

AN ABSTRACT OF THE THESIS OF

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Recent research has examined complex relationships between parent and child characteristics and the development of children's social-emotional competencies. The over-arching objective of the current study was to compare differential patterns of predictability between the individual social-emotional competencies of cooperation, responsibility, and independence, and a social-emotional competency composite, to parental warmth and child temperament. Thus, this study examined direct and interactive effects of parental warmth, and children's effortful control as they predict children's general social-emotional competency as well three specific social-emotional competencies -- cooperation, responsibility, and independence -- in a diverse sample of four year-old children. Results found that parent and child characteristics most strongly predicted the social-emotional competency composite variable, supporting this construct in future research.

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Parental Warmth and Children's Effortful Control: Predictors of Social-
Emotional Competency

by
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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

Amy K. Murray, Author

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For Auntie Billie,
who would understand...

Parental Warmth and Child Temperament: Predictors of Social-Emotional Competency

Introduction

In what has become a nearly universal rite of passage, most children in America begin formal schooling at the age of five. Many of those children attend some type of preschool program prior to kindergarten entry. Heightened political and media attention has focused on the responsibility of these preschool programs to ensure that their young graduates are academically prepared for kindergarten. Unfortunately, this focus on academic skills in the very early years neglects the development of critical social-emotional competencies that provide a vital framework for academic success.

The importance of social-emotional competency is well-established in research. In his introduction to *Child Development's* symposium on social competence, Rubin (1983), pointed to the predictive value of young children's social competencies to academic success and psychological adaptation. More recently, Eisenberg, et al., (1997) found that young children's social behavior in preschool was predictive of social behavior once the children reached school age. Specifically, young children who failed to develop strong social-emotional skills were at higher risk for externalizing and internalizing behavior problems in late childhood and adolescence (Eisenberg et al., 1997). Subsequent studies have shown that this holds true for both positive and negative behavior

patterns: pro-social behavior in preschool has been found to predict social competency through elementary school (Eisenberg, et al, 1999), and aggressive or withdrawn behavior in preschool is predictive of continued patterns of aggression throughout childhood and adolescence (Howes & Phillipsen, 1998). Children with patterns of aggressive behavior form fewer peer friendships, and are more likely to be rejected by peers (Raver, 2002), and kindergarten teachers have been found to provide less positive feedback to disruptive children than to cooperative children (Arnold, McWilliams, & Arnold., 1998).

Upon school entry, the quality of children's relationships with both peers and teachers can become either a liability or a resource as students navigate the school system. Although the potential benefits of strong social-emotional competency – and the corresponding risk for children with poor social-emotional competency – are well-established, a significant portion of children continue to enter public schooling without these importance skills (Blair, 2002). Research has found that preschool children who do not acquire these basic social skills have difficulty navigating the transition into kindergarten (Blair, 2002; Ladd, Birch, & Buhs, 1999), and are at increased risk for academic difficulties (McClelland, Acock & Morrison, 2006.) In order to be academically competent during their school careers, children need to be socially competent before they enter formal schooling. Research by Eisenberg and Fabes (1990), and Howes and Phillipsen (1998) underlines the importance of understanding the sources and influences on children's social development

once they are in school, as well as the factors that influence social-emotional competency prior to school entry. In light of this, the current study explored two important predictors of children's trajectories: parents, and children themselves.

Theoretical perspective

Bronfenbrenner and Morris's (1998) bioecological model provides a sturdy theoretical foundation from which early influences on social-emotional competency can be considered. In the bioecological model, development occurs in a context constructed of multiple nested layers of environmental influences, at the center of which is the developing child. The current study focused on events occurring at the most immediate level of development – the microsystem. (Bronfenbrenner & Morris, 1998). Development within the microsystem occurs through what Bronfenbrenner and Morris identify as *proximal processes*: exchanges between individuals and the environment which form the primary building blocks of development. The first defining characteristic of proximal process requires that the developing person engage in an activity. In the current study, this activity consisted of interactions between parent and child, which formed the basis for the measurement of parental warmth.

A second defining characteristic of proximal process stipulates that the activity in question must take place repeatedly over time. Barring situations of extreme neglect, the act of parenting, by definition, involves repeated and

sustained interaction between parent and child. A third defining characteristic of proximal process is that the activity must increase in complexity over time (1998). Although the design of the current study did not capture such an evolution in the interactions between parent and child across time, previous research has found that the nature of these interactions does increase in complexity over time, both as a function of increasing child maturity, and as a function of parents' adaptation to individual characteristics of their children (Scott & Hill, 2001).

A third and final defining characteristic of proximal process is that proximal processes are bi-directional (Bronfenbrenner & Morris, 1998). The model presented in the current research rests on the premise that children and parents affect one another, and this is supported by current literature (Scott & Hill, 2001, Rubin, Nelson, & Hastings, 1999). The current study allowed for these complex relations by focusing on possible moderator effects between parent and child characteristics.

Definitions of social-emotional competency

An initial challenge in considering social-emotional competency as a child outcome lies in establishing a clear definition for this widely-used, but inconsistently defined concept. Although there is ample literature addressing social-emotional competency, researchers vary widely in how social-emotional competency is conceptualized, measured, and labeled. The terms "social-emotional competency," "social competence," and "prosocial behavior" are

used to describe outcomes that may be inconsistent with one another. Blair, Denham, Kochanoff, and Whipple (2004) used *prosocial behavior* to describe the frequency with which a child displayed positive, thoughtful, and considerate behavior with peers. Diener and Kim (2003) assigned a slightly different definition to the same term, defining prosocial behavior as the degree to which a child was helpful and cooperative with others. Eisenberg et al. (1997) used *social competence* to describe a construct composed of a child's popularity with peers, the degree to which a child was well-behaved in class, and how easily a child made friends. In contrast, Landry, Smith, and Swank (2003), used *social competence* to describe a child's ability to initiate interactions with others using oral language. This lack of a clear definition weakens the practical implications of existing research, and raises questions about how to best improve children's long-term outcomes.

A lone exception can be found in this inconsistent vocabulary: whether labeled as social-emotional competency, prosocial behavior, or social skills, most research has considered social-emotional competency as a composite variable, made up of varying combinations of skills and behaviors. This conceptualization of social-emotional competency further complicates efforts to understand children's trajectories, by using similar labels to identify differing skills and behaviors.

The current study aimed to clarify this area of research by examining parent and child characteristics as they predicted the individual social-

emotional competencies of cooperation, responsibility, and independence, and comparing these predictive patterns to those found for a social-emotional competency composite. Recent research has linked these three specific skills to long-term social competency and academic success (i.e. McClelland, Cameron, Wanless & Murray, 2006).

Cooperation

Many studies addressing children's social-emotional competence use the terms *prosocial behavior* or *social competency* to describe outcomes that can be more specifically identified as cooperation (e.g. Eisenberg, Fabes, Guthrie, & Reiser, 2000; Diener & Kim, 2003). Cooperation refers to working and playing well with other children, following directions, and sharing toys and materials (Gresham & Elliott, 1990). Higher levels of cooperation are correlated with better behavioral self-regulation in both preschool (Diener & Kim, 2003) and the first three years of formal school (Eisenberg et al., 2000). Moreover, a recent study found that cooperation may be particularly important for boys: Doctoroff, Greer, and Arnold (2005) found that cooperation directly predicted early literacy skills for boys in a sample of preschool-aged children (mean age 4½ years). However, this same relation did not hold true for girls. Although academic outcomes are not the focus of the current study, Doctoroff et al.'s findings suggested that gender is an important factor to include when examining relations between social-emotional competence and literacy outcomes.

Responsibility

A second key aspect of social-emotional competency is responsibility. Responsibility refers to a child's selection of an appropriate workspace, choice and organization of materials, and successful task completion (Bronson, 2000). McWayne, Fantuzzo, and McDermott (2004) found that children with low levels of independence and responsibility, and high levels of classroom behavior problems, scored lower on measures of academic achievement than children who had similar levels of behavior problems, but higher levels of independence and responsibility.

