Relating Preschoolers Coping Tactics during Resource-Based Conflicts to Social Competence

by

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Abstract

As early exposure to center-based care continues to rise, infants and young children are introduced to a broad array of social dynamics and are immersed in peer networks in ways that were not common a generation ago. The current study examined relations between preschoolers' coping tactics during structured episodes of resource-based conflict and three social competence families (i.e. peer acceptance, personality/behavior profiles of socially competent preschoolers, social motivation/engagement). One hundred sixty-six preschoolers were observed, with 117 in both a same- and mixed-sex dyad. Bivariate correlations showed the use of cooperative tactics to manage the resource dilemma reflects social competence, particularly for males, while failure to cope was associated with lower social competence. Additionally, while children showed significant variability in their use of tactics across partners, within-child variability was not explained by sex of partner. Overall, this study helps to illustrate the implications of social competence in a peer setting.

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I. INTRODUCTION

Over the last two decades, there has been a substantial increase in the number of young children attending center-based childcare/early education programs. In 2007, more than 1.4 million three- and four-year-olds across the United States were enrolled in center-based programs, and attended at least six hours per day (Loeb et al., 2007). Between 2007 and 2012, the proportion of children between the ages of three to six years who attended center-based care has increased from 55% to 61% (Federal Interagency Forum on Child and Family Statistics, 2014). This trend is being extended downward into infancy, as even twelve-month-olds have become heavily exposed to non-parental caregivers, with 80% of one-year olds receiving some daytime care in either family-based or center-based care settings (US Census Bureau, 2011). With such early exposure to center-based care, infants and young children are introduced to a broad array of social dynamics and are immersed in peer networks in ways that were not common a generation ago. While academic and cognitive development have been found to improve with early center-based enrollment for children from economically deprived families, less desirable effects have been found for children's social behavior (higher scores for ratings of externalizing behaviors, higher levels of teacher-child conflict and lower levels of self-control), particularly for those who spend more hours attending center-based care (Loeb et al., 2007, for review see Huston, Bobbitt & Bentley, 2015). Therefore, it is of growing importance to examine early peer interactions, in detail, within the context of childcare programs.

Peer interactions afford many opportunities for preschooler's to experience different perspectives and preferences, to practice impulse control, refine moral reasoning abilities and to promote discussions concerning peers' differing perspectives and preferences (Miller & Olson, 2000; Rubin et al., 2009). Peer conflict is a common form of peer interaction that, although brief (Shantz, 1987), may serve to refine and enhance children's own emotional, social and cognitive development (Bukowski, Buhrmester and Umberson, 2011). For example, Piaget (1932) believed that conflicting ideas and disagreements between play partners create disequilibria, and thus

promote developmental change as the playmates attempt to reinstate the equilibrium by co-constructing a resolution to those disagreements. These events occur quite frequently in early childhood centers. In one study, peer conflict interaction events were identified in 322 out of 400 five-minute target-child observations during naturalistic free-time play within childcare preschools, constituting about 80% of interactions noted (Chen, Fein, Killen and Tam, 2001). The bulk of these conflict interactions involve the distribution of objects (e.g., toys, tools, space; 58.7% of three-year-old conflicts and 46.8% of four-year-old conflicts). Similarly, through an ethnographic perspective, Malloy and McMurrary (1996) found that young children' goal to "acquire an object" (p. 192) was the most frequently observed cause of peer conflict compared to goals such as group entry, change in the course of play, invasion of space, defying school rules and stopping others actions. In fact, on average, a resource-based conflict occurs during free-time activity about every 9 minutes, per classroom (Killen & Turiel, 1991).

Resource-based conflict then, is a common form of peer conflict, and an opportune and developmentally appropriate context to assess how children manage or cope with this form of interaction. In general, coping is thought to involve the use of behavioral, cognitive, and emotional resources to meet specific external and/or internal demands under conditions of actual or potential stress (Lazarus and Folkman, 1984; Skinner and Wellborn, 1994). Various frameworks of coping exist (e.g., Compas et al., 2001; Connor-Smith et al., 2000; Laursen et al., 2001; Roth & Cohen, 1986; Skinner et al., 2003; Zimmer-Gembeck & Skinner, 2011), though most are similar in nature. In the current literature, many of the studies assessing peer conflict within early childcare centers have examined coping differences across demographic or relational categories (e.g. sex, friendship; Killen & Naigles, 1995; Miller, Danaher & Forbes, 1986; Jacklin & Maccoby, 1978), as well as affect expression (Shin et al., 2011, Miller & Olson, 2000) and resolution rates (Killen & Turiel, 1991). For example, girls are more likely to engage in instrumental coping (i.e. problem-solve) and seek support, whereas boys are more likely to do nothing about the conflict, or use physical aggression (Eisenberg et al., 1998).

Such studies focused on categorical distinctions have provided insightful and important findings on coping differences, and have begun to uncover critical differences in young children's conflict processes. Contextual differences have also informed the literature on when certain coping tactics are more (or less) likely to occur. For example, several studies have found that preschool boys' aggression is more often displayed when they are in a conflict interaction with a same-sex partner (Maccoby & Jacklin, 1978; Knight et al., 2002; Miller, Danaher & Forbes, 1986). With female partners, boys tend to reduce their physical or aggressive behaviors, while girls become more aggressive and use more physical tactics when with a boy, than with a girl, partner (Maccoby & Jacklin, 1980; Miller, Danaher & Forbes, 1986).

Although relations among conflict management tactics and peer relations have been well-studied in school-age samples (e.g., peer victimization: Kochenderfer-Ladd & Skinner, 2002, Visconti, Sechler, & Kochenderfer-Ladd, 2013; peer acceptance: Chung & Asher, 1996; social competence: Erath & Tu, 2014), relatively few studies have examined such relations during early childhood (e.g. McElwain, Olson & Volling, 2002). With peer exposure, interaction and relationships forming at younger ages, it seems reasonable to suggest a relation between preschoolers' conflict management tactics and their peer relationships, interaction quality, and their general quality of functioning in the classroom.

Yet clear differences exist among the available and developmentally appropriate assessments of peer conflict for younger and older children. Older children are able to complete questionnaires and interviews – a time and cost-effective method of obtaining insight into the individual's cognitive experience (Chung & Asher, 1996, Noakes & Rinaldi, 2006), though they are prone to bias and have been critiqued to have little resemblance to the child or adolescents' actual behavior during peer conflict (Laursen & Collins, 1994). In the early childhood years, defining and measuring conflict management tactics or coping with interpersonal stress relies on observation reports and the assumption that observers can infer a child's intentions from her/his observed behavior. Despite the age-related differences for assessing children's coping tactics, it

seems feasible to compare the taxonomies of coping (e.g., engaged vs. disengaged) across developmental periods.

Although the labels given to categories of conflict management tactics/skills/coping differs among researchers, the structure of most existing categories follows a similar format. For instance, coping categories that are commonly studied in middle childhood and adolescence range from approach/avoidant coping or engaged/disengaged (Zimmer-Gembeck & Skinner, 2011; Erath & Tu, 2014), to problem-focused/emotion-focused (Compas et al., 2001) or problem-directed/self-directed (Compas, Malcarne & Fondacaro, 1988). These dichotomies refer to the same dimension, but with different categorical labels. Engaged and approach coping tactics seek to directly manage the current stressor (e.g. problem-solving, assertion), while disengaged and avoidant coping strategies actively direct away from the stressor (e.g. avoidance, distraction; Compas et al., 2001). Problem-focused/problem-directed strategies focus again on addressing the current problem, while emotion-focused strategies focus on managing the negative emotions that arise as a consequence of the conflict (Compas et al., 2001). While the taxonomies differ, the main thread is consistent across the different categories of coping: engaged/problem-focused (attempting to solve the current conflict) or disengaged/avoidant (attempting to avoid the problem) or self-directed/emotion-focused (soothing arousal).

Generally, for middle childhood and adolescence, the engaged or problem-focused coping responses to peer stress (e.g. including peer conflict, exclusion, or evaluation) have been associated with positive peer adjustment, while disengaged coping responses have been associated with poor peer adjustment (Compas et al., 2001). For example, in early adolescence, problem-directed or problem-focused (engaged) strategies were associated with lower levels of behavioral/emotional problems (Compas, Malcarne & Fondacaro, 1988), and with higher ratings of conversational skill and peer acceptance, while self-directed strategies were associated with peer victimization (Erath, Flanagan & Bierman, 2007). With children immersed in peer networks at earlier ages, it is plausible to expect that these types of findings may also be obtained for

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preschool-age children, and will bear similar relations to classroom assessments of social adaption/social competence.

This study begins to fill a gap in existing research on young children's coping with peer conflict by examining a range of coping tactics, selected from both early childhood and adolescent studies, in relation to their social competence. Following Waters and Sroufe (1983), social competence is defined here as the child's ability to achieve personal goals within a social context by using available personal (behavioral, cognitive, emotional) and interpersonal resources, without interfering (too much) with the achievement of peers' own interpersonal goals. Social competence variables reflecting this definition have proven to be valid and reliable for preschool children (Bost et al., 1998; Shin et al., 2011; Vaughn et al., 2009) and overlap with variables used in adolescent samples (e.g. peer acceptance). With a reliable and valid characterization of young children's social competence, we will be able to determine whether specific coping tactics reflects overall social competence.

The Current Study

This exploratory study was designed to examine preschool children's coping tactics during dyadic peer play. The dyadic play settings are designed to produce a resource-based conflict between the children to examine the children's coping tactics under specific constraints. Several forms of engaged coping tactics (negotiation, assertion, etc.) and disengaged coping tactics (avoidance, distraction) are identified over the course of five-minute interaction vignettes. Furthermore, because conflicts are thought to arise and occur differently depending on the social context, coping tactics are assessed across age (three- and four-year-olds) and sex (boy-boy, girl-girl, and mixed). Children are observed in multiple play dyads (with up to 6 different classmates), with the sex of pair changing from dyad to dyad. All children were observed interacting with several different peers, thus, scores are averaged to form the child's average coping tactics during interactions with each partner type (i.e., same or mixed sex) to derive more reliable estimates of coping tactics within partner type.

By exploring specific tactics used during normative resource-based conflict in a well-controlled, structured environment, this study affords an opportunity to provide evidence in response to calls by other investigators, searching for answers to understand the influence of peer environment during early childhood (Huston, Bobbitt & Bentley, 2015; Vandell, et al., 2010). Furthermore, by better understanding how a global measure, such as our social competence variable, relates to a very specific type of peer interaction, this study is able to examine tangible means of detecting and understanding the implications of social competence in a classroom setting.

