialization consistent with that of Darling and Steinberg (1993). Their model contends that negativity within the parent-child relationship influences the parenting practices utilized during scaffolding interactions (Carr & Pike, 2012). Additionally, use of fixed failure feedback during scaffolding was more likely for parents who embody harsh parenting styles (Carr & Pike, 2012), with fixed failure feedback being manifest as noncontingent scaffolding practices that did not shift in response to repeated child failure. However, the design of the study limits the ability to make inferences about the direction of effects. Specifically, although parenting style was stable from time 1 to time 2, scaffolding was measured at only the last time point. For this reason, the authors were not able to discern cross-time interactions between the processes or how they interacted to predict children's

outcomes. The current study investigates the association between parenting style and parental scaffolding practices over time in relation to children's task outcomes and school readiness. Understanding how parenting style and practices interact longitudinally will inform interventionists of mechanisms that might be employed to promote children's school readiness and later achievement.

Parenting Style as a Moderator

In general, transactional models necessitate moderation analysis (Sameroff & Mackenzie, 2003). The likelihood for parenting style to act as a moderator of the relation between parenting practices and children's task outcomes is best understood when viewing parenting style as a contextual contributor to school readiness. To the best of the author's knowledge, this study is the first to empirically test this association specifically related to scaffolding practices. It should be recognized, though, that studies of adolescents support a moderation model such that the relation between parental involvement practices and school achievement is strongest for adolescents with authoritative parents (Paulson, Merchant, & Rothlisberg, 1998; Steinberg, Lamborn, Dornbusch, & Darling, 1992). To better understand the socialization process, additional research should examine the possibility for parenting styles to moderate the relation between parenting practices and achievement outcomes (Spera, 2005). Although limited and not specific to scaffolding or academic outcomes, the extant literature includes initial exploration of the association between specific parenting practices and young children's outcomes as well, by testing parenting styles as a moderator.

Schary, Cardinal, and Loprinzi (2012) investigated the extent to which parenting style moderates the relation between parental support and preschoolers' active play. Results did not indicate a moderating influence of parenting style. However, the authors noted that significant

limitations were use of a cross-sectional design as well a small sample that was self-selected and homogenous. Additionally, the outcome variable (children's active play behavior) was subjective, making it difficult to measure reliably. In a diverse sample of parent-child dyads, however, Hennessy et al. (2010) found that parenting style did moderate the association between parenting practices and child physical activity. Specifically, the permissive parenting style moderated the association between parental monitoring and child activity. It can be inferred that examining a more diverse sample might increase the amount of variation in parenting style, thus elucidating a moderating association.

In line with this idea, evidence suggests that in a high-risk population, maltreatment and harsh parenting styles moderated the association between parental intrusiveness and child negativity on task outcomes related to persistence (Kopecky, 2004). The author suggested that these findings imply that the unique demands of some tasks may cause rearing strategies to have differential effects on children's behavior (Kopecky, 2004). There is limited evidence of this kind supported by longitudinal methods; therefore, there is also a need for more research examining effects of scaffolding behaviors over time (Conner et al., 1997). This study proposes to test a model of parenting practices, parenting styles, and children's school readiness outcomes in a diverse sample. In contrast to the cross-sectional designs that have been used in most studies to date, the current study employed a longitudinal design in order to explore the possibility for the proposed model to predict school readiness, as well as stability and change of the association over time to identify critical time periods for intervention. Understanding how parenting styles are associated with the parent-child relationship during scaffolding interactions also has implications for a better conceptual understanding of contributors to school readiness. Because parental scaffolding and parenting styles are both related to academic achievement, it is

necessary to disentangle the interrelations between the two constructs in order to clarify how child rearing contributes to school readiness and, by identifying key mechanisms, guide family-based interventions to promote school readiness.

The Present Study

Using the Early Head Start Research and Evaluation Study (EHSRE) dataset, this study built upon the results from Martin, Ryan, and Brooks-Gunn (2013) by incorporating the main theoretical presuppositions proposed by Darling and Steinberg's (1993) model of parenting styles and practices. In addition this study incorporated emotion regulation as a socioemotional aspect of school readiness and analyzed ratings of persistence and scaffolding specific to a parent-child interaction task, rather than general ratings of persistence as was previously done (e.g., Martin et al., 2013). This study focused on how parenting styles moderate the association between parenting scaffolding practices and children's persistence. It was hypothesized that parenting styles moderate the relation between parenting scaffolding practices and children's persistence, which in turn was postulated to be associated with school-readiness variables, as partially demonstrated by Martin et al. (2013). Specifically, parents' use of positive scaffolding practices – as indicated by high parental sensitivity, high cognitive stimulation, and high positive regard during a parent-child task – would be positively correlated with children's persistence on a challenging task. I also hypothesized that these variables would be related to indicators of school readiness. Furthermore, testing Darling and Steinberg's (1993) model, I hypothesized that this relation, between parental scaffolding and children's persistence, would be moderated by parenting style, measured by observed indicators of parental warmth as well as self-reported indicators of values towards discipline, such that the correlation is weaker when parents have an authoritarian style as compared to an authoritative style.

CHAPTER II

METHOD

The Early Head Start Research and Evaluation Study (EHSRE) was an experimental study conducted in 17 Early Head Start centers within the first two years of the program. The project consisted of three stages: Birth to Three, Pre-K Follow-Up, and Elementary School Follow-Up. Participating families and children were enrolled in the study when children were 12 months old or younger. Children and parents completed assessments at 14, 24, and 36 months. Additional follow-up assessments were completed 5 months before the children entered kindergarten (EHSRE Study, 1996-2010).