Independence

The third component of social-emotional competence considered in the current study was independence. In addition to being able to interact appropriately with others, children also need to be able to work on their own, and to direct their own activities, even in the midst of a busy classroom environment. Independence refers to a child's ability to begin a task according to instructions, and problem-solve alone before asking for help (Bronson, 2000). Ladd and colleagues (1999) found that children who functioned more independently in the classroom had significantly higher rates of peer acceptance, and also had higher ratings on teacher-child relationship quality. Moreover, independence (which was part of a classroom participation composite) predicted early academic achievement.

Taken together, these components of social-emotional competence

demonstrate the importance of specific social-emotional competencies in social contexts such as a classroom environment. Although distinct from one another, the components of social-emotional competence (cooperation, responsibility, and independence) are clearly related, and in some cases are measured together in varying combinations (i.e. McWayne et al. 2004). The common practice of creating composite variables capturing multiple aspects of children's social-emotional competency relies on convergent validity, which is the degree to which various components of a construct agree or are consistent with one another (Bryant, 2000). In contrast, discriminant validity measures the degree to which different components are distinct from one another. The current study deconstructed a social-emotional competency composite variable consisting of children's cooperation, responsibility, and independence, and compared predictive patterns for these three individual components (discriminant validity) with predictive patterns for the social-emotional competency composite (convergent validity). This comparison was done using characteristics of children and parents that have been linked to children's social-emotional development.

Literature Review

Parenting and Social-emotional Competencies

Much of the current research regarding relationships between parent characteristics and children's social-emotional development has examined problematic behavior as an outcome. In a sample of children in middle childhood (mean age 9.9 years), Lengua and Kovacs (2005) found that child-reported levels of parental acceptance at age nine negatively predicted children's internalizing behavior problems approximately one year later. In a study examining externalizing problems (aggressiveness, dishonesty, uncooperativeness), Eisenberg et al., (2005) found that parental warmth negatively predicted behavior problems in a sample of children aged 7-12 years. This negative relationship between parental warmth and externalizing behavior problems held true for the same sample four years later. Although both Lengua & Kovacs's (2005) and Eisenberg et al.'s (2005) studies support the importance of exploring the role parents play in children's social-emotional development, they measured negative behaviors as an outcome, whereas the current study measured children's positive, prosocial behaviors.

Studies including children's positive outcomes provide additional support for the importance of parental warmth. Kelly, Morrisset, Barnard, Hammond, and Booth, (1996), reported on the effect of mother-child interaction on cognitive/linguistic outcomes for preschoolers identified as being at high social risk. Children whose mothers were positive and sensitive

during infancy scored higher on a language measure at 36 months than did infants of more negative and/or insensitive mothers. Hann, Osofsky, and Culp, (1996) found similar results in a study focusing on relationships between adolescent mothers and their young children, where the quality of mother-child interaction (measured by both warmth and verbal reciprocity) predicted cognitive linguistic competencies at age three. Both of these examples illustrate the important role played by parents in determining children's trajectories.

In literature using comparable outcomes to the current study (children's cooperation, responsibility, and independence), there is considerable support for parental warmth as an important predictor. For example, Assel, et al., (2002) found that maternal warm responsiveness at age three significantly predicted children's levels of social initiating (an element of cooperation) at age four in a sample of high-risk preschoolers and their female caregivers. Overall, these studies suggest that parental warmth is an important predictor of children's outcomes, both immediate and in the long term.

Child Temperament and Social-emotional Competencies

The current study focused on the effortful control dimension of temperament, as measured by the short form of the Children's Behavior Questionnaire (Putnam and Rothbart, 2004). Effortful control is best defined as children's ability to repress an initial response to produce a more socially appropriate response (Rothbart & Bates, 1998). In the current study, effortful

control functioned as a dimension of temperament, and measured behaviors such as attentional focusing and inhibitory control and preferences and such as low intensity pleasure and perceptual sensitivity.

Higher levels of effortful control have been consistently linked to lower levels of behavior problems in children of varying ages and backgrounds. In a longitudinal study spanning five years, Eisenberg, et al (2005), found that levels of effortful control at time 2 (age 7-12 years) were negatively correlated to children's externalizing behavior problems at all time points. Furthermore, earlier levels of effortful control were more strongly correlated to future levels of externalizing problems than were concurrent levels of effortful control. In other words, externalizing problems at age 14 were more strongly correlated to effortful control at age seven than to effortful control at age 14. These findings suggest that earlier strong levels of effortful control have positive lasting effects on children's social development.

The current study focused on three specific social-emotional competencies: cooperation, responsibility, and independence. Although there is little research examining relations between temperament and these skills separately, current literature has strongly and consistently linked effortful control to children's cooperation when it is considered as part of a social-emotional competency composite. For example, Eisenberg, et al (2005) found that effortful control positively predicted children's prosocial and cooperative behavior at ages 7-14. Other recent research (Murray, Sektnan, & McClelland,

2006) found that effortful control significantly and positively predicted children's cooperation and responsibility, and found a trend for effortful control to predict independence. The present study looked more closely at how children's effortful control was significantly related to these aspects of social-emotional competency, as compared to a social-emotional competency composite variable. The underlying aim of this comparison was to explore the usefulness and accuracy of such a social-emotional competency composite variable in studies of children's social development.

Complex Relationships between Parenting, Temperament, and Social-Emotional Competency

Current literature has delved into the complex combinations of parent and child characteristics that influence the development of social-emotional competency. Using a sample of children aged 24-56 months, Diener and Kim (2004) examined numerous child and parent factors as predictors of prosocial behavior, defined as a child's level of helpful and cooperative behavior with peers. Controlling for child age and gender, a combination of child temperament factors (self-regulation, shyness, activity level and anger proneness) and parent factors (maternal separation anxiety, positive support, and negative control) predicted 27% of the variance in children's prosocial behavior. These findings indicate that child and parent characteristics together are important predictors of children's outcomes.

In a study specifically addressing possible moderator relationships between parent and child characteristics in relation to social-emotional

outcomes, Rubin, Burgess, and Hastings, (2002) found that, although neither children's peer inhibition nor parenting style (both measured at age two) were direct significant predictors of children's social reticence at age four, there were significant moderator relationships between child and parenting traits and children's later levels of social reticence. Children's peer inhibition at age two became a significant and positive predictor for social reticence at age four, but only for children with whose parents displayed high levels of intrusive/overprotective behaviors. The same held true for children whose parents were derogatory towards their toddler in observed parent-child interactions: highly inhibited toddlers were significantly more likely to grow into socially reticent preschoolers if their parents displayed high levels of derogatory interactions. This study is important because it supports the notion that parent and child characteristics can interact to predict children's social-emotional outcomes across time.

Other research has addressed effortful control as a moderator between parent characteristics and child outcomes. Valiente et al. (2004) found that children's levels of effortful control moderated the relationship between parental expressivity and children's empathy-related responses, such that parents' negative expressivity predicted lower levels of children's situational sympathy only for children with low effortful control. Those findings confirm that relations between parent characteristics and child outcomes may partially depend on characteristics of children themselves. Furthermore, Valiente et al.'s

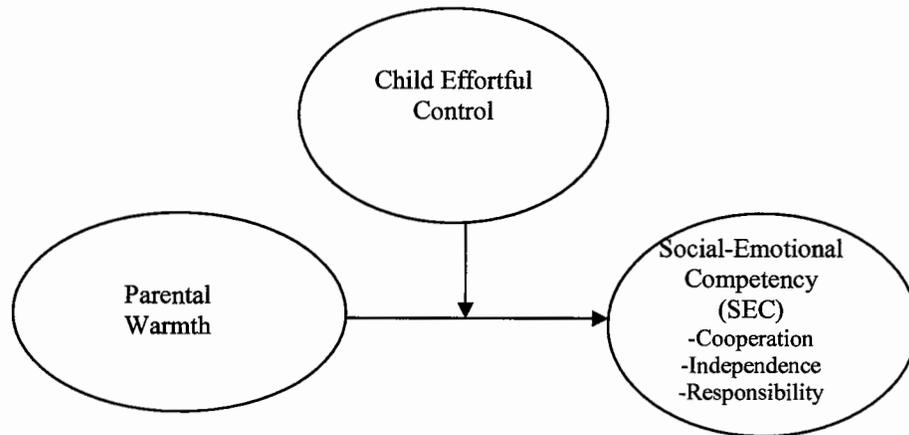
findings support the current study's model, which places child effortful control as the moderating variable between parental warmth and children's social-emotional competencies. Comparing possible moderator effects across all four outcomes in the current study – cooperation, responsibility, independence, and the social-emotional competency composite -- also supports the underlying research objective of evaluating the utility and precision of the social-emotional competency composite variable.