II. LITERATURE REVIEW

Individual differences with respect to social competence become recognizable and consistent during the preschool years (Santos et al., 2014; Shin et al., 2011; Vaughn et al.,2009), and are related to concurrent emotional, cognitive and social adjustment (e.g., Bukowski, Buhrmester and Umberson, 2011) as well as to future adjustment outcomes (e.g., Martin, Fabes, Hanish and Hollenstien, 2005). Peer interaction generates a host of opportunities for preschoolers to practice and enlarge their social, cognitive and emotional skill sets, most likely through navigating various forms of interaction, including interactions involving conflict, across varying contexts. Though often thought as an indicator of poor social skills (i.e. deficient social information processing skills; Dodge, 1986) or adjustment, resource-based conflicts between peers are common for children attending early education or child-care programs (Chen et al., 2001, Killen & Turiel, 1991; Bakeman & Brownlee, 1982). How children attempt to manage or cope with peer conflict provides a unique and specific perspective on the availability and use of specific social skills during early childhood.

Although several studies have reported on children's tactics for coping with peer conflict during early childhood (Maccoby & Jacklin, 1978; Knight et al., 2002; Miller, Danaher & Forbes, 1986), there remain open questions regarding young children's management of such conflicts – particularly with regard to how coping may relate to social competence, as assessed in the classroom. A central purpose of this study is to test the hypothesis that children's use of certain tactics (i.e. assertion, negotiation) reflects individual differences in overall social competence. Furthermore, this study will be able to examine children's use of tactics with partners of the same or opposite sex to determine if their social competence level predicts use of tactics differentially across sex of partner.

For older children and adolescents, the study of conflict resolution, and how it relates to social functioning, has been developed more completely. So, the initial part of this section reviews frameworks that researchers have used to assess coping in older children. Aspects of

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these frameworks will be borrowed as we develop the taxonomy of tactics to characterize how preschoolers cope with their peers in their classroom.

Coping Definition and Identification of Coping Processes

Within peer interactions, coping involves the use of behavioral, cognitive, and emotional resources to meet specific external and/or internal demands under conditions of actual or potential stress (Lazarus and Folkman, 1984; Skinner and Wellborn, 1994). Just as peer conflict varies in across the lifespan (e.g. frequency, topic, duration), so do coping responses to peer conflict. Researchers have attempted to assess both group and individual differences in children's and adolescents' coping responses through various measures and categories (Skinner et al., 2003).

Middle childhood and adolescent researchers assessing coping responses to peer conflict often favor hypothetical questions that generate self-report data regarding one's coping response, as it is time and cost-effective, and allows for insight into the individual's cognitive experience as well as a controlled comparison between the individuals (Chung & Asher, 1996, Noakes & Rinaldi, 2006). Using these methods, researchers have subdivided coping tactics in terms of their personal experience for the individual (i.e., identifying "primary" *vs.* "secondary" tactics; Connor-Smith et al., 2000). In the adolescent and adult literatures, primary coping tactics are considered attempts to change the situation, whereas secondary coping tactics are considered adjustments to the environmental context (e.g. got used to the change; Connor-Smith et al., 2000). The terms problem-focused and emotion-focused have also been used by researchers who have detected similar differences in the central aim of the individual's coping response (Zimmer-Gembeck & Skinner, 2011).

Another classification of coping responses, and perhaps the most common, involves the assessment of differences between the distinct responses of (1) individuals who direct their efforts towards managing the conflict and (2) individuals who direct their efforts away from dealing with the conflict. Compas's team (2001) classified these categories of coping responses as "engaged" *vs.* "disengaged," while other research teams classify the categories as "approach" and "avoidant" behavior (Laursen et al., 2001; Roth & Cohen, 1986), or even "control" and "escape" responses (Latack & Havlovic, 1992). Engaged, approach or controlled responses are actions directed towards the stressor, while disengaged, avoidant or escape responses are actions orienting oneself away from the stressor.

Because studies of conflict resolution have employed very different methods for data collection at different life stages, comparisons across studies is challenging. Several studies have attempted to consolidate the many coping categories. In a study of school-aged children, Ayers, Sanler, West and Roosa (1996) analyzed 10 coping scales and reported four factors for children in fourth through sixth grades (i.e. active coping such as direct problem solving, social support seeking, distraction, and cognitive avoidance). Connor-Smith et al. (2000) conducted a confirmatory factor analysis of adolescent self-reports about conflict style and reported three primary factors (i.e., primary control engagement coping, with loadings for problem solving and emotional expression, secondary control engagement coping, with loadings for cognitive restricting, positive thinking, and disengagement coping, with a loading for denial).

More recently, developmentally oriented coping frameworks have begun to emerge. After analyzing 100 coping schemes, Skinner et al. (2003) found evidence for 13, more specific, families of coping (i.e. self-reliance, problem-solving, submission, opposition, escape, support-seeking, information seeking, helplessness, negotiation, isolation, accommodation, submission

and opposition) in child, adolescent and adult studies. Most recently, Zimmer-Gembeck and Skinner (2011) conducted a large-scale review of coping from infancy through adolescence to unify the inconsistent subcategory categories from early childhood through adolescence. They identified four general families of coping tactics with empirical support from infancy through adolescence that account for all previous reviews and meta-analyses: problem-solving, distraction, support-seeking, and escape. These four families, along with Skinner and colleagues (2003) more specific coping families, provide a foundation for assessing and comparing children's use of coping tactics during peer conflict throughout developmental periods, affording the opportunity to explore change and growth in the use of coping tactics over time.

Coping in the Present Study

With a preschool population (ages 3 to 5), conducting structured interviews, and generating self-report data is unadvisable due to their (particularly the three-year-olds) limited language and thought process ability (Shonkoff, 2010). As such, in the current study, conflict-provoking events between preschoolers were created and then observed, allowing for a more valid assessment of the children's actual responses to a resource-based conflict (Laursen & Collin, 1994). Structured laboratory observation allows for the assessment of a given child experiencing similar, if not identical, resource-based problems with several different partners. Because we can assess a child in a variety of contextual conditions (e.g. sex of dyadic partner), detecting children's dominant or primary tactic across partner types (i.e. sex) and primary tactic between partners (main tactic during conflict with a same-sex partner) is plausible. Therefore, we have appropriated Connor-Smith's (2000) differentiation of primary and secondary tactics, but view the distinction between primary and secondary in terms of the typicality of tactic, as well as

its direct (or indirect) use for a given child. That is, *primary* tactics would be clear, direct attempts for change and *secondary* tactics would be indirect attempts that are *paired* with a primary tactic (i.e. reaching, but not grabbing, for a toy *while* using an assertive primary tactic – demanding that he or she wants the toy). See Table 1 and 2 for additional information and examples.

The reason we are including secondary tactics is to not miss exemplars of interaction, and to account for a more descriptive and detailed record of the manner in which children used each tactic. By distinguishing between the two forms of tactic use, our codes of each become more crystalized and uniform. In this study, secondary tactics codes are removed, and only primary tactics are assessed in preschooler's episodes of peer conflict.

While primary and secondary tactics categories provide clarity in the coding of preschooler's responses to conflict episodes, according to Zimmer-Gembrek and Skinner (2011), a general framework or structure is also needed to organize the coping tactic categories and obtain a clearer picture of trends and differences. To continue to build the coping literature and support the use of a developmental framework, we organized our coping tactics with Zimmer-Gembrek and Skinner's (2011) basic framework, with some caveats. With our data, two of the four families, problem-solving and support-seeking, are easily adapted. The category of distraction, is also used, but as a measured tactic rather than a category (see Figure 1). This is because when observing preschoolers, behavioral distraction is the only plausible measured tactic that could be considered under the "distraction" category (i.e., there is no obvious basis for inferring "cognitive" distraction such as "thinking about something else"). Similarly, the category of escape is also used, but as a measurement tactic of avoidance, rather than a category. Because children were not permitted to leave the five-minute interaction vignettes, avoidant

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responses, such as ignoring or avoiding the conflict altogether, were considered evidence of conflict avoidance or escape.

According to Zimmer-Gembeck and Skinner (2011), the three families (problem-solving, support-seeking and distraction) of coping with conflict clearly occur at the preschool age, as detected through their requests, inquiries or behavior during short segments of interaction. Problem-solving and support-seeking can both be considered engaged tactics, while our measured tactics of distraction and avoidance can be considered as disengaged tactics. Tables 1 and 2 present the specific subcategories for the engaged and disengaged dimension and within Zimmer-Gembeck and Skinner's framework (2011).

Coping Tactics

Engaged Coping. In Compas's (2001) large meta-analysis, engaged coping tactics are most often related to higher competence (both social and academic). Within Compas's review of the coping literature, problem-solving tactics is one of the coping categories most consistently associated with better adjustment. Associations of specific strategies within the problem-solving category are still unclear (according to Compas et al., 2001), although age does seem to play some role. According to Chen's team (2001), if a two-year-old didn't yield to their partner (e.g. give up his or her resource), they are most likely to use physical or verbal assertions. Three year olds can be somewhat more elaborate in their assertions and include more explanations ("I had it first") while four-year-olds include attempts at negotiation ("how about you have this one, and I'll have this one?). Although these differences seem small, they likely represent the increasing social and cognitive understanding as the children develop (e.g., perspective taking, awareness of

partner's intention, etc.), and furthermore, gives a developmental order to the specific tactics within problem-solving.

Problem Solving. Studies examining specific coping tactics afford insights into the mechanisms creating the broad coping categories. For example, in hypothetical interviews, Iskandar (1995) found that most preschoolers report a preference to use negotiation over tactics such as assertion or avoidance. Yet despite their stated preferences, preschoolers are often observed to engage in coercion (Laursen, Finkelstein & Betts, 2001) or object-agonist (e.g. physical) strategies (Krasnor & Rubin, 1983). Negotiation then may be considered a more advanced tactic within problem-solving and engaged coping. Comparatively, one may assume that physical means to manage a resource-based conflict would be considered a more immature tactic, yet instrumental aggression (use of force to obtain an object; Zimmer-Gembeck & Skinner, 2011) or physical assertion (Ostrov et al., 2006) is normative during early childhood (Hay, Castle & Davis, 2000), and children perceive it as less blameworthy than physical assaults (Hay, Zahn-Waxler, Cummings & Iannotti, 1992). Normative (instrumental) aggression has even been found to be associated with high peer acceptance rates (Dodge, Coie, Petit & Price, 1990) and social competence (Vaughn et al., 2003), suggesting that perhaps it should be given more attention as a problem-solving and engaged coping tactic.

Support Seeking. Support seeking is another grouping category within the dimension of engaged coping. For young children, seeking the support of an adult is the most frequently used source of support in situations such as getting what they want, overcoming obstacles, distracting themselves or withdraw from stressful encounters (Zimmer-Gembeck & Skinner, 2011). Furthermore, the support of an adult may even be needed to mediate children's management of peer conflict (to coordinate their own needs with those of others, understand the other's

intention; Chen, 2003) or the back-up plan for when children's self-initiated coping tactics are not leading to an acceptable solution. Zimmer-Gembeck and Skinner (2011) extend this notion and consider adult assistance to act as a "safety valve" that prevents coping tactics that are maladaptive (opposition, helplessness). Interestingly, while seeking adult support is a seemingly common occurrence during peer conflict in the preschool years, it is often measured through parent or teacher questionnaires. As Fields and Prinz (1997) point out, perhaps a child's action to seek support is more salient to the parent, but may not reflect the child's subjective experiences. The current study will afford the opportunity to see how common this tactic is for preschoolers. From kindergarten to second grade, Bernzweig, Eisenberg & Fabes (1993) found a decrease in support seeking, and an increase in both direct problem-solving and avoidance. This may be because preschoolers and kindergarteners are explicitly taught to seek adult support (rather than to engage in physical conflict) when resolving resource disputes, likely more so than older children, or because around ages 7-8, children either work towards solving their problem independently, or avoid it altogether, rather than seeking adult assistance.