Participants

Data were collected between 1996 and 2005 from a sample of low-income families and children enrolled in an evaluation of Early Head Start (EHS) (EHSRE Study, 1996-2010). The sample was comprised of demographically representative programs (See Tables 1-3). As part of a true experimental design, families ($N = 3001$) were randomly assigned to receive EHS program services or a control group. The control group was not able to enroll in Head Start services until the child was age 3 but the families were able to seek any other community services as they normally would.

Table 1
Child Race and Ethnicity Composition

Race/Ethnicity	Weighted Column Percent	Unweighted N
White	37.1	1,086
African American	34.7	1,014
Hispanic	23.7	692
Other	4.5	133
Total	100.0	2,925

Table 2
Welfare Status

Response	Weighted Column Percent	Unweighted <i>N</i>
No	46.7	1,323
Yes	53.3	1,512
Total	100.0	2,835

Table 3
Mother's Education

Response	Weighted Column Percent	Unweighted <i>N</i>
Less than high school	22.9	313
High school or GED	26.0	356
Some post-secondary, no degree	30.8	422
AA, BA, or higher	20.2	277
Total	100.0	1368

Procedure

Baseline data were collected when participating families applied for Early Head Start Services. Follow-up data were collected based on months since random assignment. Home visits took place with parents and children at 14, 24, and 36 months. Interactions between the mother-child dyads were videotaped and coded at each time point. For the experimental group, response rates for the video interactions were 66.5%, 62.2%, and 57.8% respectively. For the control group, the response rates were 65.2%, 57.5%, 52.7%. The children were given cognitive and behavioral assessments to measure their development. Six months before kindergarten, children were again observed on school readiness variables that measured vocabulary, literacy, and math skills (EHSRE Study, 1996-2010).

Measures

Parenting style. The Discipline Severity Index (DSI) provides parents with four scenarios that describe conflict situations (EHSRE Study, 1996-2010). The situations were that (a) the child keeps playing with breakable things, (b) the child refuses to eat, (c) the child throws a temper tantrum in public, and (d) the child hits the parent. The fourth scenario was only available at 36 months, but the first three were used at all three time points. Parents were asked

how they would respond and provided open-ended answers. In order to determine the degree of harshness of discipline strategies that parents suggested, the responses were coded on a 1 to 5 scale: Physical punishment received a 5; yell at the child but not use physical means received a 4; threaten the child received a 3; ignore the behavior or threaten loss of treat or time-out received a 2; and talking to the child, giving a time-out, or preventing the situation received a 1.

The Home Observation for Measurement of the Environment (HOME; Caldwell & Bradley, 1984, 2003) is a measure designed to assess cognitive stimulation and emotional support provided by the parent. It is assessed through a combination of observation and interview questions in the home with the focus child present. This study will use the *Emotional Response (Parental Warmth)* subscale, which has seven items that include parent's voice conveys positive feelings toward child or parent caresses or kisses child at least once. Items are coded as 0 (*no*) or 1 (*yes*). The alpha coefficients for total scores are all above .90 (Caldwell & Bradley, 1984).

Parental scaffolding. The three-bag assessment (Parent-Child Semistructured Play; Brady-Smith, O'Brien, Berlin, & Ware, 1999; Owen, Barefoot, Vaughn, Dominguez, & Ware, 1996; Ware et al., 1998) was adapted from coding scales utilized in the NICHD Study of Early Child Care (Owen et al., 1996) and the "Manual for Coding Freeplay - Parenting Styles from the Newark Observational Study of the Teenage Parent Demonstration" (Brooks-Gunn, Liaw, Michael, & Zamsky, 1992). The three-bag task measures parents' and children's behavior throughout semistructured play tasks (EHSRE Study, 1996-2010). Parents and children were provided with three bags of toys and were instructed to play with them in order. The task was videotaped and coded by trained child development researchers. Four features of parent behaviors were rated using a 7-point scale, from 1 (*very low incidence of behavior*) to 7 (*very high incidence of behavior*). For this study, scaffolding was measured by the supportiveness

scale, which averaged parental sensitivity, cognitive stimulation, and positive regard during the task with the child. *Sensitivity* includes behaviors that recognize children's affect, vocalizations, and activity. It also includes facilitating children's play, changing the tempo of the play in relation to children's stimulation level, and modeling developmentally appropriate expectations for the behavior. *Cognitive stimulation* includes utilizing the toys to promote learning, development, and achievement. *Positive regard* includes expressing positive affect by praising, smiling, or laughing with the child. In addition, positive regard shows empathy during children's distress. Child-level measurements were also assessed, but were not included in this study.

Alpha reliabilities were adequate across ethnic groups: Latina ($\alpha = .78$), African American ($\alpha = .83$), and White ($\alpha = .83$) (EHSRE Study, 1996-2010). As described in Martin et al. (2013), the coders achieved reliability with the lead coder, with a criterion established as 85% agreement within one point. As well, 15% of the coders' weekly assigned codes were randomly selected to be checked against the lead coder, again with an 85% agreement criterion. The coders averaged 90%, 93%, and 94% agreement at ages 1, 2, and 3, respectively.