Purpose

The overarching objective of the study was to compare the convergent validity of the composite social-emotional competency variable to the discriminant validity of the three individual components of that composite: cooperation, responsibility, and independence. This comparison was accomplished by contrasting the nature of the links between two predictor variables -- child effortful control and parental warmth – and these outcomes. Supporting this objective, then, were three distinct research goals. The first goal was to explore direct relationships between parental warmth and children’s social-emotional competency outcomes. The second goal was to explore direct effects between children’s effortful control and their social-emotional competency outcomes. The third and final goal was to explore possible moderator relationships between parental warmth and effortful control as they predict these outcomes (see figure 1). Although much research has explored temperament and parenting as individual predictors, less research has examined bi-directional relationships between these variables, and social-emotional outcomes. Furthermore, the question of whether a social-emotional competency composite is more useful than specific measures of children’s social-emotional competencies, has received little attention.

Figure 1:

*Predicted Interaction Between Parental Warmth and Child Effortful Control
on Children's Social-emotional Competencies at 4 -5 Years*



Hypotheses

Research Goal #1: Direct relations between parental warmth and children's social-emotional competencies

Based on current literature (e.g., Eisenberg, et al., 2005; Blair et al., 2004) which often conceptualizes social-emotional competency in ways consistent with cooperation, it was expected that parental warmth would most strongly predict children's levels of cooperation in the current study. Parents who interact with their children frequently in highly warm ways provide their children with role models of positive social interactions, and it seemed reasonable that children would repeat these modeled behaviors in their own interactions with peers. It was expected that this parallel processing would result in the strongest relationship being found between parental warmth and cooperation.

The second individual outcome in the current study was responsibility, which largely referred to a child's interactions with materials and the environment. In contrast, parental warmth focused on the frequency and quality of positive and nurturing parent-child interactions. Although other dimensions of parenting may support children's selection and organization of materials and workspace, parental warmth was not expected to directly support these skills. Thus, a significant relationship was not expected between parental warmth and child responsibility.

In contrast, it was expected that parental warmth would positively and significantly support children's independence, although this relationship was

not expected to be as strongly positive as for cooperation. Ladd, et al., (1999), found that parental warmth supported children's development of a construct of classroom skills, which included independence. High parental warmth may support and reinforce the internalized regulation which, in turn, supports children's independence. Children who experience frequent, warm, supportive interactions with parents seemed likely to be more secure and confident, which would assist them in working without direct supervision. Upon encountering challenges in the classroom, these children may be more willing to try and find solutions on their own before asking for help.

The final outcome to be considered was the social-emotional competency composite variable, composed of the sum of children's cooperation, responsibility, and independence scores. Consistent with the hypotheses for the individual components of social-emotional competency, it was expected that parental warmth would positively predict children's overall social-emotional competency score, but not as strongly as for cooperation and independence.

Research Goal #2: Direct relations between effortful control and children's social-emotional competencies

A different pattern of results was expected for the direct effects of effortful control on children's social-emotional competencies. It was predicted that effortful control would most strongly predict children's cooperation and responsibility. Effortful control includes inhibitory control, which facilitates turn-taking and sharing, which are elements of cooperation. In addition,

effortful control includes perceptual sensitivity, and increased sensitivity to peers' and teachers' social cues is likely to facilitate children's cooperative interactions with others. The perceptual sensitivity element of effortful control also likely supports children's responsibility by making them aware of their work environment. Furthermore, the inhibitory control and attentional focus elements of effortful control support children's ability to focus on a task until it is completed, another important piece of responsibility.

A weaker, but still positive relationship was expected between effortful control and independence. In contrast to cooperation and responsibility, which largely measure a child's interactions with other people (in the case of cooperation) and with materials and the environment (in the case of responsibility), the behaviors captured by independence – including initiating tasks and problem solving alone – require internalized regulatory processes that may not be demonstrated in four year old children.

In light of the links expected between effortful control and each individual social-emotional competency, it was expected that effortful control would predict children's composite social-emotional competency scores in a similarly significant and positive direction.

Research Goal #3: Moderator relations between parental warmth and effortful control in predicting children's social-emotional competencies

In addition to the direct effects of effortful control and parental warmth, the current study explored moderator relationships between these two predictors. It was hypothesized that the relationship between parental warmth

and child levels of social-emotional competency would be dependent on children's effortful control. A moderator effect between two variables specifies not only the direction or strength of the effect, but also the conditions under which an effect occurs (Baron & Kenny, 1986). In the present study, it was hypothesized that high levels of child effortful control would compensate for low-warmth parenting, resulting in higher levels of children's social-emotional competence. Thus, for children with low levels of effortful control, parental warmth would have much stronger main effects on children's social-emotional competency than for children with high levels of effortful control.

Furthermore, for children with high effortful control, parental warmth would have no significant main effect on levels of social-emotional competency.

Consistent with the hypotheses about the main effects of effortful control, it was expected that effortful control would most strongly moderate the effects of parenting on children's cooperation and responsibility, with no significant moderator effect for independence. All expected outcomes were expected to be found when after controlling for child age and gender, both of which have been found to be important for children's social-emotional competency.

Furthermore, all of these hypotheses were consistent with the bioecological perspective of the current study, which states that the effect of proximal process (parental warmth) on children's developmental outcomes (child's social-emotional competency) is dependent on characteristics of the developing person (child effortful control).

The hypotheses for each of these three research goals present varying patterns of predictability between individual social-emotional competency outcomes, whereby child and parent characteristics predict some social-emotional competency outcomes more strongly than others. Building on this expectation, a general hypothesis for the overall objective of the study emerged: that the differential validity of individual social-emotional competencies would outweigh the convergent validity of the social-emotional competency composite.

Method and Materials

Sample

The present study used data collected as part of a larger study examining factors predicting kindergarten readiness. Families were recruited from six preschool programs that had agreed to participate: three NAEYC accredited programs, and three Head Start programs. Of 165 families that were invited, 58% responded with a desire to participate, two of which were excluded because neither English nor Spanish was their primary language. Of the remaining participants, 36 (39%) of the children attended Headstart programs.

The final sample of 93 families was studied when the mean age for the participating child was 4.08 years old. Approximately equal numbers of boys (47%) and girls (53%) participated. The sample was ethnically diverse: 48.5% Caucasian, 25% Hispanic/Latino, 19% Asian, and 7.5% other ethnic group. Eighteen percent of the families were Spanish-speaking, and were provided with all measures in Spanish. Seventy-six percent of parents had a high school diploma or higher, with a mean parental education level of 14.63 years. Sixty-seven identified their child as living with two (biological, step, or adoptive) parents, with nine children living with mother only.

Measures

Background Questionnaire

Parents received a background questionnaire in their primary language (English or Spanish). Questionnaires were completed and returned within one month, either through the mail, or directly to the preschool teacher.

Questionnaires provided demographic information used in the multiple regression analysis, including the participating child's age, race, gender, and preschool experience, and parent education. English questionnaires were translated into Spanish, and independently back-translated into English.