Disengaged Coping. Disengaged coping is often associated with lower competence (both social and academic) as well as more internalizing and, and sometimes, more externalizing problems (Compas et al., 2001). Yet, as Compas and colleagues (2001) suggest, these poor associations may be context and age specific. Perhaps, at the preschool age, the use of disengaged tactics during a resource-based conflict with a peer is not associated with poor outcomes, but rather, is developmentally appropriate, and normative. The current study will explore this possibility and determine, in our current context, if the use of disengaged tactics is related to higher or lower levels of social competence.

Avoidance. The measure of avoidance has been more consolidated in its conceptualization with it being considered primarily escape or social isolation (Zimmer-Gembeck & Skinner, 2011), or flight (Baumgartner & Strayer, 2008). The use of escaping to deal with a conflict, is generally infrequent across both childhood and adolescence, though it seems to increase throughout development. In a study examining differences in reactions to peer conflict, fleeing from the conflict occurred on average in about 21% of conflict for three-year-olds, and increased to 34% of conflicts in five-year-olds (Baumgartner & Strayer, 2008). This finding is consistent with the meta-analysis by Zimmer-Gembeck and Skinner in 2011, as behavioral distraction (escaping the situation) was found to be the most commonly used form of distraction from age 5 through age 18. Avoidance is typically associated with negative peer outcomes, such as low peer acceptance and high peer rejection, particularly amongst boys (McElwain, Olson & Volling, 2002).

Hypotheses. In the current study, we hypothesize that social competence will be positively associated with engaged coping, particularly problem-solving tactics, and negatively related to disengaged coping, particularly avoidance tactics.

Sex. Conflicts, particularly those involving anger, occur more frequently between boys than between girls (Fabes & Eisenberg, 1992), and boys are more likely to vent (i.e. cry) in reaction to the anger conflicts, while girls are more likely to actively resist or defend their position while using assertive strategies that maintain social harmony (Fabes & Eisenberg, 1992). Perhaps, this may explain why girls at age four have also been found to be more cooperative than boys (Else-Quest, Hyde, Goldsmith and Van Hulle, 2006), as well as less agonistic (McGrew, 1972). In a meta-analysis, Compas et al. (2001) suggested that preschool girls use a wider range of coping tactics than boys though in general, were more likely to use

engaged (*vs.* disengaged) tactics. This is consistent with Eisenberg and team's findings (1998), that preschool girls are more likely to seek support during a peer conflict than boys.

In a review of sex differences in peer processes, Rose and Rudolph (2006) compiled findings from a range of studies measuring older children's coping tactics during peer conflict. Late elementary girls have been found to seek support in response to peer stress more often than boys, while also ruminate (i.e. perseveration; dwelling on one's problem) more than boys (Broderick, 1998), and ninth grade boys tend to use distraction more than girls (Broderick, 1998; Copeland & Hess, 1995). For avoidance, studies examining both preschool age children and older children have shown that boys' are more likely (though not always; Eisenberg et al., 1998) to use avoidance as a tactic during peer conflict than girls (McElwain, Olson, Volling, 2002).

Hypotheses. We hypothesize that (1) girls will be more likely to use engaged tactics than boys and (2) boys will be slightly more likely to use disengaged tactics than girls, particularly distraction.

Contextual Influences of Coping

Our resource-based conflict consists of two children, seated at a table where there are two battery-powered toys (one for each child) but one is inoperable (no battery). This uneven resource distribution creates a dilemma, in which the child without the working toy has to assess the situation and find a possible solution to remedy his/her position with the non-working resource – most often by attempting to obtain the dyadic partner's working toy. Within this context, a given child was observed interacting with 3-5 different peers. Therefore, the relation between individual social competence scores and the coping tactics used during the resource-

based conflict, can be examined at the level of dyad sex composition (boy-boy, boy-girl, and girl-girl).

Dyad Sex. Maccoby and Jacklin (1980) found that boys' aggression was most often displayed when matched with a boy, rather than a girl, partner. In fact, the rate of conflict has been reported to be higher in boy dyads than both boy-girl dyads and girl dyads (Smith & Green, 1975), particularly when examining aggression or other physical tactics (Knight et al., 2002; Miller, Danaher & Forbes, 1986). Interestingly, mixed dyads (boy-girl) have been found to adjust individual tendencies insofar as boys are likely to become less aggressive, while girls are more likely to become more aggressive or use more physical tactics (Maccoby & Jacklin, 1980; Miller, Danaher & Forbes, 1986).

Hypotheses. First, we hypothesize that children will show significant differences in coping tactic use depending on the sex of their partner (dyad sex condition). In the same-sex condition, we believe boys will use more physical tactics, while girls will use more engaged tactics (than boys), particularly in seeking support. Boys in the mixed sex condition will use more engaged tactics, while girls in the mixed sex condition will use more disengaged tactics, particularly avoidance.

Furthermore, we hypothesize that social competence will then explain children's variance in coping tactics between dyad sex conditions. As such, we expect social competence to be positively related to engaged coping in same-sex dyads, and positively related to disengaged coping in mixed-sex dyads. We expect boys with higher social competence levels to use more support seeking with a mixed sex partner, and more problem-solving with a same-sex partner, and females with higher social competence levels to use more support seeking with a same sex partner, and more problem-solving with a mixed sex partner. For children with lower SC levels,

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we hypothesize that there will be little to no difference in their use of engaged or disengaged tactics between conditions.

Age. Within the preschool years, there is great variability in both the ability and deployment of coping tactics to manage peer conflict. As young children progress through preschool, certain coping tactics are reinforced while other tactics are left unpracticed. How children choose to manage situations where they do not have (or have) a broken toy, should relate to children's social and cognitive abilities, both of which increase with age (Chen et al., 2001; Astington, 1993). Paired with adult reinforcement, over time, preschoolers become more aware and more sensitive to issues of fairness, including that of sharing and turn-taking (Killen & Smetana, 1999). Presumably, older preschoolers would be more aware of a resource distribution problem, perceive it as more of a conflict, but also, recognize claims of fairness from their peers and respond to their partner's negative affect (Chen et al., 2001).

Hypotheses. We expect older children to use both engaged and disengaged tactics more frequently than do younger children. Within engaged tactics, we hypothesize that older children will use more problem-solving tactics, while younger children will use more support seeking tactics. Within problem-solving, we expect younger children to use more physical and assertive tactics, and older children to use more negotiation tactics. Between dyad sex conditions, we expect older children to use more engaged tactics with a same-sex partner than younger children, and younger children to use more support seeking with a mixed-sex partner than older children.

III. METHODS

Participants

Dyadic play interactions with a resource dilemma were evaluated for one hundred and sixty-six children (95 male), from 3 three-year-old classrooms and 9 four-year-old classrooms. Of the 166 children, 36 (17 male) were three-year-olds. One hundred and seventeen children (67 male) were observed in both dyad sex conditions. All nine classrooms were located in the Southeastern United States at an Early Learning Center in a Metropolis area. Approximately 61% of the participants are Caucasian, and 38% are African-American. Families are predominately of middle to high social economic status.

Measures and Procedures

Measures of coping tactics during peer interaction were collected along with three groups of social competence measures; initiations of interaction and visual regard received from peers, Q-sort descriptions based on observation and sociometric interviews.

Coping Tactic Measure. Children's coping tactics were scored from observations of dyadic play vignettes. Pairs of children from the same classroom were taken to an observation room in the preschool, and given an opportunity to interact using the toys provided. The play materials included two identical battery-powered toys, however, one of these (unknown to the children) was inoperable. The instructions did not specify who was to use which toy, but merely that they were welcome to play with the toys, while they sat at the table (or on the floor, in some tasks) for five minutes. The research staff member sat in a chair near the door to the room reading a text and did not initiate interactions with either child until the end of the episode

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(unless the children engaged in high intensity conflict that was not resolved quickly or asked a direct question to her/him). The interactions were video recorded for subsequent coding.

Video Coding. Each child was coded separately for coping tactics during one minute intervals throughout the full five-minute episode. In a randomly selected sample, on average, 1.05 conflict episodes (requiring the use of a coping tactic) were observed every minute ($N = 165$ minutes). Coping tactics were coded as physical, assertion, negotiation, seeking peer assistance, seeking adult assistance, self-investigation, distraction, avoidance or perseveration. Perseveration is included as a measure of failing to cope, and used to indicate preschoolers who were unable to cope with the resource dilemma. Multiple tactics could be coded in the same minute. Primary and secondary codes were recorded for each coping tactic, such that a primary code of a coping tactic represents an independent, direct tactic, and a secondary code of a coping tactic represents a paired, indirect tactic occurring concurrently with a more direct, primary tactic. The coding manual is attached as Appendix A.

The video records of the dyad conflict interactions were coded by 5 undergraduate research assistants throughout two semesters. Training for each coder lasted six weeks of individual training with the first author. Weekly inter-rater reliability checks and booster sessions were then used to ensure no deviation from the continued reliability. All coders were required to achieve a Cohen's kappa statistic greater than .7 (matched with head trainer). Table 3 shows the coders inter-rater agreement statistics.

Social Competence Measures. Portions of the following assessment descriptions used for this study were taken with permission from Vaughn and associates and exist verbatim in previous publications by Vaughn and colleagues (e.g., Shin et al., 2007, Vaughn et al., 2009, Bost et al., 1998; Vaughn et al., 2001). The following measures of social competence have been

validated and frequently proven to be accurate assessments within the published literature. Three measurement families are used in this study to characterize three broad domains of social competence indicators: (a) comprehensive behavioral/personality descriptions summarized using Q- sort techniques and scores for the social competence dimension (*Profiles of Behavior/Personality*), (b) direct observations of visual regard received from peers and the initiation of positive and neutral interactions with peers (*Social Motivation/Social Engagement*), and (c) *Peer Acceptance* using picture sociometric interviews.

Profiles of Behavior/Personality. Q-sort observers worked in teams of two for each classroom. Independently, each observer spent approximately 20 hours observing the children in a given classroom. They took notes of the behaviors and attributes of individual children over this period, taking care to observe each child on several different days across a variety of activity settings (e.g. center-time play, snack time, small groups, outdoor play, transition activity and cleanup time). When observations were completed, each of the two assistants described all children with two Q sets: *Block & Block California Child Q-set-100 items-CCQ and the Bronson revision of the Baumrind Preschool Q-set-72 items-PQ*. If a child was absent from the classroom for over half a given observer's observation hour, he or she was not described by the observer.