Child persistence. The Parent-Child Puzzle Challenge Task (adapted from Brooks-Gunn et al., 1992) measures parent-child behavior during a puzzle completion task. Children were given a puzzle to play with and parents were told to provide the children with assistance as needed. After 3 minutes or successful completion of the task, the child was given a harder puzzle and the interviewer requested that the mother not help. If the puzzle was completed or 3 minutes passed, another harder puzzle was given. The puzzle task was videotaped. Behaviors were coded on a 7-point scale, from 1 (*low incidence of the behavior*) to 7 (*high incidence of the behavior*). Coders were trained child development researchers. Four features of the parents' behavior with and towards the children were rated but were not included in the analyses for this study. Of the

child-level variables that were derived from this task, the present study uses only the measure of *child persistence* which assessed the children's effort toward solving the puzzle, but not necessarily the success of the children's performance (EHSRE Study, 1996-2010).

School readiness indicators. The Peabody Picture Vocabulary Test, edition 3 (PPVT-III; Dunn & Dunn, 1997) assesses comprehension of spoken words in English for children and adults ages 2½ and older. Raw scores can be converted to standardized scores, adjusted for age, with a mean of 100 and standard deviation of 15 (EHSRE, 1996-2010). The child is provided with four pictures and is asked to point to the picture that matches the word that is spoken by the interviewer. The data from the PPVT-III analyzed in this study include those assessed at prekindergarten. Cronbach's alpha for Form A is .93 for 2½- and 3-year-old children, and for Form B is .93 for 2½ year olds and .92 for 3-year-old children. Validity coefficients for this measure range from $r = .82$ to $.92$ as compared to the Wechsler Intelligence Scale for Children—Third Edition Verbal, Performance, and Full Scale IQ scales.

The Woodcock-Johnson Psychoeducational Battery-Revised (Woodcock & Johnson, 1989) is an assessment used to test children's achievement in reading, mathematics, and written language. The assessment also examines children's knowledge and cognitive abilities such as short-term memory, visual processing, long-term retrieval, and others. It is an individually administered test. The test is separated into two sections: tests of cognitive abilities and tests of achievement. For this study, one subscale assessing mathematics skills (applied problems) was used. The applied problems questions required children use simple calculations and counting to solve math problems. This assessment has good reliability for the cognitive and knowledge clusters ($\alpha = \text{mid-.90s}$). When compared to other cognitive and knowledge tests, this assessment has good validity in relation to other measures of achievement ($r = .60-.70$).

On the Leiter-R Examiner Rating Scale (Roid & Miller, 1997) at prekindergarten, children were rated on their emotion regulation skills (Love, Chazan-Cohen, Raikes, & Brooks-Gunn, 2013). The scales evaluate children in eight domains: attention, organization and impulse control, activity level, sociability, energy and feelings, mood and regulation, anxiety, and sensory reactivity. Each item is rated on a 4-point scale, from 0 (*rarely/never occurred*) to 3 (*usually/always occurred*). The emotion regulation composite score was comprised of energy and feelings, mood and regulation, anxiety, and sensory reactivity subscales. In the EHS prekindergarten assessment, internal consistencies of the subscales and composites ranges from .81 on the sociability scale to .96 on the cognitive/social subscale. The internal consistencies of the emotion regulation composite was $\alpha = .93$ (Love et al., 2013).

Covariates

Demographics. Parents reported their education level, which was entered as highest grade completed; possible scores ranged from 1 (*less than high school*) to 4 (*associate's degree or higher*). Household income was assessed in terms of an income as a percent of the poverty line for families (EHSRE Study, 1996-2010).

Group status. Children were randomly assigned to either the comparison group (coded as 0) or experimental group (coded as 1), which received the Early Head Start services (EHSRE Study, 1996-2010).

Language of assessment. The PPVT and WJ Applied Problems assessments were available in English and Spanish. A new variable was created by assigning 1 (English) or 2 (Spanish) to illustrate whether scores were from the English or Spanish version. Then, the PPVT scores from the English and Spanish version scores were combined into a single new variable. The same was done with the applied problems scores. This is consistent with other evaluation

studies of preschoolers (e.g., Parrish & Howes, 2008; Wong, Cook, Barnett, & Jung, 2008). If children took both versions, the higher score of the two was used in analyses. For analytical purposes, only one of the language variables, the PPVT language variable, was used as the covariate in the model because it was correlated with applied problem-solving language, $r = .71$.

CHAPTER III
PLAN OF ANALYSIS

A conditional effect, or moderated-mediation, model was tested in order to examine hypothesis 1, that children's persistence mediates the association between parental scaffolding and indicators of school readiness, and hypothesis 2, that this association is moderated by parental style. The conceptual model is depicted in Figure 1.

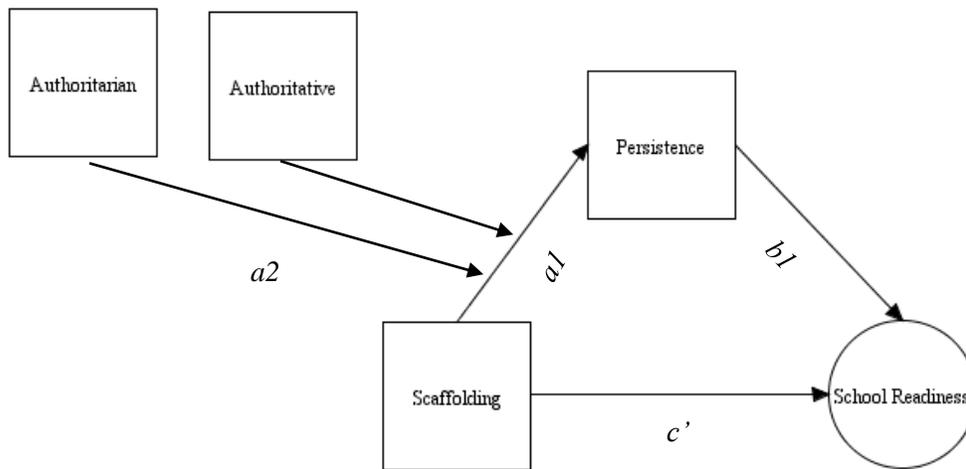


Figure 1. Conceptual model whereby paths $a1$ and $b1$ illustrate the mediational pathways, c' signifies the direct path from scaffolding to school readiness taking into account the mediational effects, and $a2$ denotes the two moderated pathways that are separately tested in model 1 and model 2.