Families received gift certificates to show appreciation for their participation.

Parenting Measures

The Parenting Questionnaire (PQ).

The PQ is a 50 question parent questionnaire, assessing parenting beliefs and practices (Morrison & Cooney, 2002). It is divided into five domains of parenting: family literacy environment, family numeracy environment, parental warmth / responsiveness, parental beliefs about child qualities, and parental control / discipline. The current study used only the warmth/responsiveness domain of the PQ. This domain of the PQ consists of six items, consisting of statements describing the nature of parents' interactions with their child, for example: "I typically ask my child how his/her day went", and "I respect my child's opinions." The warmth/responsiveness domain of the PQ has been found to have an internal alpha reliability of .75 in previous

studies, and (Morrison & Cooney, 2002) the current study reported an internal alpha reliability of .75 as well. (See Appendix 1 for relevant items.)

Child Temperament Measure

Child Behavior Questionnaire (CBQ) (Short form)

The short form of the CBQ (Rothbart, Ahadi, Hersey & Fisher, 2001) is a parent-rated measure gauging child temperament for children aged 3-8. The short form was adapted from the original CBQ, which contained 195 items. The short form contains 94 items, and consists of 15 scales. Exploratory factor analysis of these 15 scales revealed three factors: Effortful Control, Surgency/Extraversion, and Negative Affectivity (Rothbart et al., 2001). These factors are consistent with the CBQ long version (Rothbart et al., 2001). In developing the short form, Putnam and Rothbart (2001) found a mean alpha reliability of .72 for all scales. Correlations between scale scores on the short and standard forms of the CBQ range from .85 to .95. (Putnam and Rothbart, 2001). The current study found an internal reliability of .79 for the effortful control scale.

When completing the CBQ, parents rate each described behavior on a seven-point scale, ranging from “extremely untrue of your child” to “extremely true of your child.” The current study focused on the Effortful Control factor of the CBQ, which consists of 26 items. Children’s effortful control scores were calculated using the mean of their ratings on four subscales: low intensity

pleasure, attentional focusing, inhibitory control, and perceptual sensitivity.

(See Appendix 2 for relevant items).

Social –Emotional Competency

Child Behavior Rating Scale (CBRS)

The CBRS (Bronson, 1994) is a 32-item teacher-completed scale which rates children's behavior on two subscales: mastery and social skills. It is based on the Bronson Social and Task Skill profile. Teachers rate the frequency of specific behaviors for each student on a scale from one (never) to five (usually/always). The mastery subscale of the CBRS assesses children's cooperation, responsibility, and independence, and was used in the current study. In previous studies, the CBRS was found to have a test-retest reliability of .67 (Abt Associates, 1988), and internal consistency of .95 (McClelland, & Morrison, 2003). An alpha reliability of .94 for all items included in the current study. (See Appendix 3 for relevant items.)

Procedure

Families completed all measures in the fall of the preschool year. All data were collected one month after the preschool year had begun.

Results

Analyses

The current study explored three research goals, all of which fell under the general objective of comparing predictive patterns between the social-emotional competency composite and the individual components of that composite. The first goal focused on establishing direct links between parental warmth and each specific social-emotional competency: cooperation, responsibility, and independence, as well as the social-emotional competency composite. The second goal focused on establishing direct links between children's effortful control and the same outcomes. The third and final goal focused on interactive relationships between parental warmth and child effortful control, predicting each outcome: cooperation, responsibility, independence, and social-emotional competency composite. Each of the individual competencies: cooperation, responsibility, and independence were measured using the same scale, and so the social-emotional competency composite variable was created using the sum of children's scores on each of those three individual competencies.

Data analysis included descriptive statistics for each variable including sample means and standard deviations, possible outliers and testing the normality and skewness of the sample. Further analysis used hierarchical regression to explore the predictive relationships between predictors and outcomes, including moderator relationships, as described by Holmbeck (1997;

2002), and Aiken and West (1991). Initial analyses included child ethnicity, age, sex; and preschool experience, and parent education as background variables in the first step of the regression, however, preliminary results showed that parent education, child ethnicity, and preschool experience did not significantly predict any outcomes. Thus, child age and sex were retained as the only background variables to maintain parsimony in the model.

Three-step hierarchical regressions were run for each outcome variable: cooperation, responsibility, and independence, and the social-emotional competency composite. The first step of each regression controlled for child age and gender. The second step of each regression added parental warmth and effortful control, and showed how much of the variance in each social-emotional competency was attributed to the direct effects of parental warmth (PW) and child effortful control (EC). The third and final step of the regression included the interaction term (PW X EC), to examine possible interaction effects between parental warmth and children's effortful control in predicting children's social-emotional competencies. Where significant interaction effects were found, regression lines were plotted using high and low values of effortful control, as recommended by Holmbeck (2002) and Aiken and West (1991). Two regression lines were generated, predicting values of children's outcomes based on each possible combination of high or low levels of each predictor (i.e. high warmth, low EC; high warmth, high EC; low warmth, low EC; low warmth, high EC; see figure 2). Values of effortful control one

standard deviation above the mean were considered *high*, and values one standard deviation below the mean were considered *low*.

All continuous predictor variables were centered on the mean prior to analysis as recommended by Holmbeck (1997) and Aiken and West (1991) to avoid problems with multicollinearity.

Missing Data

Listwise deletion was used for all preliminary analyses. As a result, total sample size was initially reduced to 70 participants. In addition to reducing sample size, listwise deletion assumes that values are missing completely at random, which was not the case in the current study. Analyses showed that patterns of missing values were predicted by parent education level and ethnicity, such that children whose parents had lower levels of education and were of minority status were more likely to have missing data. Thus, although power analysis showed that, at a power level of .80, a minimum sample size of 50 was required to detect a medium effect size of .50 at $p < .05$, missing values were subsequently imputed to increase statistical power.

The multiple imputation method, as described by Acock (2007) was used to impute missing data. Multiple imputation allows for non-random missing values. Dummy variables were created for missing values, and predictors of those dummy variables were used in ordinary least squares (OLS) regression to calculate a value for each missing observation. Multiple imputation creates a complete dataset for each imputation, and in the current

study, five imputations were used, creating five complete datasets containing all variables with no missing values. Subsequent hierarchical regression analyses were run five times, once using each of the datasets created by multiple imputation. All results were reported by averaging values across the output for all five sets of regressions. Using this method, a final sample size of 93 was used for all analyses. Results followed the same patterns using listwise deletion and multiple imputation; however, multiple imputation increased statistical power, and thus, increased the statistical significance of the findings.

Preliminary Analyses

Bivariate correlations indicated that background variables were significantly related to some, but not all, outcome variables. Older children had higher scores on cooperation, responsibility, and independence, as well as on the social-emotional competency composite. Boys were scored significantly lower than girls on cooperation, responsibility, and the social-emotional competency composite, but not on independence. In addition, boys scored lower on effortful control than girls did. Effortful control and parental warmth were significantly positively correlated. Means and standard deviations for predictor and outcome variables of children are presented in Table 1.

Correlations for all variables are reported in Table 2.

Control variables entered into the first step of each regression were child age and sex. These control variables accounted for 15% of the variance in children's cooperation, $F(2, 90) = 7.89, p < .001$; 15% of the variance in

children's responsibility, $F(2,90) = 3.44, p < .05$; 7% of the variance in children's independence, $F(2, 90) = 3.78, p < .05$; and 11% of the variance in children's social-emotional competency composite score, $F(2, 90) 5.83 = 1.82, p < .01$ (See Model 1 of Tables 3, 4, 5).