Five different graduate and undergraduate student assistants contributed to the Q-sort data over the years of data collection. Prior to data collection, all observers were trained in the meanings of the items and instructed regarding items that they were not likely to be able to observe (such items were placed in the center of the Q-sort). Both Q-sorts were sorted according to rectangular distributions with equal numbers of items (9 piles of 11, with the old item sorted to the center for the CCQ and 9 piles of 8 items each for the PQ).

The Q-sort descriptions of each child were used to derive social competence scores for each child using the criteria published by Waters and Sroufe (1983). Thus, the Q-sort description for a child provided by a given observer was correlated with the profile of the hypothetical child at the extreme for social competence that has been generated by aggregating the descriptions provided by experts in children's social development. The correlation between a Q-sort for a given child and the criterion sort for the construct becomes his or her score for that construct. This technique is commonly used to summarize Q-data and has been shown to yield valid and reliable scores over a range of personality and behavior relevant to constructs for children (e.g. Block & Block, 1980; Waters et al., 1985). Following the suggestion made by Waters and Sroufe, (1983) the scores were adjusted for social desirability response sets on the part of observers by controlling for social desirability response sets on the part of observers by controlling for social desirability response sets on the part of observers by controlling for social desirability in the Q-set while calculating he correlations between individual children and the criterion sorts. This criterion sort adjusts for the level of social desirability for each item in each Q-set. Cross-rater agreement scores for social competence scores were acceptable (range .5 to .8 for different coder-pairs).

Social Engagement/Motivation. This group of social competence measures was derived from observations of *visual attention* directed to peer and the *initiation of positive and neutral behavior* to peers. Working from class rosters, pairs of trained graduate and undergraduate students watched each child present in class for a six second interval and recorded the identify codes of peers receiving a unit of visual attention for the observed target. Two categories of visual attention were defined (see Vaughn & Waters, 1981). A look was defined as the orientation of head and/or eyes toward another person for a period of two seconds or more. A

glance was defined as a similar orientation of head and/or eyes for less than two seconds. A target child was observed for each round of the class when the child's name appeared on a class list, and no child was observed twice before all children present were observed once. Scores were derived by calculating the sum of looks and glances received from peers. To adjust for absences and differing numbers of observational rounds across classrooms, rate scores were calculated by dividing the total visual regard received score by the number of rounds a child was present in class for observation. As with the Q-sort data, children absent for 50% of more of observation rounds were excluded from all inferential analysis of the data. Previous research using this observational protocol has demonstrated that observers quickly reach agreement rates of 80% and above with only limited training. Rater agreements have been estimated for similar samples, and have had kappa coefficients for visual attention ranging from .60 to .90 across all rater pairs, median = .70.

The observers collecting visual regard data also collected data regarding the *initiation of social interaction*. Again, working from class rosters, observers watched each child present in the class for a given round for a 15 second interval. At the end of the interval, the observer recorded identifiers for each child with which the target interacted, a code for which child initiated the interaction, and a code for indicating the general valence (positive, neutral, negative) of the interaction exchange. All physical contact was coded as an interaction, even when the contact was causal and may not have elicited a response from the recipient (e.g. a child standing in line briefly puts her hands on the shoulders of the child standing in front of her). Talking and playing together were coded as interactions, regardless of the topic of conversation or the content of play. Likewise, quarrels and agonistic actions were coded as negative interactions. Rater agreements

have been estimated for similar samples, and have had kappa coefficients for initiation of social interaction ranging from .55 to .85 across the three interaction categories, median = .69.

Peer Acceptance. For the *nominations* task (McCandless & Marshall, 1957), both positive and negative nominations were elicited. Each child was presented with an arrangement (randomly mixed for each child) of photographs of his/her classmates. From this arrangement, each child chose three peers whom he or she especially liked and three whom he or she did not especially like. After a child was chosen as either a positive or negative nominee, his or her photograph was turned face down. When the positive and negative choices had been registered, the child returned to the array and continued to identify children he or she liked until all photos were face down. Then a complete matrix of nominations data was generated. Primary scores were derived by calculating total number of times a child was chosen by peers in both positive (first three choices only) and negative choice segments. To adjust for differences in effective class sizes, these sums were dived by the number of children making ratings in each classroom. Secondary scores for this data set were derived from the order in which the child chose peers.

In the second sociometric assessment, the preschoolers completed a *paired comparisons task* (Vaughn & Waters, 1981). For each pair of children in the classroom (total number of comparisons in a given task = $(n*(n-1)/2)$, a card was prepared and shown to the given child being interviewed. The child was asked which of these two children you especially like, for each pair. This task was time consuming and children occasionally got tired of it. The assistant administering the task was careful to monitor the child's apparent interest and stopped the testing session if the child became too distracted. None of the children took more than two 15- to 20-minute sessions to complete the task. An average score was calculated by summing the choices

received from peers in the classroom and dividing that total by the number of peers making

choices.

IV. RESULTS

Plan of Analysis

Preliminary analyses were conducted to create coping tactic variables that controlled for the number of conflict episodes experienced by the number of partners with whom the child was observed. Subsequent analyses determined the structure of both the coping tactic variables and the social competence variables. Table 4 shows how each hypothesis was subsequently tested.

Bivariate correlations were used to test hypotheses regarding tactic differences by sex, age and social competence level. The tactic correlations with age and sex were examined across and between dyad sex conditions. Following these initial analyses, an unconditional multi-level model (MLM; Mplus, Edition 7) was conducted to determine whether children's use of coping tactics varied across partners, and a conditional MLM was conducted to determine whether the variance in children's coping across partners could be explained by the sex of their partner. Therefore, dyad sex condition (same, mixed) represents the level one predictor, and the repeated measures of preschooler's individual coping tactics during dyad play represents the level 1 outcome. Social competence was included as a level 2 predictor to determine whether children's differential use of tactics between dyad sex conditions could be predicted by social competence level. Age and sex were also included as level 2 predictors.

Preliminary Analyses

Conflict. The number of conflict episodes was calculated to determine how often the dyadic play resource dilemma created a conflict among children, and thus prompted the use of coping tactics (or failure to cope), for each child. Exposure to conflict was controlled for by dividing the number conflict episodes by the child's number of partners. On average, children

experienced 12.67 (*SD* = 6.74) conflict episodes that required the use of a coping tactic, with an average of 4.19 (*SD* = 1.69) conflicts per interaction partner. Same-sex dyads had somewhat higher rates of conflict (*M* = 4.09, *SD* = 2.1) than mixed sex dyads (*M* = 3.7, *SD* = 2.2), though the difference was not significant, *t*(116) =1.42, *p* = .16. Similarly, no significant differences were observed in the rate of conflict episodes experienced by sex, age or race (Table 5). Altogether, the resource dilemma produced a significant amount of conflict during the preschoolers' five-minute dyadic play period and provided a sufficient number of episodes to evaluate preschoolers coping tactics.

Coping Tactics. To assess preschoolers' coping tactic use, sum scores of each tactic were created across all one-minute coding intervals, totaling up to 15 one-minute intervals (3 videos) for same-sex partners, and 15 one-minute intervals (3 videos) for mixed-sex partners. A total score across both conditions (up to 30 one-minute intervals), as well as specific dyad condition scores (same-sex and mixed-sex) were created. Each sum coping tactic score was then divided by the adjusted number of conflict episodes, to determine how often, on average, each coping tactic was used by the child when she/he was faced with a resource conflict with a partner. Table 6 shows the raw means and standard deviations for each coping tactic variable, both across and between dyad sex conditions. Because all coping tactic variables showed a positive skew, log-transformations were performed for each tactic. Assertion was the most commonly observed tactic, followed by physical, seeking adult assistance, and negotiation. On average, most preschoolers used about one assertive tactic per partner to manage the resource dilemma, and used a physical tactic at least once every two interactions. Perseveration was the least common tactic, followed by distraction. A paired t-test showed no significant difference in tactic use between same-sex and mixed-sex conditions, for any of the tactics scored.

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Social competence scores. The correlation matrix for the social competence scores that represent three measurement families (profiles of behavior/personality, social motivation/social engagement and peer acceptance) are shown in Table 7. Nearly all indicators, with the exception of neutral and positive initiation, were highly correlated with the indicators in their competence family measure, and correlated with indicators of other families. Age was positively associated with preschoolers' positive initiation, visual regard, and the Baumrind Preschool Q-sort scores. Older children were more likely to initiate positive interactions with, and receive more attention from, peers, and were evaluated as more competent based on scores from an observer Q-sort than younger children. Sex was associated with initiating positively-toned interactions, with males being more likely to initiate positive interactions with peers than females. Ethnicity was negatively associated with both measures of peer acceptance. African-American preschoolers were more likely to receive lower peer acceptance ratings than European-American preschoolers in this sample.

Coping Tactic Structure

Correlations among coping tactics are shown in Table 8. Scores for assertion were positively correlated with physical tactics and distraction, and negotiation scores were positively associated with seeking adult assistance and investigation. In addition, investigation scores were positively associated with seeking peer assistance, and with perseveration. Avoidance and distraction were also positively associated, while avoidance was negatively associated with seeking adult assistance and perseveration.

A principal factor analysis with orthogonal rotation was conducted to further explore the relations and structure of the preschoolers' overall coping tactic use. Table 9 shows the final

grouping of factors and Figure 3 shows the general structure. As expected, differences emerged between engaged and disengaged tactics, with the engaged tactics loading onto two distinct factors. However, the structure of the "engaged coping" variables differed from initial expectations. Negotiation was more strongly related to support-seeking tactics (seeking peer or adult assistance) than to problem-solving tactics (physical or assertion). Similarly, investigation was more strongly related to perseveration, a tactic that reflects the child's inability to choose a coping response, rather than problem-solving. Thus, in this study, the problem-solving factor was only composed of physical and assertion tactics, and represents *assertive* tactics with both physical and verbal assertions. Support-seeking, with the inclusion of negotiation, now represents *cooperative* tactics, such that the preschooler works with the peer and adult to determine a potential strategy to share the resource. Disengaged coping tactics loaded as expected with avoidance and distraction, and therefore can still be considered as *disengaged*. Although our original concept of investigation implied an attempt by the child to "fix" the resource, the use of this tactic appears to be more reflective of an inability to look past the problem, rather than an approach to solving the problem. Thus, the child spending his/her time attempting to manipulate the clearly not-operable resource was preoccupied with the problem, not attempting to manage the issue. The fourth factor then, represents preschoolers' *failure to cope* with the resource-based dilemma. Factor scores were derived from this factor matrix and served as the "coping families" for all subsequent analyses.