Parental scaffolding and child persistence were measured at 14, 24, and 36 months during parent-child tasks. Parental scaffolding at 24 months is correlated with parental scaffolding at 36 months, $r = .52, p < .001$. In order to establish temporal precedence with the mediator (i.e., child persistence at 36 months), parental scaffolding at 24 months was defined as the predictor variable. Thus, the observed predictor was measured at Time 1, the observed mediator at Time 2,

and the latent dependent variable at Time 3, which follows the criteria of temporal precedence for testing mediational effects (Cole & Maxwell, 2003; MacKinnon, Fairchild, & Fritz, 2007). The latent variable was comprised of the PPVT language-combined composite, WJ applied problems language-combined composite, and children's emotion regulation as observed by the Leiter. Program type, maternal education level, family income-to- poverty ratio, and language of assessment for the PPVT were included in the model as covariates. The intercorrelations among the covariates and variables in the model are presented in Table 4.

Table 4

Correlations among covariates (variables 1-4), the predictor (5), the mediator (6), the moderators (7-8), and the outcomes (9-11).

	<i>M (SD)</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Mother's education	2.48 (1.06)											
2. Program status		.01										
3. Poverty ratio	60.67 (52.63)	.11**	-.02									
4. Language	1.09 (0.29)	-.67**	.00	.00								
5. Scaffolding	3.98 (1.02)	.24**	.07**	.16**	-.04							
6. Persistence	4.55 (1.16)	.16**	.01	.06*	-.02	.20**						
7. Authoritative	0.00(1.00)	.14**	.02	.08*	.02	.36**	.18**					
8. Authoritarian	0.00(1.00)	-.06**	-.04	-.10**	-.17**	-.22**	-.07*	.00				
9. PPVT Score	90.87 (16.18)	.29**	.04	.15**	-.13**	.34**	.29**	.24**	-.14**			
10. Applied Problems	88.30 (19.84)	.24**	.02	.11**	-.15**	.26**	.29**	.20**	-.10**	.65**		
11. Emotion regulation	91.13 (9.80)	.05	.02	.00	-.03	.11**	.19**	.14**	.05	.31**	.30**	

Note. AP Score = Applied Problems scale on the Woodcock-Johnson Psychoeducational Battery-Revised; PPVT Score = Peabody Picture Vocabulary Test; Program status = Early Head Start (1) or comparison (0) group; Language = child measures administered in English (1) or Spanish (2).

* $p < .05$. ** $p < .01$.

Parenting styles (authoritative and authoritarian) were determined by performing Principal Component Analysis with varimax rotation, using SPSS software. Parental warmth/emotional response at 14, 24, and 36 months loaded onto one component, labeled Authoritative, and parental discipline severity loaded onto a second component labeled Authoritarian. Thus, these two measures of parenting style reflect independent rearing styles that were somewhat consistent over the two years spanning child age 14 to 36 months. The stability coefficients for parental warmth ranged from $r = .28, p < .001$ (14 to 36 months) to $r = .41, p < .001$ (14 to 24 months), and the stability coefficients for discipline severity ranged from $r = .30, p < .001$ (14 to 36 months) to $r = .35, p < .001$ (14 to 24 months). The rotated component matrix is included in Table 5. For moderation analysis purposes, both the predictor and moderator were mean-centered before the interaction terms were calculated.

Table 5
Rotated Principal Component Factor Loading Matrix

Variables	Component 1	Component 2
14 Month Warmth	.708	-.122
24 Month Warmth	.810	-.067
36 Month Warmth	.708	-.093
14 Month Harsh	-.047	.727
24 Month Harsh	-.056	.778
36 Month Harsh	-.205	.728

The procedures for testing the models were performed according to recommendations by Preacher, Rucker, and Hayes (2007) using Mplus software, version 7.31. The Mplus program does not consider cases with missing data and uses listwise deletion for covariate or predictor variables when estimating a model (Muthén & Muthén, 1998-2015). However, when analyzing longitudinal data, attrition is expected. Previous researchers noted that there was modest attrition between the baseline sample and those families who participated at prekindergarten. The sample of families who participated at prekindergarten did not differ on characteristics related to mother's educational attainment, income level, or child age at enrollment, but the sample at

prekindergarten was somewhat less disadvantaged than the baseline sample (Love et al. 2013). The statistically significant differences were not large in effect size, and past researchers have concluded bias did not interfere with internal validity among the sample (Love et al. 2013). Thus, although data were missing for several covariates, the missingness was not problematic.