Research Goal #1: Direct relations between parental warmth and children's social-emotional competencies

The first goal of the study was to explore links between parental warmth and children's social-emotional competencies. Background variables (child age and sex) were entered into the first step of each regression. Parental warmth was entered into the second step. Contrary to the proposed hypotheses, all relationships between parental warmth and children's social-emotional competencies were found to be significantly negative, such that greater parental warmth predicted less social-emotional competency in the participating children. This relationship was strongest for children's social-emotional competency composite scores ($\beta = -.29, p < .01$) (See Model 3 of Table 6). For the individual social-emotional competencies, parental warmth most strongly negatively predicted children's cooperation ($\beta = -.29, p < .01$), followed by independence ($\beta = -.27, p < .01$), and responsibility ($\beta = -.23, p < .05$). (See Model 2 of Tables 3, 4, 5.)

Research Goal #2: Direct relations between children's effortful control and social-emotional competencies

The second goal was to examine direct relations between children's effortful control and their social-emotional competencies. After controlling for

the background variables entered into the first step of each regression, effortful control was found to be a consistent, positive, and significant predictor of children's social-emotional competencies. Effortful control significantly positively predicted children's overall social-emotional competency composite scores ($\beta = .41, p < .001$). Furthermore, consistent with the proposed hypotheses for the individual social-emotional competency outcomes, effortful control most strongly predicted children's cooperation ($\beta = .40, p < .001$) and responsibility ($\beta = .37, p < .01$), and also significantly predicted independence ($\beta = .34, p < .01$) (See Model 2 of Tables 3, 4, 5, 6). These findings were also consistent with the proposed hypotheses.

Research Goal #3: Interaction of effortful control and parental warmth in predicting social-emotional competencies

The third and final goal of the current study explored possible moderator relationships between children's effortful control and parental warmth as they predict children's social-emotional competency. This relationship was examined in the third step of the hierarchical regression for each outcome variable: cooperation, responsibility, independence, and the social-emotional competency composite. The same background variables were entered in the first step of each regression: child age and sex. Effortful control (EC) and parental warmth (PW) were entered in the second step of each regression, after being centered at the mean. The interaction term (PW X EC) was entered in the third step of each regression.

A positive link was found between the interaction term and children's independence ($\beta = .18, p < .10$) (See Model 3 of Table 5). This represents a trend rather than full statistical significance, and was interpreted as a preliminary finding. Examination of this interaction showed that, at high levels of child effortful control, parental warmth had no significant impact on children's independence. In contrast, at low levels of child effortful control, parental warmth had a significant, negative impact on children's independence (see Figure 2, and Tables 7 - 8). Thus, children with high levels of effortful control had stable levels of independence, regardless of parental warmth, whereas, for children with low levels of effortful control, higher parental warmth led to decreased levels of independence.

No significant interaction effects were found between effortful control and parental warmth as they predicted children's cooperation or responsibility, nor were significant interaction effects found for children's overall social-emotional competence. However, all standardized beta coefficients for these outcomes were in the expected positive direction. Of the non-significant effects, the strongest link was found for children's responsibility ($\beta = .17, p > .10$), followed by the social-emotional competency composite ($\beta = .16, p > .10$), and finally, children's cooperation ($\beta = .07, p > .10$) (See Model 3 of Tables 3, 4, 6).

The general pattern of results demonstrated that children's effortful control is an important predictor of children's overall social-emotional

competency, as well as the individual components of cooperation, responsibility, and independence, in the fall of the preschool year. Parental warmth was also a significant predictor of children's social-emotional competency, although, contrary to expectations, increased parental warmth significantly predicted decreased social-emotional competency. This pattern was consistent and significant across all three individual social-emotional competencies: cooperation, responsibility, and independence, as well as for the social-emotional competency composite score. A trend for a significant interaction effect between effortful control and parental warmth was found for children's independence, such that parental warmth was negatively linked to children's independence only for children with low levels of effortful control. Interaction effects occurred in the expected direction for all other outcome variables – cooperation, responsibility, and social-emotional competency composite -- but were not statistically significant.

Figure 2:

*Interaction Between Parental Warmth and Child Effortful Control on
Children's Independence at age 4-5 years*

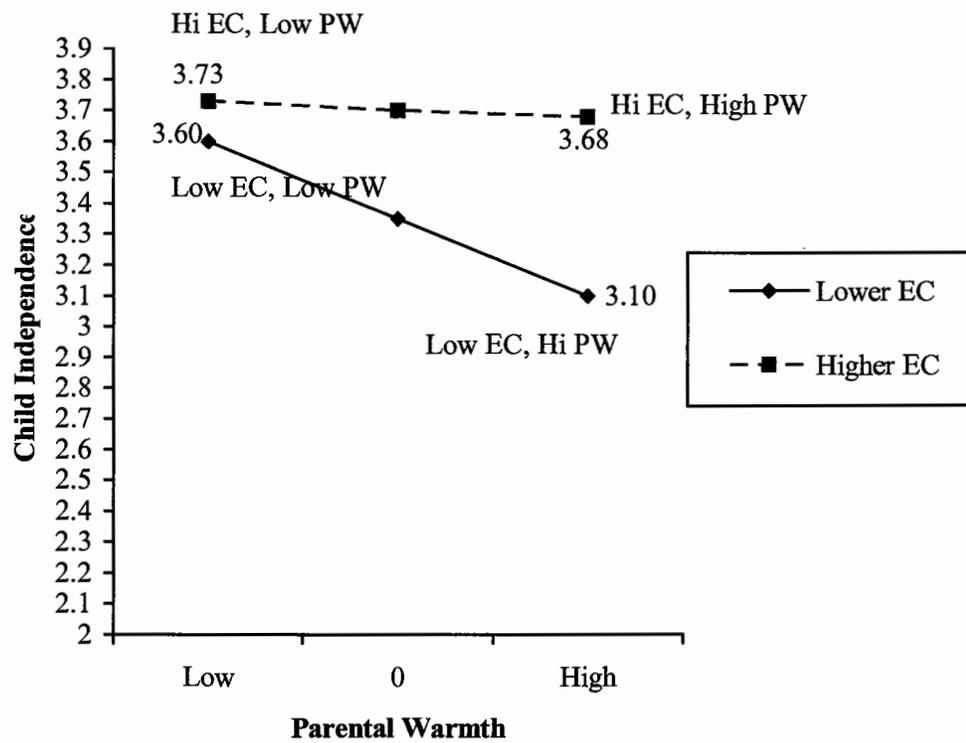


Table 1

Summary Statistics for Background Variables, Predictors and Outcomes

Variables	M	SD	Range
Child Age in Months	55.39	3.33	49 - 62
Child Sex ^a	.48	.50	0 - 1
Parent Education in Years	14.63	3.85	4 - 21
Child Preschool Experience in Months	21.82	18.07	0 - 57
Child Ethnicity ^b	.20	.41	0 - 1
Child Effortful Control	5.36	.57	3.50 – 6.66
Parental Warmth	4.23	.53	2.42 – 5.0
Child Cooperation	3.55	.55	2.20 – 5.0
Child Responsibility	3.53	.70	2.0 – 5.0
Child Independence	3.87	.63	2.17 – 5.0
SEC Composite	10.95	1.68	7.07 – 15.0

^aChild Sex: 0 = *male*, 1 = *female*.