Age and Sex Differences in Tactic Use

As the correlations in Table 8 shows, older children were more likely to use physical (M = .18, SD = .13), negotiation (M = .14, SD = .13), and distraction (M = .03, SD = .06) tactics than

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younger children ($M_{physical}$ = .11, SD = .12.; $M_{negotiation}$ = .08, SD = .11; $M_{distraction}$ = .001, SD =

.01). No differences were found between males and females in overall tactic use. However,

significant sex differences did exist between dyad sex conditions. In the mixed-sex condition

(Table 10), distraction was more likely to be used by boys (M = .02, SD = .04) than girls (M =

.003, SD = .01), while perseveration was more common for girls (M = .01, SD = .05) than boys,

as no boy was observed to perseverate in the same-sex condition. No age differences were

observed in the mixed sex condition. In the same-sex condition (Table 11), perseveration was

more common for younger children (M = .03, SD = .07) than older children (M = .005, SD =

.02), and boys (M = .11, SD = .11) were more likely to use physical tactics than girls (M = .07,

SD = .09). Similar to the correlations across the two conditions, older children were also more

likely to use physical (M = .11, SD = .11), negotiation (M = .09, SD = .1), and distraction (M =

.02, SD = .05) tactics than younger children in the same-sex dyad condition ($M_{physical}$ = .05, SD =

.08.; $M_{negotiation}$ = .05, SD = .08). No three-year-old was observed using distraction in the same-

sex condition. Furthermore, no ethnic differences were observed in the use of coping tactics,

across or between conditions, to manage the resource conflict.

Age, sex, and ethnic associations with coping tactic factors can be found in Table 12. Age

was the only demographic variable that was significantly associated with coping tactic factors.

Older children were more likely to use cooperative (M = 4.98, SD = 3.72), assertive (M = 6.18,

SD = 3.73), and disengaged (M = 1.23, SD = 1.73) tactics than were younger children ($M_{cooperative}$

= .3.19, SD = 3.45; $M_{assertive}$ = 4.14, SD = 3.13; $M_{disengaged}$ = .58, SD = .78). No differences were

observed in children's failure to cope with the resource dilemma.

Social Competence and Tactic Use

Correlations between the coping tactic factors and social competence indicators are also shown in Table 12. The overall social competence measure was derived from the first unrotated factor score from a principle factor analysis of the seven social competence indicators. Loadings on the social competence factor are shown in Table 13. The social competence factor provides a general basis for examining which coping tactic factors were most (or least) reflective of preschoolers' social competence. Contrary to our hypotheses, only failure to cope during the resource dilemma was significantly (negatively) associated with overall social competence, while the use of cooperative tactics was marginally (positively) associated with social competence. Therefore, children who had high rates of perseveration and investigation were more likely to have lower social competence scores, and children who had high rates of negotiation or seeking peer/adult assistance were somewhat more likely to have higher social competence scores. Neither disengaged nor assertive tactics were significantly related to the overall social competence factor, suggesting that the use of avoidance and distraction, or physical and assertive tactics, during the resource dilemma is not a reflection of social competence during early childhood.

To further understand the social competence and coping tactic relationship, associations between the tactic factors and the three social competence measurement families were examined (Table 12). The social motivation/engagement and behavior/personality indicators demonstrate a clear negative relationship to children's failure to cope with the resource dilemma. Preschoolers who failed to cope with the resource dilemma had lower rates of neutral initiation with, and visual attention from, peers, and also scored lower on observer Q-sort ratings. However, failure to cope was not associated with any peer acceptance indicators, unlike the other three coping factors. The use of cooperative, assertive, and disengaged tactics were related to more positive

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initiations with peers, lower levels of neutral initiation, and higher scores on the paired

comparison task. However, the use of disengaged tactics was related to fewer positive

nominations (peer acceptance measure), while the use of cooperative tactics was marginally

associated with higher rates on the California Child Q-sort. Therefore, only the use of

cooperative tactics showed an additional positive association with observer ratings of social

competence (though marginal) beyond those also associated with assertion and disengaged

tactics, and no negative association beyond neutral initiation. Disengaged tactics and assertive

tactics seem relatively similar in their relationship to social competence measures, with only

slight differences. The use of assertive tactics was linked to higher peer acceptance ratings than

the use of disengaged tactics, and use of disengaged tactics was associated with higher social

motivation/engagement scores than was the use of assertive tactics.

Follow-up tests of differences in these associations by sex were examined in an attempt

to clarify the reason for null findings (Table 14). For males, the use of cooperative tactics was

significantly associated with higher scores on the overall social competence factor, while failing

to cope was only marginally associated with lower competence scores. For females, only failing

to cope was significantly associated with lower overall social competence scores. Therefore, the

use of cooperation tactics was positively associated with children's social competence scores for

males but not females, and failing to cope was significantly associated with poor social

competence scores for females while only trending toward significance for males.

Multi-level Model: The Influence of Dyad Sex

A multi-level model was used to address the second main hypothesis regarding whether

children's use of coping tactics differs by dyad sex condition. First, an unconditional model was

fit to the data to determine whether significant variance exists within and between children's use

of tactics across different partners (Table 15). All tactics had significant within-child variance,

suggesting that children showed significant variability in their use of each coping tactic across all

partners. A conditional model was conducted to determine whether the within-child variance can

be explained by dyad sex condition (Table 16). Dyad sex only significantly accounted for within-

child variance in seeking adult assistance, as children sought adult assistance more often in a

mixed-sex dyad than in a same-sex dyad. Dyad sex did not significantly explain children's

variability in physical, assertive, negotiation, seeking peer assistance, investigation, distraction,

avoidance, or perseveration tactic use across partners. Therefore, overall, dyad sex was not a

significant predictor of children's tactic use across partners, as children did not adjust their

coping tactics depending on the sex of their partner.

Significant between-child variance in the unconditional model was not as frequent. Out

of the nine tactics, significant between-child variability in the use of tactics between dyad sex

conditions was only identified for negotiation and seeking adult assistance. Between-child

variability was not significant in observations of children's use of physical, assertive, seeking

peer assistance, investigation, perseveration, distraction, or avoidant tactic use between dyad sex

conditions. Therefore, only negotiation and seeking adult assistance were included in the

conditional model as outcomes to determine whether between-child tactic differences in dyad sex

condition, can be predicted by social competence, sex, or age (Table 17).

For negotiation, age significantly predicted differences between children's use of

negotiation in a same-sex dyad, though did not predict a rate of change between the same and

mixed sex conditions (slope). Four-year-olds used negotiation more frequently in the same-sex

condition than did three-year-olds. Neither social competence nor sex were significant

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predictors, but together, the three variables accounted nearly all of the between-child variance in

negotiation. For seeking adult assistance, sex marginally predicted differences between

children's use of seeking adult assistance in a same- and mixed-sex dyad. There was a trend for

males to change their use of seeking adult assistance depending on the dyad sex conditions, and

to seek more adult assistance in a same-sex dyad than in a mixed-sex dyad, compared to females.

Again, while neither social competence nor age was a significant predictor, together, the three

variables explained nearly all of the between-child variance in adult assistance.

To explore sex differences, conditional models were tested to examine male and female

tactic use between dyad conditions (i.e. boys in same vs. mixed sex dyads and girls in same vs.

mixed sex dyads). Two dummy code variables were created: one for males (boy-boy vs. boy-

girl), and one for females (girl-girl vs. girl-boy). The within-level conditional model results are

shown in Table 18. Similar to the first within-level conditional model, both males and females

varied in their tactic use across partner interactions, but dyad sex did not explain a significant

amount of variability in tactic use. However, males were found to use significantly more seeking

adult assistance in the mixed-sex condition than the same-sex condition, while girls were found

to use significantly more distraction in the mixed-sex condition than the same-sex condition. By

separating dyad sex between boys and girls, additional between-child variance was detected in

distraction. Therefore, distraction was included in the conditional model along with negotiation

and seeking adult assistance (Table 19).

In the final conditional model, boys showed significant differences in their use of seeking

adult assistance depending on the dyad condition (i.e., higher rates in mixed-sex dyads), but

neither sex, age, nor social competence predicted that change. In contrast, girls showed

significant change in their use of distraction depending on the dyad condition (higher rates in a

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mixed sex dyad), and only age significantly predicted that change. Older girls were more likely to adjust their use of distraction between dyad sex conditions compared to younger preschoolers. Nearly all between-child variance in males and females was accounted for in distraction. However, significant between-child variability in males and females use of seeking adult assistance and negotiation between dyad sex conditions still exists.

Overall, the influence of dyad sex was marginal. Besides seeking adult assistance, dyad sex did not predict individual children's use of tactics across partners. Additionally, child differences in the use of negotiation, seeking adult assistance, and distraction by dyad sex condition did not strongly reflect social competence, sex, or age, although some dyad sex differences were identified among males and females separately.

V. DISCUSSION

This study had two main goals: (1) determine whether young children's coping tactics during resource-based conflicts with peers reflects their social competence level and (2) whether the use of tactics varies by sex of the partner. We found evidence that failing to cope with the resource dilemma is indicative of relatively lower social competence, while engaging in cooperative tactics is indicative of relatively higher social competence, particularly for males. While children's use of coping tactics did vary across partners, it however, did not depend upon the partner's sex.

In each of our dyadic peer play observations, the resource dilemma caused a conflict, on average, four times over the five-minute period. While prior studies have observed a sex difference in the frequency of conflict (Malloy & McMurray, 1996), males and females in the current study did not differ in the number of conflicts that emerged from the resource dilemma. Furthermore, assertive tactics were the most common responses to the conflict, followed by seeking adult assistance. This frequency differs from previous studies, as in the literature, seeking adult assistance is regarded as most common tactic used during the preschool age, especially for three-year-olds (Zimmer-Gembeck & Skinner, 2011).

These discrepancies may be due to differences in perspective and methodology. Some studies that observed a sex difference in conflict frequency assessed children's interactions in the natural preschool setting, rather than in a controlled setting (e.g., Malloy & McMurray, 1996). For example, through Malloy and McMurray's (1996) ethnographic perspective, where children were observed over 12 three-hour sessions during free-based play, boys were involved in 128 conflicts, while girls were only involved in 38. Furthermore, 52 boy-boy conflicts were recorded compared to only 7 girl-girl conflicts. Prior studies have also relied on parent or teacher

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questionnaires and/or hypothetical scenarios (e.g., Bernzweig, Eisenberg & Fabes, 1993; Eisenberg et al., 1993) to assess preschoolers coping tactics. Eisenberg's team (1993) assessed teachers and mother's perspective of their children's coping strategies through questionnaire responses where mothers rated their children's likelihood to cope with the stressors (e.g. peer knocked down their tower, or feeling excluded) through various tactics (e.g. avoid, seek support) on a scale from one to seven, with seven being most likely. Seeking instrumental support from an adult was the child's most likely response reported by the mothers for both girls ($M = 5.39$, $SD = 1$), and boys ($M = 5.26$, $SD = 1.18$). It is possible these methods used to measure children's coping tactics during peer interaction may have inflated children's frequency of adult seeking behavior, while also overlooking the true frequency of children's tactics that involve physical or assertive initiations (Fields & Prinz, 1997). Therefore, by directly exposing children to a controlled conflict, observing and studying a significant amount of conflicts, controlling for the number of conflicts/partners experienced and by using independent coders to rate young children's tactics, this study may more accurately reflect conflict and coping tactic use by children during a resource-based conflict.