The models were estimated using a robust maximum likelihood estimation (MLR). MLR is generally preferable to multiple imputation (MI) for handling missing data, especially when advanced statistical software is available (Allison, 2012). Additionally, MLR provides maximum likelihood parameter estimates with standard errors that are robust to nonnormality. Another reason MLR was employed, therefore, was because some variables were skewed (e.g., authoritative style, income-to-poverty ratio). In this method, both standardized path coefficients and unstandardized path coefficients are estimated. In addition, a method for estimating bias-corrected bootstrapped confidence intervals was used (MacKinnon, 2008); this method provides accurate inferential tests for indirect effects. The conditional indirect effect depends on parenting style (supports moderated-mediation) if the interaction coefficient for the a_2 path is significantly different than zero, indicated by a significant t value. This procedure for assessing moderated-mediation is recommended by Preacher et al. (2007).

CHAPTER IV

RESULTS

Moderation by Authoritative Parenting Style

The first model examined the hypothesized conditional interaction effect of authoritative parenting. First, related to mediation, the path coefficients from school readiness to the predictor and the mediator were statistically significant, $B = 4.70$, $SE = .40$, $p < .001$, 95% bias-corrected (BC) bootstrapped confidence interval = 3.717 to 5.708; and $B = 3.90$, $SE = .44$, $p < .001$, 95% bias-corrected bootstrapped confidence interval = 2.817 to 5.075, respectively. The standardized results indicate that a one standard deviation unit increase in scaffolding and persistence were associated with .31 and .26 standard deviation increases in school readiness, respectively. The path coefficient from child persistence to parental scaffolding was also statistically significant, $B = .14$, $SE = .03$, $p < .001$, 95% BC bootstrapped confidence interval = .047 to .226. The standardized estimate indicated that a one standard deviation unit increase in scaffolding was associated with a .14 standard unit increase in children's persistence.

There were significant standardized indirect effects from scaffolding to school readiness through child persistence, $B = .54$, $t = 3.78$, $p < .001$, 95% BC bootstrapped confidence interval = .191 to .961. These results supported hypothesis 1: Child persistence partially mediated the association between scaffolding and school readiness. Because the c' path was significant even when adjusted for the mediating effect of children's persistence, $p < .001$, the effect of children's persistence did not fully mediate the association between the two.

Of the covariates entered, only mother's education was a significant predictor in this model, $B = .13$, $SE = .04$, $p = .001$, 95% BC bootstrapped confidence interval = .027 to .232.

With the covariates in the model, the main effect of authoritative parenting was not significant, $B = .01, p = .94$, nor was the interaction term (Scaffolding x Authoritative), $B = .04, p = .33$. The nonsignificant interaction term indicated that moderation was not supported by the data. Figure 2 presents the significant standardized path coefficients and for model 1. The nonsignificant covariates and the interaction effect were omitted from the figure for illustration purposes but were included in the analyses.

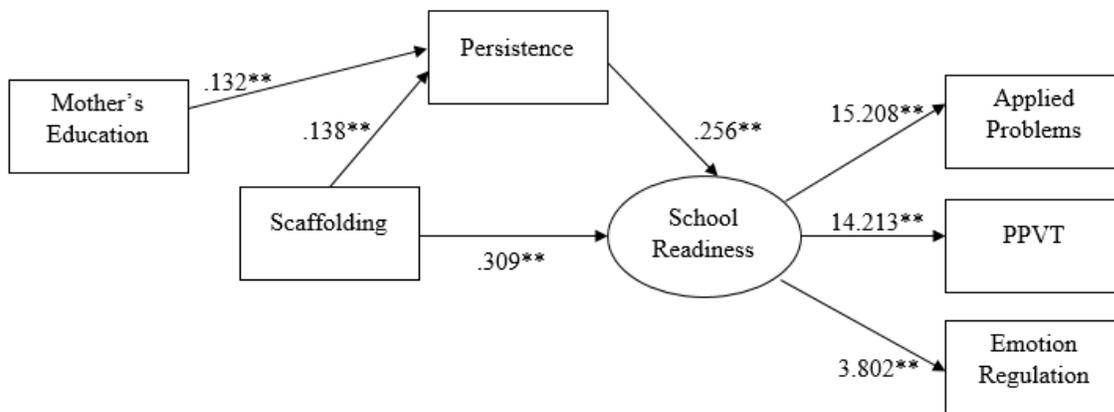


Figure 2. Significant path coefficients for a model testing moderated-mediation with authoritative parenting as a moderator.

Note ** = $p < .001, R^2 = .23$

This model accounted for 7% of the variance in persistence, 59% of the variance in applied problem-solving, 75% of the variance in PPVT scores, and 15% of the variance in emotion regulation. Overall, this model accounted for 23% of the variance in school readiness as a latent dependent variable comprised of applied problem-solving skills, PPVT scores, and emotion regulation.

The fit of model 1 was within acceptable ranges on the indices relevant for interpretation for this sample. A common test of fit is computed with chi-square tests. The χ^2 test examines whether or not there is a significant difference between the implied and observed covariance

matrices. The chi-square test of model fit was significant, $\chi^2 = 138.21$, $df = 22$, $p < .001$, indicating that the implied and observed covariance matrices were different. However, this is typical of models utilizing large sample sizes, in that chi-square tests are sensitive to sample size (Tabachnick & Fidell, 2007). Therefore, for this sample, the indexes that were interpreted were a test of absolute fit (the Root Mean Square Error of Approximation, RMSEA) and a test of comparative fit (CFI). The RMSEA of .04, 90% confidence interval = .036 to .049, indicated sufficient fit to the data; values less than .05 indicate good fit to the data (MacCallum, Browne, & Sugawara, 1996). The test of comparative fit was also acceptable, $CFI = .93$, with values between .90 and .95 indicating sufficient fit to the data, and those exceeding .95 indicating excellent fit (Hu & Bentler, 1999).