^bChild Ethnicity: 0 = *non-Hispanic*, 1 = *Hispanic*

Table 2
Correlations between Predictor and Outcome Variables for Children at 4-5 Years of Age (N = 93)

Variable	1	2	3	4	5	6	7	8
1. Child Cooperation	---							
2. Child Responsibility	.63***	---						
3. Child Independence	.61***	.82***	---					
4. Social-Emotional Competency Composite	.82***	.93***	.92***	---				
5. Child Age	.28**	.18 [†]	.24*	.25*	---			
6. Child Sex	-.27**	-.20 [†]	-.14	-.22*	.01	---		
7. Child Effortful Control (EC)	.33***	.34***	.26*	.34***	.06	-.27**	---	
8. Parental Warmth	-.13	-.10	-.11	-.12	.11	.02	.33**	---
9. Child EC x Parental Warmth	.18 [†]	.21*	.26*	.24*	-.01	-.09	.11	-.24*
10. Lower Child EC	.33***	.34***	.26**	.35***	.06	-.27**	1.00	.33**

Table 2 Continued

Variable	1	2	3	4	5	6	7	8
11. Lower Child EC x Parental Warmth	.04	.10	.12	.10	.08	-.06	.35***	.62***
12. Higher Child EC	.33***	.34***	.26**	.35***	.06	-.27**	1.0	.33**
13. Higher Child EC x Parental Warmth	.19 [†]	.19 [†]	.23*	.23*	-.07	-.08	-.14	-.79***
<i>M</i>	3.55	3.53	3.87	10.95	55.39	.48	5.36	4.23
<i>SD</i>	.55	.70	.63	1.68	3.33	.50	.57	.53

Table 2 *Continued*

Variable	9	10	11	12	13
1. Child Cooperation					
2. Child Responsibility					
3. Child Independence					
4. Social-Emotional Competency Composite					
5. Child Age					
6. Child Sex					
7. Child Effortful Control (EC)					
8. Parental Warmth					
9. Child EC x Parental Warmth	---				
10. Lower Child EC	.11	---			
11. Lower Child EC x Parental Warmth	.62***	.35***	---		

Table 2 Continued

Variable	9	10	11	12	13
12. Higher Child EC	.11	1.0	.35***	---	---
13. Higher Child EC x Parental Warmth	.78***	-.14	.00	-.14	---
<i>M</i>	.10	.55	.09	-.59	.10
<i>SD</i>	.30	.57	.37	.57	.47

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 3

Summary of Hierarchical Regression Analysis for Variables Predicting Children's Cooperation ($N = 93$)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Child Age	.05	0.02	.28**	.00	.02	-.26**	.04	.02	.27**
Child Sex ^a	-.30	0.11	-.27**	-.19	.10	-.18 [†]	-.19	.10	-.17 [†]
Parental Warmth (PW)				-.30	.11	-.29*	-.28	.11	-.27*
Child Effortful Control (EC)				.38	.10	.40***	.36	.10	.38**
PW x Child EC							.12	.17	.07
Constant	1.15	.89		1.23	.85		1.20	.85	
Model R^2			.15			.29			.29
Change in R^2			.15			.14			.004
<i>F</i> for change in R^2			7.89***			8.75**			.46

Note: Parental warmth and child effortful control were centered at their means.

^a male = 1, female = 0

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4

Summary of Hierarchical Regression Analysis for Variables Predicting Children's Responsibility ($N = 93$)

Variable	Model 1		Model 2		Model 3	
	<i>B</i>	<i>SEB</i>	<i>B</i>	<i>SEB</i>	<i>B</i>	<i>SEB</i>
Child Age	.04	.02	.18 [†]	.02	.16	.02
Child Sex ^a	-.28	.14	-.20 [†]	.14	-.11	.14
Parental Warmth (PW)			-.30	.15	-.23*	.16
Child Effortful Control (EC)			.46	.14	.37**	.15
PW x Child EC					.37	.25
Constant	1.59	1.19	1.73	1.05	1.63	.14
Model R^2		.07		.19		.22
Change in R^2		.07		.12		.03
<i>F</i> for change in R^2		3.44*		6.40**		2.79 [†]

Note: Parental warmth and child effortful control were centered at their means.

^a male = 1, female = 0

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5

Summary of Hierarchical Regression Analysis for Variables Predicting Children's Independence ($N = 93$)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Child Age	.05	.02	.24**	.04	.02	.23**	.04	.02	.14*
Child Sex ^a	-.17	.13	-.14	-.05	.14	-.06	-.06	.12	-.02
Parental Warmth (PW)				-.32	.13	-.27**	-.26	.14	-.22 [†]
Child Effortful Control (EC)				0.37	.13	.34**	.32	.13	.29*
PW x Child EC							.37	.22	.18 [†]
Constant	1.40	1.06		1.46	1.04		1.36	1.02	
Model R^2		.08			.19			.22	
Change in R^2		.08			.12			.03	
<i>F</i> for change in R^2		3.78*			6.07**			3.31 [†]	

Note: Parental warmth and child effortful control were centered at their means.

^a male = 1, female = 0

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6
Summary of Hierarchical Regression Analysis for Variables Predicting Children's Composite Social-Emotional Competency (N = 93)

Variable	Model 1		Model 2		Model 3	
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Child Age	.13	.05	.26*	.12	.05	.23*
Child Sex ^a	-.75	.33	-.22*	-.43	.32	-.13
Parental Warmth (PW)				-.92	.36	-.29**
Child Effortful Control (EC)				1.18	.31	.41***
PW x Child EC				.86	.54	.16
Constant	4.14	2.78		4.43	2.40	
<i>Model R</i> ²		.11			.26	.29
<i>Change in R</i> ²		.11			.15	.02
<i>F</i> for change in <i>R</i> ²		5.83**			8.88**	2.87 [†]

Note: Parental warmth and child effortful control were centered at their means.

^a male = 1, female = 0

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7

*Hierarchical Regressions Examining Lower Levels of Child Effortful**Control, Parental Warmth, and Child Independence at 4-5 Years (N = 93)*

<i>Variables: Lower Effortful Control</i>	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Child Age	.05	.02	.24*	.05	.02	.24*
Child Sex ^a	-.17	.13	-.14	-.06	.12	-.05
Parental Warmth				-.47	.15	-.40**
Lower Child Effortful Control (EC)				.32	.13	.29**
Parental Warmth x Lower Child EC				.37	.21	.23 [†]
<i>R</i> ² change			.08			.13
<i>F</i> for change in <i>R</i> ²			3.78*			4.54**

Note: Parental warmth and child effortful control were centered at their means.

^a male = 1, female = 0

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 8

*Hierarchical Regressions Examining Higher Levels of Child Effortful**Control, Parental Warmth, and Child Independence at 4-5 Years (N = 93)*

<i>Variables: Higher Effortful Control</i>	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Child Age	.05	.02	.24*	.05	.02	.24 [†]
Child Sex ^a	-.17	.13	-.14	-.06	.12	-.05
Parental Warmth				-.04	.20	-.04
Higher Child Effortful Control (EC)				.21	.32	.29*
Parental Warmth x Higher Child EC				.37	.22	.28 [†]
<i>R</i> ² change						
<i>F</i> for change in <i>R</i> ²			.08			.13
			3.78*			4.54**

Note: Parental warmth and child effortful control were centered at their means.

^a male = 1, female = 0

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

The overall objective of the current study was to compare the convergent validity of a social-emotional competency construct with the discriminant validity of the three individual domains of which this construct was composed: cooperation, responsibility, and independence. This objective was met by comparing patterns of results for three primary research questions, which explored: the direct effects of parental warmth on children's social emotional outcomes; the direct effects of child effortful control on children's social-emotional outcomes; and interaction effects between parental warmth and child effortful control in predicting children's social –emotional outcomes. Parental warmth was found to have consistently significant, negative effects across all outcome variables. Children's effortful control was found to have consistently significant, positive effects across all outcome variables. A trend was also found for children's effortful control to moderate the relation between parental warmth and children's independence, such that, at high levels of effortful control, parental warmth had no significant impact on children's independence, but at low levels of effortful control, parental warmth negatively predicted children's independence.

Research Goal #1: Direct relations between parental warmth and children's social-emotional competencies

Hypotheses for the current study stated that parental warmth would positively predict children's cooperation and independence, with no significant relationship expected between parental warmth and responsibility. These

hypotheses were not supported. Although parental warmth was found to be a significant predictor for all outcomes – cooperation, responsibility, independence, and social-emotional composite, this relationship was negative, such that higher levels of warmth predicted lower levels of social-emotional competency on all outcome variables. The unexpected directionality of this link may be related to the multi-dimensional nature of parenting, and complex interplay between parental warmth and other parental characteristics. This may not have been captured by the current study's focus on a single element of parenting: warmth.