Similarly, while previous studies have found sex differences in the use of engaged and disengaged tactics (Compas et al., 2001; Eisenberg et al., 1998), our study did not. Males were just as likely as females to use engaged tactics, and females were just as likely as males to use disengaged tactics. This could be due to the specific peer conflict observed. Prior studies have examined conflict more generally, and included coping tactics that were performed in an array of conflicts including peer relational conflicts, exclusion and resource control or physical pain (Bernzweig, Eisenberg & Fabes, 1993). Perhaps then, the use of coping tactics may differ by sex

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when including additional conflict types, but with specific interest in resource-based conflicts, no clear sex difference emerges.

This study was designed to compare the use of coping tactics, and the relationship between coping tactic use and social competence, with the results reported in the literature for middle childhood and adolescent years. Broadly construed, our coping tactic factors are relatively similar to those reported by other investigators studying older children and adolescents, as the distinction between engaged and disengaged tactics is supported at the preschool age. Yet the two types of engaged tactics formed in the factor analysis, assertive and cooperative, are somewhat different from those reported in Zimmer-Gembeck and Skinner's (2011) reported families of engaged coping with conflict at the preschool age: problem-solving and support-seeking.

In our resource dilemma, we argue preschoolers coping tactics seem to reflect reactivity vs. regulation capacities rather than a choice in problem-solving or support-seeking tactics. Children who used assertive tactics as a means to obtain or maintain the toy acted more out of reaction and impulse, whereas children who used cooperative tactics to obtain or maintain the resource regulated their impulse, and acted intentionally. The use of cooperative tactics then, perhaps demonstrates individuals self-regulation ability, which refers to efforts by the individual to manage and inhibit reactions under stress or in response to contextual demands – an adaptive skill in early development, which promotes the growth of social, emotional and cognitive competencies (Karreman et al., 2006). Yet in this study, the use of cooperative tactics only was only marginally associated with social competence level in the full sample, although the correlation was significant for the sub-sample of boys. Therefore, we suggest that, at the preschool age, children's regulation capacities during a resource dilemma are only beginning to

reflect social competence levels and the most salient (negative) reflection of social competence at this age, is children's failure to cope with the resource conflict altogether.

At the preschool age, failing to cope, or failing to attempt to resolve the resource dilemma, appears to reflect a deficit in the kinds of skills that are reflected in the social competence measure or a lack of motivation to confront the dyadic partner. To the extent in which competence reflects a child's ability to modify one's impulses and strategy to meet certain goals conditional upon contextual or situational demands, the negative association between failing to cope with the resource dilemma and competence is consistent with Zimmer-Gembeck and Skinner's (2011) meta-analytic conclusions. In their report, "an indicator of risk at preschool age (and a marker of cumulative failure of social partners to provide support) would be reactions to stressful encounters in which children primarily rely on social withdrawal and isolation" (p. 12). Thus, failure to cope with a resource dilemma in a dyadic peer interaction seems to be a way of identifying one of the deficits children have as a consequence of being less socially competent.

In studies concerning later years, failure to cope is likely incorporated into tactic groups such as escape (Latack & Havlovic, 1992) or submission (Zimmer-Gembeck & Skinner, 2011), both of which have been found to be negatively associated with measurements similar to our social competence measure (Zimmer-Gembeck & Skinner, 2011). It is possible that the children observed in our resource conflict vignettes may have chosen more "active" approaches, such as escape, or pure "isolation" when faced with an inoperable resource in their natural early childcare setting, but due to the structural demands of our study (i.e., these children were not allowed to leave the table during the five minute episodes) these options were not available. It should be noted, however, that our study revealed a distinct difference in "escape" between

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avoiding the peer conflict, and perseverating about the conflict. The negative correlation between avoidance and perseveration suggests, in our study, preschoolers who avoided their partner's cooperative or assertive requests for the operable resource were significantly less likely to perseverate over the problem when their resource was not operable. Therefore, it will be informative for future studies examining preschoolers coping behavior to include specific measures of disengaged tactics (such as avoidance or distraction) as well as failing to cope in a preoccupied sense (such as perseveration and investigation).

Examining children's tactic use by social competence family group provided additional insight into how the children's coping tactics during the resource dilemma reflected their social competence level. Failing to cope was negatively associated with social competence from two families of social competence indicators, including social competence Q-sorts and objective ratings of social motivation and engagement, but was not negatively associated with indicators of peer acceptance. Therefore, failing to cope reflects poor social competence through an objective analysis of social interaction and behavior, but does not reflect a difference in whether one is accepted into the peer group. Thus, while failing to cope with a resource dilemma is still clearly reflective of children who lack socially competent skills, it would not seem to be one of the reasons children might be lacking peer groups or friends.

Contrary to our hypothesis, the use of disengaged tactics did not reflect low levels of social competence. In fact, in our more detailed analysis, the use of disengaged tactics shows a very similar pattern of relationships to the social competence indicators as the engaged tactic factors, particularly assertive tactics. The use of disengaged tactics then, is still appropriate at the preschool age. Therefore, an important distinction should be recognized between the preschool age and later years. While later years have generally found negative associations with the use of

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disengaged tactics to manage a peer related problem (Compas et al., 2001; Compas, Malcarne & Fondacaro, 1988), at the preschool age, the use of avoidance or distraction during a resource-based dilemma with a peer is generally not connected with and not representative of child social competence.

While there is no mean difference in how often the resource-dilemma caused a conflict between three and four-year-olds, four-year-old children use both engaged and disengaged tactics more frequently than do three-year-old children. Because the final coping tactic structure did not exactly replicate the originally suggested structure with Zimmer-Gembreck and Skinner's dimensions, original hypotheses regarding the use of support-seeking and problem-solving tactics by age could not be evaluated. However, the similarities between cooperative and assertive tactics with age continue to demonstrate the normative nature of reactive tactics such as assertion, and the progression of regulation capacities. It is also possible, that this age finding may also be due to the current study's structured dyadic peer play setting with only one (operable) available resource to play with. Therefore, older children in a natural preschool setting may be less likely to engage in assertive tactics than younger children, but in a more confined environment, still engage in the more "rudimentary" behavior.

The increased use of cooperative and disengaged tactics with age is well supported (Zimmer-Gembeck & Skinner, 2011). While the use of distraction in middle-childhood or adolescence may signal a lack of social competence, at the preschool and kindergarten age, it is often a preferred alternative to peer stress and provides an avenue for children to re-engage with the stressor after regulating one's emotions (Zimmer-Gembeck & Skinner, 2011). In fact, young children are only thought to become capable of self-regulation around three years old (Karramen et al., 2006), and continue to develop and improve such skills over the child's life. Thus, the

development of self-regulation capacities may an essential skill towards using higher rates of cooperative tactics.

Overall, it is appropriate then that the use of assertive and disengaged tactics, in our study, is not related to the child's social competence, while cooperative tactics are beginning to show some signs of higher-level social ability, likely through growing self-regulation capacities. The preschool years seem to reflect a period of practice honing the use of regulatory skills such as cooperative tactics, rather than a period of accomplishment. This practice period sets the stage for the child to engage with peers more successfully and become more socially competent as peer and social networks enlarge. Thus, overtime, it is likely that the continued use of assertive and disengaged tactics will begin to reflect poor social competence, while the use of cooperative tactics will reflect normative changes or positive developments in social competence (Zimmer-Gembeck & Skinner, 2011; Presson, 2005). At the preschool age, this relationship between tactic use and social competence is still being established.

Explanations for Null Findings in Multi-Level Model

In our multi-level model, dyad sex did not explain any individual child differences in the use of coping tactics across partners, with the exception of seeking adult assistance. Therefore, in a resource-based conflict, the sex of the child's partner does not predict whether or not the child will use a certain tactic - a finding which counters the results in previous studies (Maccoby & Jacklin, 1980; Miller, Danaher & Forbes, 1986). This discrepancy may again be due to our methodology and design. In the current study, preschoolers were observed over multiple, random partners and their frequency of tactic use was evaluated as an average. Therefore, preschoolers may have been placed in dyads with peers who they rarely, or normally choose not to, play with

in the classroom. This format allows for a controlled comparison between children's coping tactic use and perhaps a greater understanding of true patterns of children's individual coping behavior by partner's sex. It is possible that children's differential use of coping tactics across all partners, including same- and mixed-sex, is influenced by the greater social context in the preschool classroom. For example, there may be certain resources or belongings the child chooses to engage in a resource conflict with, and certain peers in which they choose "pick their battles" with. These social inclinations present in the natural early childcare center may provide additional insight into coping mechanisms, and result in more salient differences in coping tactic use. Furthermore, because the children in our study were not given additional activities to engage in during the five-minute interaction, we may have prompted children to act (or not act) in a certain manner that they normally would not have, due to the structural constraints we placed on their interaction. Additional studies should determine whether the benefits of a structured observation of children's coping tactics during a particular conflict type outweigh the costs of a natural setting.

Similarly, little evidence was found that children's use of coping tactics across dyad sex conditions differs between children. With relatively large inter-class correlations (ICC) for five of the coping tactics (i.e. negotiation, seeking peer and adult assistance, distraction and avoidance), it was surprising that little between-child variance was actually observed for these tactics. Although between-child variance was dependent on dyad sex condition, with such little overall variance to begin with, the actual amount of between-child variance between the dyad sex conditions did not constitute a significant amount. Thus, only children's use of negotiation and seeking adult assistance between dyad sex conditions varied between children. While we expected to find that children with higher levels of social competence would use these tactics

differently depending on the sex of their partner, no variance was explained in children's use of negotiation or seeking adult assistance by social competence level. Age and sex provided the most explanation of children's differential use of negotiation and seeking adult assistance between conditions. Older children used significantly higher rates of negotiation in the same-sex condition than younger children, and males tended to seek adult assistance more in a same-sex condition, while they also had a larger change in use between dyad sex conditions, than females.

While there is not a clear explanation as to why only negotiation and seeking adult assistance showed significant between-child variance, it may be a result of the teaching practices at early childcare centers. As mentioned above, the preschool age appears to be a time where coping tactics are refined and developed – a skill set that is facilitated by early childcare teachers. Early childcare teachers often mediate peer conflict through encouraging and promoting the use of negotiation-like skills such as suggesting alternative resource rolls or a sharing procedure (Ashiabi, 2007), and will often request the child to seek their assistance if unable to resolve the conflict independently (Malloy & McMurray, 1996). Therefore, it seems logical that the two tactics with significant between-child variability are negotiation and seeking adult assistance, as children may still be developing the use of these tactics and are at varying levels of comfort or control in performing them.