Moderation by Authoritarian Parenting Style

The second model examined the hypothesized conditional interaction effect of authoritarian parenting. The path coefficient from school readiness to the predictor, $B = 4.66$, $SE = .39$, $p < .001$, 95% BC bootstrapped confidence interval= 3.653 to 5.624, and the mediator, $B = 3.88$, $SE = .44$, $p < .001$, 95% BC bootstrapped confidence interval= 2.788 to 5.059, were statistically significant. The standardized results indicated that a one standard deviation unit increase in scaffolding and persistence was associated with .31 and .26 standard unit increase in school readiness, respectively. The path coefficient from child persistence to parental scaffolding was also statistically significant, $B = .18$, $SE = .03$, $p < .001$, 95% BC bootstrapped confidence interval= .095 to .264. The standardized results indicate that a one standard deviation unit increase in scaffolding was associated with a .18 standard unit increase in children's persistence.

There were still significant indirect effects from scaffolding to school readiness through child persistence, $B = .70$, $t = 4.87$, $p < .001$, 95% BC bootstrapped confidence interval= .378 to 1.119. Thus hypothesis 1, that child persistence partially mediates the association between scaffolding and school readiness was still supported. Of the covariates entered, again only mother's education was a significant predictor in this model, $B = .14$, $SE = .04$, $p = .001$, 95% BC bootstrapped confidence interval= .035 to .240. Neither the effect of authoritarian parenting, $B = .05$, $SE = .15$, $p = .75$, nor the interaction term (Scaffolding x Authoritarian), $B = -.02$, $SE = .04$, $p = .65$, were significant. Therefore, moderated-mediation was not supported for model 2 either. Figure 3 presents the significant standardized path coefficients for model 2. As noted above, the nonsignificant covariates and the interaction effect were omitted from the figure for illustration purposes but were included in the analyses.

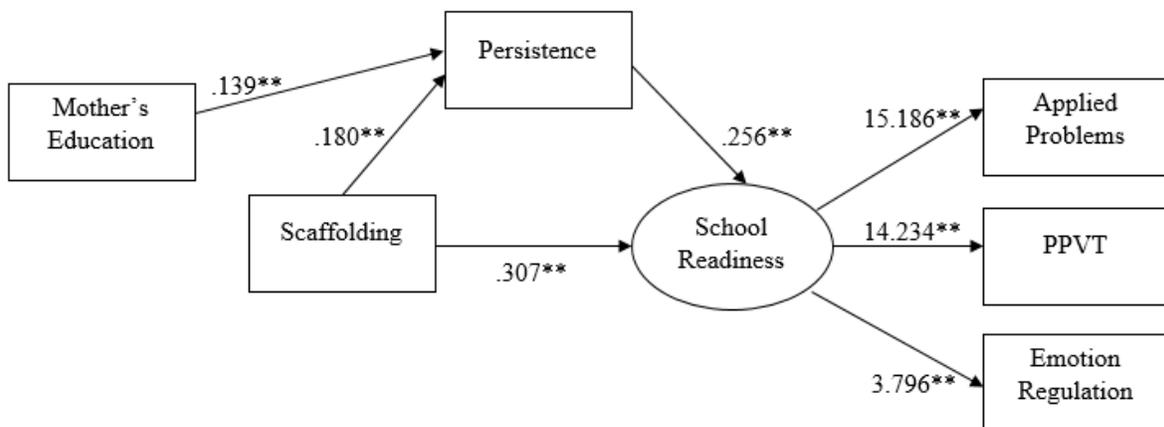


Figure 3. Significant Path Coefficients for a Model Testing Moderated-Mediation with Authoritarian Parenting as a Moderator.

Note ** = $p < .001$, $R^2 = .22$

This model accounted for 5% of the variance in persistence, 58% of the variance in applied problem-solving, 75% of the variance in PPVT scores, and 15% of the variance in emotion regulation. Overall, this model accounted for 22% of the variance in school readiness as

a latent dependent variable comprised of applied problem-solving skills, PPVT scores, and emotion regulation.

The fit of model 2 was similar to model 1. The chi-square was still significant, $\chi^2 = 141.60$, $df = 22$, $p < .001$. The RMSEA of .04, 90% confidence interval = .036 to .050, indicated sufficient fit to the data. The test of comparative fit was acceptable as well, CFI = .93.

CHAPTER V

DISCUSSION

Early childhood is a time when children develop critical skills that prepare them for school entry. Although there is an extensive literature suggesting parental rearing practices and styles play important roles in promoting skills that support children's school readiness, less is known about how broad, contextual parenting styles interact with in-the-moment child-rearing practices. Thus, one goal of the current study was to empirically test a model distinguishing between styles and practices. Parental styles and practices are typically measured in different ways, which can present methodological concerns; however, this study included both observed and self-reported measures of parenting style and practices.

An additional goal of this study was to determine how "Practice A expressed through Style B is associated with Outcome C" (Locke & Prinz, 2002, p. 897) by empirically testing Darling and Steinberg's (1993) model of parenting that conceptualizes parenting style as a contextual moderator of the association between specific parenting practices and child outcomes. Scaffolding was chosen as the parenting practice of interest because it often is associated with indicators of children's school readiness (Baker et al., 2007; Clark, Menna, & Manel, 2013; Dieterich et al., 2006; Hammond et al., 2012; Conner & Cross, 2003; Mulvaney et al., 2006; Neitzel & Stright, 2003). The association between scaffolding and children's school readiness was theorized to be mediated by children's persistence, which has been found to be a predictor of emotion regulation (Berhenke et al., 2011) as well as math and language skills at school entry (Mokrova et al., 2013). In previous studies, parental scaffolding skills have been found to vary as a function of parenting style (Carr & Pike, 2012; Pratt, Kerig, Cowan, & Cowan, 1988). Thus,

testing whether the link between parental scaffolding and children's persistence is moderated by style could reveal whether this pathway, which promotes school readiness, is stronger for children and parents of one style, but not for children and parents of another.