In the analyses for individual social-emotional competencies, this negative, significant relationship was strongest for cooperation. Highly warm parents may tend to be permissive, or indulgent, and not insist that their children take turns, follow directions, or share with others. Children who do not practice these skills at home would then be less likely to demonstrate them in a classroom setting.

Similarly, children with very warm parents may have fewer opportunities to develop responsibility. Indulgent parents may not ask or expect their children to choose an appropriate workspace or play environment, to organize and maintain their belongings, or to follow a task through to completion. When considering children's independence, a parallel scenario could arise, whereby high warmth parents could be overprotective, and therefore not provide children with opportunities to work through challenges

on their own before asking for help.

The conflict between these findings and other recent research (Eisenberg, et al., 2005; Lengua and Kovacs, 2005) may reflect differences in how parental warmth was operationalized and measured. Eisenberg et al. (2005) assessed parental warmth using observation of parent-child interactions, and Lengua and Kovacs (2005) used child-report of parental warmth from their sample of nine-year-old children. In contrast, the current study used parental self-report, which may capture different dimensions of warmth. The direction of this relationship may also reflect the absence of parental control and discipline from the current warmth variable. The parental warmth measure in the current study did not capture any elements of parental control and discipline, which may represent a critical missing piece. If control and discipline are not considered, indulgent and overprotective parents may appear to have a similar parenting style as authoritative parents.

Research Goal #2: Direct relations between effortful control and children's social-emotional competencies

In this sample, effortful control was found to be a significant and positive predictor of each of the three individual social-emotional competencies: cooperation, responsibility, and independence, as well as for the social-emotional competency composite variable composed of all three of these specific variables. This finding is consistent with the bioecological model, as it highlights the importance of considering the influence of children's own individual traits in their developmental trajectories.

Furthermore, these findings support previous research that has found strong links between children's levels of effortful control and their outcomes on a variety of social-emotional competencies, including those addressed in the current study (e.g. Eisenberg et al., 2005; Murray et al, 2006.)

The strong links found between children's effortful control and children's individual social-emotional competencies suggest that elements of effortful control – attentional focus, inhibitory control, perceptual sensitivity, and low-intensity pleasure -- directly support the skills and behaviors measured by each individual social-emotional competency scale, and thus, by the social-emotional competency composite.

Consistent with the hypotheses for the three individual social-emotional competency outcomes, effortful control most strongly predicted children's cooperation, although results were statistically significant for all outcomes. Effortful control includes children's inhibitory control which may support children's turn-taking and sharing in cooperative play with peers. Effortful control also includes children's perceptual sensitivity, which may help them be aware of the reactions and emotions of peers and teachers – another element of cooperation.

The increased perceptual sensitivity of children with high effortful control also may support children's responsibility. Children with stronger awareness of the classroom environment and atmosphere may be more able to select appropriate materials and workspace, which are all elements of

responsibility. Additionally, responsibility includes children's ability to complete projects within appropriate timelines, and children with strong inhibitory control and attentional focus – elements of effortful control -- may also be more likely to remain “on-task” through the duration of an assignment of activity.

The third individual social-emotional competency explored was children's independence. Consistent with the hypotheses, the relation between effortful control and independence was slightly weaker than that for cooperation and responsibility, but was equally statistically significant. This suggests that, even in very young children, effortful control supports not only the observable behaviors captured by cooperation and responsibility, but also the internal processes necessary to spontaneously initiate tasks and to persist with a task even when difficulties are encountered, elements of independence. This finding is particularly noteworthy in light of the dearth of research examining independence in children prior to school entry.

The strongest and most significant link was found between effortful control and children's composite social-emotional competency score, a finding that is notable for two reasons. First, this suggests that effortful control is an important predictor of children's overall social-emotional development, and not only of specific individual skills. The various skills and behaviors captured by individual social-emotional competencies may work together to create a valuable overall indicator of children's social-emotional competency.

Secondly, this consistent predictability supports the usefulness of a social-emotional competency composite variable when exploring relations between children's characteristics and their social-emotional outcomes.

Research Goal #3: Moderator relations between parental warmth and effortful control in predicting children's social-emotional competencies

This study hypothesized an interaction effect between children's effortful control and parental warmth as they predict children's social-emotional competencies. It was expected that the nature of the relationship between parental warmth and children's social-emotional competency would depend on children's effortful control, such that parental warmth could compensate for low levels of effortful control, and that, for children with high effortful control, parental warmth would have no significant effect on their social-emotional outcomes. No significant interaction effects were found in three of the four outcomes considered in this study: cooperation, responsibility, and overall social-emotional competency, although, as noted by Holmbeck (1997), it is difficult to detect moderator effects in studies with a small sample size. This limitation applies to the current study.

An interaction effect significant at the .10 level was found when predicting children's independence. Due to the difficulties of detecting significant moderator effects in small samples (Holmbeck, 1997), this was reported in spite of marginal statistical significance. Although preliminary, this effect showed that children's effortful control may buffer the effects of parenting on children's independence. Children with high levels of effortful

control showed no significant relation between parental warmth and child independence. This effect differed from the proposed hypothesis in the direction of the effects of parental warmth. Where it was hypothesized that parental warmth would positively impact the independence of children with low effortful control, analyses showed that, at low effortful control, the effects of parental warmth negatively impacted children's independence. Overall, children with high effortful control had the highest levels of independence regardless of parental warmth, followed by children with low parental warmth and low effortful control, and children with low effortful control and high parental warmth had the lowest level of independence (see figure 2). Although this directionality was in conflict with the hypotheses, it was consistent with the findings for the direct effects of parental warmth, and, similar to those findings, may be reflective of this study's focus on a single dimension of parenting. Including parental control and discipline in a measure of parenting may change the direction of parenting effects so that parenting could mitigate the effects of low effortful control on children's independence. However, the current results suggest that the effortful control dimension of children's temperament may act as a protective factor against the negative impact of permissive or indulgent parenting on children's independence.

Implications

Statistically significant results were found for each of the three research questions undertaken in this study. These results have important implications

for both researchers and practitioners. Underlying the three main research questions of the current study was the issue of convergent validity versus discriminant validity when measuring children's outcomes. The patterns of direct effects in the current study were similar for all dependent variables: parental warmth was a significant negative predictor across all four outcomes, and effortful control was a significant positive predictor across all four outcomes. Furthermore, the strongest and most significant links were found between each of these two predictors and the social-emotional competency composite outcome. These patterns represent what is perhaps the most notable implication of this study: taken together, cooperation, responsibility, and independence form a useful social-emotional competency composite variable that can be used in studies considering the direct effects of child and parent factors in predicting children's social-emotional development. Use of this composite may capture links between cooperation, responsibility, and independence that may not be reflected in research that separates these skills from one another. These results also support the convergent validity of these three specific social-emotional competencies as components of a social-emotional competency composite variable.

The current findings regarding interactive effects between effortful control and parental warmth were not as consistently significant as the findings for direct effects, however, the direction of the effects of the interaction term was consistent across all outcome variables in this study. This suggests that a

similar study with a larger sample size could potentially find significant, consistent moderator effects between child effortful control and parental warmth as they predict social-emotional outcomes. Although the statistical significance of effects found in the current study may have been limited by small sample size, the consistent directionality of all findings further supports the utility of a social-emotional competency composite composed of children's cooperation, responsibility, and independence. Similar to the results for the direct effects of parental warmth and effortful control, the results for moderator effects demonstrate the convergent validity of the social-emotional competency composite variable.

Finally, the current study's underlying question of convergent versus discriminant validity carries important ramifications for researchers. Widespread use of social-emotional competency constructs in research (e.g. Eisenberg et al., 2004; Blair et al. 2004) relies on convergent validity, which describes the degree of agreement or convergence between components of a construct. By comparing the ways in which child and parent characteristics predicted a social-emotional competency composite variable with the links between the same predictors and the three individual components of the composite (cooperation, responsibility, and independence), the current study aimed to evaluate the utility and accuracy of a social-emotional competency construct.