Many other possible considerations exist as to why little to no child differences were observed between dyad sex conditions. It is possible that significant between-child differences were not observed due to a large amount of within-participant variability. Large within-child variability would suggest children greatly differ their coping tactics when interacting with different partners, perhaps so much so, that no trend was observed when comparing between children. In this study, we selected a single category of dyadic interaction, resource-based

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conflict, which was intended to elevate the likelihood that conflicts would arise, and to easily

compare the reactions of children. With this design, we increased the number of dyads that each

child was observed in, to get a better understanding of between-child differences by dyad sex

condition. However, it is possible that instead, we elevated the amount of tactics used, and rather

than detecting a pattern within and between children's tactic use, see little variability overall.

Overall, sex of the partner is not a salient partner characteristic that would cause a child

to adjust their coping behavior in a controlled, resource-based conflict. Additional characteristics

of the dyad, such as friendship status, should be considered as other possible social attributes that

explain children's variability in coping tactic use. Furthermore, because coping involves

adaptation to ones partner's tactics, controlling for the partner's coping tactics would provide a

more detailed depiction of whether children's coping tactics differ by partner characteristics or

partner's coping behavior (Thornberg, 2006).

Strengths and Limitations

This study has clear strengths, which ensure confidence in the findings. First, the

framework of this study was created through a developmental approach, and findings provide the

developmental literature with a better understanding of preschoolers coping tactics, and how they

relate to the coping tactic factors of later years. Using an exploratory factor analysis, our coping

tactics loaded onto similar factors portrayed in later developmental years (Compas et al., 2001;

Erath & Tu, 2014) and in relation to social competence, show developmentally appropriate and

expected trends. Second, the social competence measure used in this study has been well

validated across multiple samples of children (Bost et al., 1998; Shin et al., 2011; Vaughn et al.,

2009), and encompasses a broad range of social measures from three different viewpoints,

allowing for a more holistic understanding of how young children's coping tactics relate to their social experience and ability. Third, preschoolers coping tactics were evaluated in a controlled environment that allowed for a clear comparison within and between children's use of coping tactics over a resource dilemma with multiple peers, providing an accurate understanding of children's average coping behavior.

With these strengths also come limitations. First, examining children's variability in coping tactic use between dyad sex conditions was limited to raw coping tactic variables. Unfortunately, the factor structures of the coping tactics (i.e. cooperative, assertive, disengaged, and failure to cope) were not equivalent in the same- and mixed-sex dyad conditions, which made a comparison between them impossible within the multi-level framework. Thus, the current study was limited to examining within- and between-level differences in children's individual coping tactics rather than factor scores, further limiting observed variability in tactic use.

Second, children's position or role in the resource dilemma may have influenced their coping tactic use. Children were randomly chosen to either receive the operable resource or the inoperable resource and thus, were positioned with attempting to maintain the resource or obtain the resource. Because differences in coping tactics could arise depending on the specific role of the child, future research should examine these roles separately, and determine whether the role predicts how children cope. Third, while our sample was racially diverse, it was conducted in a high-quality early childcare center that serves predominantly middle-class families. Considering that adult-directed- coping tactics varied the most between children, it is possible that including children from a greater range of child-care quality could yield greater variability in coping tactics used.

Conclusion

Children's coping tactic behavior during a resource-based conflict in dyadic peer interaction reflects differences in some aspects of their social competence. Failure to cope with the resource dilemma reflects relatively lower levels of social competence, while cooperation reflects relatively higher levels of social competence, particularly for males. Additionally, while children show significant variability in their use of coping tactics across partners, within-child variability is not explained by sex of partner, and between-child variability is not explained by social competence.

By exploring specific tactics used during normative resource-based conflict in a well-controlled, structured environment, this study provides evidence in response to calls by other investigators, searching for ways to understand the influence of peer environment during early childhood (Huston, Bobbitt & Bentley, 2015; Vandell, et al., 2010). Furthermore, while not a strict replication, our studies coping tactic framework showed similar resemblance to the structure proposed by Zimmer-Gembeck and Skinner's (2011) developmental approach to coping, with a few adjustments. By understanding how social competence relates to a very specific measure of peer interaction and engagement, this study helps to illustrate the implications of social competence in a classroom setting. Future studies should consider continuing this developmental approach, and expand upon our hypotheses concerning age related reactivity and regulation as a framework for understanding changes in child conflict resolution and social competence.

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Table 1.

Engaged Coping Tactics

	Problem Solving				Support Seeking	
	Physical	Assertion	Negotiation	Self-Investigation*	Peer Assistance*	Adult Assistance
Definition	Uses physical action to resolve problem	States a rule, declares or demands change in partner's behavior	Asks partner to use or develop a strategy to with the desired resource	Attempts to fix/solve the broken toy independently	Approaches partner for assistance with toy	Approaches researcher for assistance
Primary Examples	Grabs desired toy from partner	"You have to share" "It is my turn now"	"Can I play with that?"	Flips toy over and opens battery compartment	"Hey how did you turn that on?"	"Sir, my toy is not working "He's not sharing!"
Secondary Examples	Places hand palm up to signal to partner that he/she wants the desired toy, *while* saying "it's my turn"	*grabs and pulls toy away from partner* *while* saying "I want it"	"It's my turn. You had it a long time. Can I please? It's my turn you're not sharing"	"It's not working" (repeat) *pressing buttons on toy*	n/a	"Mine's not working" *glances at researcher*
	Primary = assertion, Secondary = physical	Primary = physical Secondary = assertive	Primary = assertive Secondary = negotiation	Primary = perseveration Secondary = self-investigation		Secondary = seeking adult assistance
	Places hand palm up to signal to partner that he/she wants the desired toy, while saying "can I have it?"	"Can I please use that one? It's my turn. When can I use it?"	"Sir he's not sharing with me. Will you please share? Excuse me he's really not sharing."			
	Primary = negotiation Secondary = physical	Primary = negotiation Secondary = assertive	Primary = seeking adult Secondary = negotiation			

Note. Tactics are only considered as secondary if they are paired with another tactic (i.e. physical primary, assertive secondary). Events that occur independently are considered primary, with special consideration for seeking adult assistance. *Can only occur when child is in the non-working resource position

Table 2.

Disengaged Coping Tactics

Table 2. Disengaged Coping Tactics

	Distraction	Avoidance*
Definition	Directs partner away from the created conflict to either avoid partner's approach or maintain play together	Avoid addressing the conflict with partner
Primary Examples	"Hey look at this!" "Do you think your mom is having a good day today?"	Ignoring partners requests for the desired toy
Secondary Examples	"No! Watch this" Primary = assertion Secondary = distraction	n/a

Note. Tactics are only considered as secondary if they are paired with another tacti
(i.e. assertive primary, distraction secondary). Events that occur independently are
considered primary. Avoidance can only be a primary event.
*Can only occur when child is in the non-working resource position

Table 3.

Inter-Rater Agreement Estimates

	Total Coded Videos	Post Training (N = 252 minutes)		Spring Booster (N =151 minutes)	
		Kappa Coefficient	ICC	Kappa Coefficient	ICC
Coder 1	148	0.83	0.88	0.94	0.87
Coder 2	175	0.73	0.72	-	-
Coder 3	65	0.88	0.8	0.86	0.81
Coder 4	82	0.76	0.78	0.92	0.75
Coder 5	78	0.86	0.74	0.9	.81

Note. Reliability was monitored weekly, and totaled at the end of each semester.

Fall average ICC (coders 3-5) = .87; Spring average ICC(coder 1, 3-5) = .92.

Table 4.

Specific Plan of Analysis for Each Hypothesis.

	Method
Individual Differences	
How does the use of coping tactics differ by sex? Age?	Correlation
How is the use of coping tactics related to social competence level?	Correlation
Partner Differences	
Does the use of coping tactics differ by dyad sex condition?	Multi-Level Model with dyad sex as level 1 predictor
If a difference in conditions exists, does social competence, sex or age explain that difference?	Multi-Level Model with SC, age and sex as level 2 predictor

Table 5.

Conflict Episodes Experienced

		Same-Sex Dyad			Mixed-Sex Dyad			Total	
	N	*M(SD)*	*t* (df)	N	*M(SD)*	*t* (df)	N	*M(SD)*	*t* (df)
Sex									
Males	87	4.27 (2.06)		75	3.7 (2.3)		95	4.12 (1.57)	
Females	57	4.35 (2.18)	-.21 (142)	64	3.96 (2.1)	-.69 (137)	71	4.3 (1.84)	.69 (164)
Age									
3-year-olds	27	4.22 (2.07)		29	3.59 (2.37)		36	3.95 (1.65)	
4-year-olds	117	4.32 (2.12)	.26 (141)	110	3.88 (2.17)	-.69 (136)	130	4.23 (1.7)	-.11 (163)
Ethnicity									
White	87	4.4 (2.04)		85	3.77 (2.1)		101	4.26 (1.53)	
African American	54	4.06 (2.22)	.94 (139)	51	3.75 (2.25)	.07 (134)	62	4.01 (1.92)	.94 (161)

Table 6.

Average Tactic Use Across and Between Dyad Sex Conditions

| | Across Conditions | | Within Condition | | | | | |
| | | | Same-Sex Dyad | | Mixed-Sex Dyad | | | |
	M	SD	*M*	SD	*M*	SD	*t* (116)	*p*
Physical	0.55	0.52	0.28	0.34	0.3	0.38	-0.28	0.78
Assertion	0.84	0.59	0.44	0.39	0.47	0.37	-0.48	0.63
Negotiation	0.41	0.46	0.24	0.31	0.22	0.27	0.52	0.61
Peer	0.26	0.34	0.16	0.26	0.12	0.2	1.48	0.14
Adult	0.44	0.44	0.26	0.3	0.2	0.26	1.67	0.09
Investigation	0.34	0.48	0.18	0.32	0.23	0.35	1.05	0.3
Distraction	0.07	0.15	0.05	0.13	0.03	0.09	1.42	0.16
Avoidance	0.19	0.32	0.1	0.21	0.09	0.2	0.53	0.6
Perseveration	0.03	0.01	0.03	0.12	0.02	0.12	0.5	0.62

Table 7.

Correlation Matrix of Social Competence Measures

| | N | Age | Sex | Race | Social Motivation/Engagement | | | Behavior/Personality | | Peer Acceptance | |
					1	2	3	4	5	6	7
Age											
Sex											
Race											
1. Rate of Positive initiation	163	.28***	-.19*	0.05							
2. Rate of Neutral initiaiton	163	-.28***	0.09	0.04	-0.14						
3. Rate of Visual regard	166	.34***	0.02	0.13	.16*	.65***					
4. PQ-sort	165	.21**	0.06	0.01	.19*	.31***	.34***				
5. CCQ-sort	165	0.11	0.04	-0.05	.2*	.24**	.28***	.71***			
6. Average Positive nominations	163	-0.04	0.11	-.22**	0.1	.26**	.31***	.26***	.23**		
7. Average Paired comparisons	166	0.13	-0.03	-.29***	.46***	-.21**	-0.15	0.13	.28***	.37***	

Note. N = 166. Female = 1. *$p < .05$, **$p < .01$, ***$p < .001$. PQ sort is the Baumrind Preschool Q-sort and CCQ is the California Child Q-sort

Table 8.