Children's Persistence Mediates Scaffolding's Association with School Readiness

Informed by social learning theory (Bandura, 1971), Vygotsky's (1978) ZPD, and theory proposing that children's openness to socialization is dependent upon perceived parenting style (Grusec & Goodnow, 1994), this study tested the hypothesis that children's persistence mediates the relation between parental scaffolding and school readiness. The data did support the conclusion that children's persistence partially mediated the link between parental scaffolding and school readiness, which is consistent with findings from previous research on this topic (NICHD, 2003; Martin et al., 2013).

Specifically, the mediational findings indicate that maternal scaffolding promotes children's school readiness, and that children's persistence partially accounts for that association. As such, these findings support the idea that persistence can be modified by supportive scaffolding. In the past, it has been found that higher social status mothers provide better scaffolding, and thus have a greater impact on their children's persistence, as compared to mothers of lower social status (Mokrova, O'Brien, Calkins, Leerkes, & Marcovitch, 2012). Even within an exclusively low-income sample, as in the current sample, the combined contribution of mothers' scaffolding, education level, and children's persistence is substantial, accounting for 23% of the variance in school readiness. Considering that such a large amount of the variance in indicators of school readiness was explained by this model, scaffolding could be considered a practice that is also influential in low-income families, and one that can promote school readiness.

Past research has examined persistence as a trait-like, stable feature of children (Banerjee & Tamis-LeMonda, 2007; Palisin, 1986). However, recent longitudinal research with monozygotic and dizygotic twins indicated that although much of the stability in task persistence was found to be related to genetic influences, change in task persistence was accounted for by nonshared environmental factors (Deater-Deckard, Petrill, Thompson, & DeThorne, 2006). For example, within each genetically identical twin pair, the child who was shown more warmth, support, and constructive guidance (scaffolding) during dyadic tasks was more likely to show growth, or reduced decline, in task persistence as compared to the other child (Deater-Deckard et al., 2006). Thus, taken together with the findings from the current study, interventions supporting scaffolding skills in parents and persistence skills in children might be a viable option for capitalizing on changes in persistence during early childhood. It would be important, though, for future research to study this pattern longitudinally to better understand if there are critical time points for which change in persistence by improved scaffolding is most attainable.

Parental Style as a Moderating Variable in Predicting School Readiness

Although the current study did support the idea that parental scaffolding can promote children's persistence and school readiness, I also examined whether the association between scaffolding and children's persistence was moderated by parental style. Specifically, does parental style moderate the association between scaffolding and persistence within the mediational model? In this study, parental style was conceptualized as a contextual factor, one that is not goal directed as is parental scaffolding. Social learning theory suggests that children reject models of social behavior that are inconsistent or harsh, and select models of social behavior from those they trust and admire (Bandura, 1971). This inference from social learning theory was the basis for the second hypothesis, that the association between parental scaffolding

and children's persistence is moderated by parental style (authoritative and authoritarian). The association between scaffolding and children's persistence was expected to be stronger for children who experienced higher levels of authoritative parenting. Conversely, the link was hypothesized to be weaker for children who experienced higher levels of authoritarian parenting.

Moderation was not supported for either model. Though, previous research on this topic may provide partial explanation for this nonsignificant finding. In a model examining social status and parental scaffolding, Mokrova et al. (2012) assessed dimensions of scaffolding, emotional support, and cognitive stimulation, separately. Their decision to separate the dimensions of scaffolding was based in part on theory by Grusek and Davidov (2010), which suggests that even within the parenting practice, each dimension serves separate goals. However, the current study was limited to examining scaffolding as a composite of cognitive stimulation and support. Based on the findings from Mokrova et al. (2012) and Grusek and Davidov's (2012) theory, it is possible that parental style moderates the link between cognitively stimulating aspects of scaffolding, which provide information and feedback, and children's persistence. Thus, in order to further distinguish between goal-directed scaffolding and measures of contextual parental styles, the current study could be improved by also distinguishing between dimensions of scaffolding

Limitations

One strength of this study is that it was based on a sample of low-income families and thus provides insights into the normative development of low-income children, who often are underrepresented in the extant literature (MacPhee et al., 1994). Although the sample size was large and provided adequate power to test a complex, moderated-mediation model, the sample was homogeneous in that it was comprised solely of families who were eligible for Early Head

Start and Head Start services (Love et al., 2013). In largely homogeneous samples such as this, restricted range is problematic because obtained correlations are smaller than in samples with more variability (Stoolmiller, 1999) and thus acts as a source of error in the parameter estimates (Beatty, Barratt, Berry, & Sackett, 2014). Range restriction represents the effect of selection on a sample, causing the sample to differ from the population (Beatty et al., 2014). Indeed, range restriction was evident for the parenting style measures in that there was a limited range in reported and observed scores. For example, scores on parental warmth at 36 months ranged from 0 to 3, despite the maximum score being 7. Thus, a limitation of this study was the homogeneity of participants within the sample. Future work could test the hypothesized models using a more representative sample, in order to examine whether range restriction weakened the correlations among the moderator and predictor variables.