Based on the current findings of consistent significance and directionality in the direct effects of child and parent characteristics in predicting children's social-emotional competency outcomes, it may be practical and appropriate to use a social-emotional competency construct composed of children's cooperation, responsibility, and independence. Furthermore, the current study found the strongest relations between these predictors and children's social-emotional competency composite, suggesting that, when exploring direct effects of child and parent characteristics, the use of a composite may capture richer links than social-emotional competencies considered individually.

Practical Implications

Links between social-emotional competency and academic outcomes (e.g. McClelland, et al., 2003) reinforce the value of exploring the sources of these skills. The present study's findings support the importance of considering parents and children as influences on children's early social-emotional development. For practitioners, this suggests that programming intended to improve children's outcomes should address both parents and children, with preschool programs including parent education components, and parenting programs including opportunities for children to interact with peers and early childhood professionals. The current results also suggest that interventions focused on children's social-emotional competency may need to consider children's temperament when developing individual goals and program

activities. Children with temperaments low in effortful control may be particularly in need of interventions targeting cooperation, independence, and responsibility. Furthermore, the pattern of results for parental warmth demonstrates that warmth alone is not enough to support children's social-emotional competency. Because research has found that, in spite of the confirmed importance of social-emotional competency in school readiness (Raver, 2002), not all children enter school with strong social-emotional competency (Blair, 2002; Ladd et al., 1999), focused interventions may help all children as they begin their academic careers.

Implications for Future Research

For researchers, the current findings underline the importance of considering multiple dimensions of parenting. Future studies could include parental control and discipline as well as warmth, to explore how various combinations of parenting styles influence children's outcomes. Existing literature (e.g. Morrison & Cooney, 2002). supports combining warmth with discipline in facilitating children's development, and the current study demonstrates that a focus on only one of these dimensions does not produce the expected results. Multi-dimensional measures of parenting style may shed more light on the role played by parents in children's social-emotional development.

Similarly, although the current study's results regarding effortful control are both significant and consistent, the exact nature of the relations

between children's effortful control and social-emotional competency remains unclear. Future study could further break down effortful control into its individual components -- attentional focusing, inhibitory control, low intensity pleasure, and perceptual sensitivity – to better explore the mechanisms by which effortful control influences children's social-emotional competency.

Limitations

Although this study revealed important and significant information about the sources and influences of children social-emotional competencies, there were some limitations that affect the generalizeability and significance of the results. The relatively small sample size ($n = 93$) limited the power of the analyses, and increased the difficulty of detecting significant interaction effects. In addition, measures of children's social-emotional competency relied solely on teacher-report, which may have captured some bias that affected the accuracy of the data. Similarly, the measures of children's effortful control and of parental warmth were completed by parents. Thus, data regarding children's effortful control only capture parental perception of the child, and data regarding parental warmth may reflect some social desirability effects. It would be useful in future research to gather data from multiple sources: parents, teachers, and children.

It is also important to note that the measures used in the current study have not been assessed for reliability or validity when used with Hispanic children and families, analyses that would be important to conduct before

using the same measures on any larger sample that included Hispanic participants.

Finally, although children in this study were enrolled in preschool programs, possible classroom effects were not included in the current analyses. Future studies could consider the ways that teacher characteristics or instructional focus – which would be similar for all children placed in the same classroom – might affect children’s social-emotional outcomes.

Conclusion

Even when these limitations are considered, the present study sheds light on two important influences on children's social-emotional competency: parents, and children themselves. These findings are consistent with the bioecological model; they bolster the value of considering children as agents in their own development, and the influence that parents have on children's developmental pathways. Finally, and perhaps most importantly, the current findings suggest that use of a social-emotional competency construct in future research is not only useful and appropriate, but, may allow researchers to capture links between cooperation, responsibility, and independence that might be overlooked if these skills are measured as distinct from one another.

While children's total social-emotional development is a worthy goal unto itself, the current research, in combination with previous research identifying links between children's social-emotional competency and future academic success, reinforces the value of supporting and enhancing children's social-emotional competency in the preschool period, to help prepare children for formal schooling.

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APPENDICES

Appendix 1: Items Used to Measure Parental Warmth.

Taken from The Parenting Questionnaire (Morrison & Cooney, 2002).

All items were scored:

1 = Not at all like me

2 = Slightly like me

3 = Somewhat like me

4 = A lot like me

5 = Very much like me.

1. I encourage my child to express his / her opinions.
2. My child and I have warm, intimate moments together.
3. I find it interesting and educational to spend time with my child.
4. I typically ask my child how his/her day went.
5. I am involved with my child's class (for example, volunteering in the classroom, going on field trips, etc.)
6. I encourage my child to talk to me about his/her feelings.
7. I respect my child's opinion.

Appendix 2: Items Used to Measure Children's Effortful Control.

Taken from the Children's Behavior Questionnaire, Short Form (Rothbart et al., 2001).

All items were scored:

1 = extremely untrue of your child

2 = quite untrue of your child

3 = slightly untrue of your child

4 = neither true nor false of your child

5 = slightly true of your child

6 = quite true of your child

7 = extremely true of your child

1. Notices the smoothness or roughness of objects he/she touches.
2. Notices when parents are wearing new clothing.
3. (Reverse coded) When practicing an activity, has a hard time keeping her/his mind on it.
4. (Reverse coded) Will move from one task to another without completing any of them.
5. Seems to listen even to quiet sounds.
6. Enjoys taking warm baths.
7. Comments when a parent has changed his/her appearance.
8. Can wait before entering into new activities if s/he is asked to.

9. Enjoys “snuggling up” next to a parent or babysitter.
10. Prepares for trips and outings by planning things s/he will need.
11. Is quickly aware of some new item in the living room.
12. (Reverse coded) Has trouble sitting still when s/he is told to (at movies, church, etc.)
13. Enjoys just being talked to.
14. When drawing or coloring in a book, shows strong concentration.
15. Enjoys looking at picture books.
16. Is good at following instructions.
17. When building or putting something together, becomes very involved in what s/he is doing, and works for long periods.
18. Likes being sung to.
19. Approaches places s/he has been told are dangerous slowly and cautiously.
20. Likes the sound of words, such as nursery rhymes.
21. Can easily stop an activity when s/he is told “no.”
22. (Reverse coded) Doesn’t usually notice odors such as perfume, smoke, cooking, etc.
23. (Reverse coded) Is easily distracted when listening to a story.
24. Enjoys sitting on parent’s lap.
25. Sometimes becomes absorbed in a picture book and looks at it for a long time.
26. Enjoys gentle rhythmic activities such as rocking or swaying.

*Appendix 3: Items Used to Measure Children's Social-Emotional
Competency.*

Taken from the Child Behavior Rating Scale (Bronson, 1994).

All items were scored:

1 = Never

2 = Rarely

3 = Sometimes

4 = Frequently/Usually

5 = Always

1. Willing to share toys or other things with other children when playing; does not fight or argue with playmates in disputes over property.
2. Cooperative with playmates when participating in group play activity; willing to give and take in the group, to listen to or help others.
3. Takes turns in a game situation with toys, materials, and other things without being told to do so.
4. Offers suggestions for play to other children.
5. Resolves potential social conflicts with peers without requiring help from the teacher or other adult.
6. Tries to solve a problem on own before asking for help.
7. Completes learning tasks involving two or more steps (e.g. cutting and pasting) in organized way.
8. Completes tasks successfully.

9. Concentrates when working on a task, is not easily distracted by surrounding activities.
10. Responds to instructions and then begins an appropriate task without being told.
11. Finds and organizes materials and works in an appropriate place, when activities are initiated.

Items 1, 2, 3, 4 measure cooperation.

Items 5, 8, 11 measure responsibility.

Items 6, 7, 9, 10 measure independence.