Aside from the restricted-range of the moderating variables, another reason for the nonsignificant moderation finding could be attributed to the limited stability, across time, of the indicators of each parenting style. Thus, it could be that parents are still developing their parenting style early in their child's life, and it does not stabilize until their child is at least 36 months or older. This idea aligns with Grusec and Goodnow's (1994) theory suggesting that the moderating association of parental style is less important to study in children younger than 36 months.

Finally, although theory suggests that the association between scaffolding and persistence may be transactional, the current study did not measure child task persistence, as related to parental scaffolding, at earlier time points and therefore could not empirically test a transactional model. Darling and Steinberg (1993) speculated that parental styles might alter parents' ability to socialize their children, first by altering the effectiveness of their practices, and second by

influencing their children's receptiveness. In this way, the children's receptiveness also influences parental practices. Banerjee and Tamis-LeMonda (2007) assessed parental scaffolding practices and persistence among low-income children and found that infant persistence at 6 months was significantly associated with maternal scaffolding practices at 14 months, and scaffolding at 6 months was significantly associated with persistence at 14 months. Therefore, in order to better understand at what point to intervene with low-income families to promote scaffolding and children's persistence, more research is necessary to determine the extent to which findings from the current study are also transactional.

Practical Implications

There are achievement gaps between low-income and middle-income families that are already evident at school entry (Ryan, Fauth, & Brooks-Gunn, 2006). Furthermore, achievement as early as kindergarten has been found to remain stable across the first few years of children's education (Alexander & Entwisle, 1998; Cowen et al., 1996). Therefore, determining practical ways to promote school readiness, especially within the home environment of low-income families, is of great interest to educators, policymakers, and families alike. There are a number of practical implications that stem from the current study.

First, this study controlled for the effects of participating in Early Head Start (EHS) as compared to not participating in EHS. Thus, the findings were not statistically attributable to the type of out-of-home services that the children received. Therefore, even across low-income families who did not participate in EHS, persistence was found to mediate the association between scaffolding and school readiness indicators. This study did not compare the mediated relationship across families who participated in EHS versus those who did not. However, it would be an important distinction for future research to examine. Do parents who participate in

EHS services provide better scaffolding, and in turn have children with greater persistence than families who do not? If so, other early childhood programs or home-based intervention programs might also provide support for parents in their role as their child's first teacher, namely in providing education about effective scaffolding practices. Effective scaffolding practices are those that provide support contingent upon the developmental level of a child, and those that continually readjust to meet the child's individual needs as he or she gains independence (Wood & Middleton, 1975).

Second, the findings from this study demonstrate that persistence predicts performance on assessments related to applied problem-solving, vocabulary skills, and emotion regulation. These skills are indicators of school readiness and are therefore useful throughout early education. Thus, it may also be beneficial to promote children's persistence in academic settings, in addition to the home environment. In this way, the scaffolding children receive at home can be complemented by the support they receive at daycare and school as well. One way children's persistence at challenging tasks is impacted in the classroom is through the type of praise children receive. Past research has indicated that children who are praised for intelligence, as compared to effort, are less persistent following failure and perform worse on tasks (Mueller & Dweck, 1998; Zentall & Morris, 2010). Specifically, consistent task-specific praise such as "you did a good job reading," as compared to nontask-specific praise such as "you're a good reader" is associated with greater persistence in young children (Zentall & Morris, 2010). In the classroom, there are variety of levels of support that a teacher can provide as part of scaffolding. For example, support might range from a teacher modelling the task on his or her own inclusive of verbal instruction, to providing specific verbal cues or reminders of the next step as the child completes the task on his or her own, to providing general cues or questions about the child's

next step as he or she works through a problem (Beed, Hawkins, & Roller, 1991). Consistent, nongeneric praise accompanied by this type of contingent scaffolding in the classroom, in conjunction with scaffolding support at home, could provide children with the support they need to be persistent learners by school entry.

Third, along with maternal scaffolding, maternal education was also a significant predictor in the model. This finding suggests that another, unmeasured variable, related to maternal education and scaffolding, might also contribute to children's persistence. For example, maternal values related self-direction have been associated with children's persistence through maternal scaffolding (Mokrova et al., 2012). Additionally, Mokrova et al. (2012) found that mothers of any social status who valued self-direction were more supportive during their children's experiences with challenging tasks. These findings suggest that future studies should examine maternal values of self-direction as a predictor of scaffolding and children's persistence, in relation to school readiness. If supported, programs targeting maternal scaffolding practices might also include, or be cognizant of, the role that maternal values might also play in scaffolding their children through challenging tasks.

CHAPTER VI

CONCLUSION

The findings from this study provide evidence for the role that parents have in their children's school readiness. Maternal scaffolding, maternal education, and children's persistence accounted for substantial variance in school readiness. Although the results support previous findings on the implications of parental scaffolding, this study is unique in several ways. First, although studies have examined scaffolding and persistence in relation to children's outcomes, few have included both cognitive and socio-emotional school readiness components. Second, this study examined normative development in a large, nationally representative sample of low-income families. Although the data did not support the hypothesis that parenting style moderates the association between scaffolding and persistence, the models were grounded in theory, suggesting perhaps that with a more diverse sample of children 3 years of age or older, moderation by parental style might be obtained. Overall, the results support a socialization model, whereby parental scaffolding during tasks is related to children's perseverance to complete a task, even when the task becomes challenging. As such, this process is also related to children's later success in the school setting. Therefore, interventions to support parents in their role as their children's first teachers may be a viable method toward promoting school readiness.

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