Correlation Matrix of Coping Tactic Use

	Age	Sex	Coping Tactics								
			1	2	3	4	5	6	7	8	9
Age											
Sex	-0.11										
1. Physical	.24**	-0.07									
2. Assertion	.14+	-0.04	.26***								
3. Negotiation	.22**	0.06	-0.02	-0.04							
4. Peer	0.06	0.03	.14+	-0.14+	0.07						
5. Adult	0.11	0.04	-0.11	-0.09	.3***	.24**					
6. Investigation	0.09	0.04	-0.09	-0.04	.15*	.16*	0.11				
7. Distraction	.22**	-0.1	0.05	.19**	0.05	0.03	0.1	0.11			
8. Avoidance	0.04	-0.05	0.13	0.11	-0.1	-0.1	-.19*	-0.01	.19*		
9. Perseveration	-0.11	0.11	-0.08	-0.07	0.06	-0.07	-0.02	.21**	-0.06	-.17*	

Note. $N = 166$. Female = 1. $^+p < .1$, $^*p < .05$, $^{**}p < .01$, $^{***}p < .001$. All coping tactic scores were log10 transformed due to positively skewed distributions

Table 9.

Factor Loadings of Coping Tactics

	Engaged		Disengaged	Failure to Cope
	Assertive	Cooperation		
Physical	0.83**	0.18	0.02	-0.09
Assertion	0.76**	0.04	0.31	0.13
Negotiation	0.25	.61**	-0.06	0.15
Peer	0.01	.75**	0.07	-0.07
Adult	0.03	.79**	0.1	0.01
Investigation	-0.24	0.33	0.46	.57**
Distraction	0.11	0.15	.76**	0.06
Avoidance	0.28	-0.15	.65**	-0.31
Perseveration	0.11	-0.07	-0.15	.89**

Note. N = 166. **Largest loading for tactic.

Table 10

Correlation Matrix of Mixed-Sex Coping Tactics

	Age	Sex	Mixed Sex Coping Tactics								
			1	2	3	4	5	6	7	8	9
Mixed Sex Dyad											
1. Physical	0.06	0.06									
2. Assertion	-0.05	-0.02	0.08								
3. Negotiation	0.12	.15+	-0.04	-0.08							
4. Peer	-0.1	0.08	0.11	-0.18*	0.05						
5. Adult	0.05	0.14	-0.07	-0.12	.15+	0.08					
6. Investigation	0.1	0.09	-0.11	-0.11	0.04	0.12	0.003				
7. Distraction	0.14	-0.24***	0.03	.2*	0.05	-0.06	-0.06	-0.03			
8. Avoidance	0.01	-0.05	0.04	0.15	0.1	-0.03	-0.13	-.19*	.27**		
9. Perseveration	0.02	.17*	-0.04	-.15+	0.13	-0.11	-0.02	0.009	-0.06	-0.08	

Note. N = 131. Female = 1. $^{+}p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. All coping tactic scores were log10 transformed due to positively skewed distributions

Table 11.

Correlation Matrix of Same-Sex Coping Tactics

	Age	Sex	Same Sex Coping Tactics								
			1	2	3	4	5	6	7	8	9
Same Sex Dyad											
1. Physical	.26**	-.17*									
2. Assertion	0.1	-0.03	.28***								
3. Negotiation	.18*	-0.05	-0.12	-0.2*							
4. Peer	0.11	-0.02	-0.03	-0.2*	-0.06						
5. Adult	0.08	-.15+	-0.05	0.03	.23**	.21**					
6. Investigation	0.02	-0.07	-.15+	-0.07	0.06	0.1	0.08				
7. Distraction	.19*	0.02	0.09	0.12	-0.05	-0.05	0.12	0.1			
8. Avoidance	-0.02	-0.02	0.09	0.03	.21*	-.17*	-0.12	0.05	0.11		
9. Perseveration	-.21*	-0.01	-0.08	-0.1	-0.09	-0.09	-0.1	0.15+	-0.09	-0.1	

Note. N = 136. Female = 1. $^+p < .1,$ $^*p < .05,$ $^{**}p < .01,$ $^{***}p < .001.$ All coping tactic scores were log10 transformed due to positively skewed distributions

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Table 12.

Correlations between Coping Tactic Factors and Social Competence Measures

	Coping Tactic Factors			
	Cooperative	Assertive	Disengaged	Failure to Cope
Descriptives				
Age	.21**	.2**	.21**	0.02
Sex	0.03	-0.1	-0.05	0.09
Ethncity	-0.07	0.01	0.01	-0.02
Social Motivation/Engagement				
Positive initiation	.38***	.24**	.3***	0.02
Neutral initiaiton	-0.17*	-0.14+	-.28***	-.23**
Visual regard	-0.03	-0.07	-0.11	-.22**
Behavior/Personality				
PQ-sort	0.12	0.03	0.01	-.22**
CCQ-sort	0.14+	-0.06	-0.05	-.18*
Peer Acceptance				
Positive nominations	0.06	-0.08	-0.14+	-0.07
Paired comparisons	.29***	.22***	.16*	0.04
Overall Social Competence	0.14+	-0.01	-0.06	-.26***

Note. N = 166. $^+p < .1,$ $^*p < .05,$ $^{**}p < .01,$ $^{***}p < .001.$ PQ sort is the Baumrind Preschool Q-sort and CCQ is the California Child Q-sort

Table 13.

Social Competence Factor Loadings

	Component Loadings
Social Motivation/Engagement	
Positive initiation	0.33
Neutral initiaiton	0.58
Visual regard	0.68
Behavior/Personality	
PQ-sort	0.76
CCQ-sort	0.77
Peer Acceptance	
Positive nominations	0.58
Paired comparisons	0.31

Table 14.

Correlations between Coping Tactic Factors and Social Competence Measures by Sex

	Coping Tactic Factors			
Male (N = 95)	Cooperative	Assertive	Disengaged	Failure to Cope
Social Motivation/Engagement				
Positive initiation	.42***	.31**	.21*	0.13
Neutral initiaiton	-0.12	-.35***	-0.12	.25*
Visual regard	0.12	-0.11	-0.07	-.19+
Behavior/Personality				
PQ-sort	0.17	0.01	0.03	-0.08
CCQ-sort	0.13	-0.01	0.02	-0.13
Peer Acceptance				
Positive nominations	0.05	-0.24*	-0.14	-0.02
Paired comparisons	.29***	0.1	0.13	0.16
Overall Social Competence	.24*	-0.07	0.05	-.18+
Female (N = 71)				
Social Motivation/Engagement				
Positive initiation	.35**	.29*	.26*	-0.07
Neutral initiaiton	-.25*	-0.22+	-0.16	-.27*
Visual regard	-.23*	-0.11	-0.06	-.26*
Behavior/Personality				
PQ-sort	0.06	-0.01	0.04	-.35**
CCQ-sort	0.14	-0.09	0.13	-.24*
Peer Acceptance				
Positive nominations	0.06	-0.03	0.04	-0.13
Paired comparisons	.3***	.26*	.37***	0.1
Overall Social Competence	0.03	-0.04	0.07	-.32**

Note. N = 166. +$p < .1$, *$p < .05$, **$p < .01$, ***$p < .001$. PQ sort is the Baumrind Preschool Q-sort and CCQ is the California Child Q-sort

Table 15.

Unconditional Multi-Level Model Estimates and Variance

	N	ICC	Within	Between	
			Residual Variance	Means	Variance
			β *(SE)*	β *(SE)*	β *(SE)*
Physical	267	0.005	117.41 (13.96)***	10.45 (.07)***	1.85 (13.4)
Assertion	267	0.04	119.61 (16.05)***	16.18 (.68)***	1.64 (12.38)
Negotiation	267	0.26	65.63 (9.08)***	8.28 (.63)***	23.96 (9.32)**
Peer	267	0.15	53.1 (7.11)***	5.41 (.51)***	8.87 (6.12)
Adult	267	0.23	70.88 (9.98)***	8.76 (.63)***	19.71 (9.55)*
Investigation	267	0.02	94.4 (11.87)***	6.61 (.62)***	4.19 (9.9)
Distraction	267	0.18	13.25 (1.77)***	1.48 (.26)***	2.74 (1.56)+
Avoidance	267	0.15	42.32 (5.84)***	3.8 (.56)***	7.75 (5.31)
Perseveration	267	0.01	13.02 (1.45)***	.73 (.23)**	.33 (1.09)

Note. 166 clusters were observed. $^{+}p < .1$, $*p < .05$, $**p < .01$, $***p < .001$.

Mean tactic is the intercept for the same-sex condition.

Table 16.

Within-Level Conditional Model Estimates and Variance

| | | Within | | Between | |
| | | Dyad Sex | Residual Variance | Means | Variance |
	ICC	β (*SE*)	β (*SE*)	β (*SE*)	β (*SE*)
Physical	0.005	.66 (1.31)	117.28 (13.92)***	9.5 (2.07)***	1.79 (13.37)
Assertion	0.04	.31 (1.33)	119.61 (16.07)***	15.73 (2.09)***	1.92 (12.46)
Negotiation	0.26	.02 (1.02)	65.68 (9.11)***	8.26 (1.64)***	23.89 (9.33)**
Peer	0.15	-.47 (.89)	52.94 (7.11)***	6.11 (1.43)***	8.99 (6.13)
Adult	0.22	-2.09 (1.04)*	69.91 (9.83)***	11.86 (1.67)***	19.21 (9.32)*
Investigation	0.02	1.95 (1.19)+	96.99 (12.46)***	3.72 (1.87)*	.17 (9.58)
Distraction	0.19	-.49 (.45)	12.99 (1.75)***	2.21 (.71)**	2.95 (1.57)+
Avoidance	0.15	-.41 (.81)	42.15 (5.82)***	4.41 (1.28)**	7.9 (5.32)
Perseveration	0.01	-.28 (.44)	13.02 (1.45)***	1.13 (.7)	.33 (1.08)

Note. 166 clusters were observed $^+p < .1$, *p < .05, **p <.01, ***p < .001. Negotiation, seeking peer and adult assistance, distraction and avoidance showed moderate interclass correlations ranging from 15% to 26%, suggesting variance between between dyad sex conditions. Physical, assertion, investigation and perseveration show inadequate variance (ICC < .05).

Table 17.

Between-Level Conditional Model Estimates and Variance

		Between								
		Sex		Age		Social Competence		Variance	
	ICC	β (*SE)*	Slope	β (*SE)*	Slope	β (*SE)*	Slope	β (*SE)*	Slope
Negotiation	0.25	-1.98 (3.4)	2.2 (2.1)	7.92 (3.88)*	-3.22 (2.42)	-1.24 (1.26)	.68 (.84)	22.44 (13.54)[+]	.52 (5.06)
Adult	0.22	-5.89 (3.45)[+]	3.89 (2.14)[+]	.63 (3.9)	.67 (2.44)	1.99 (1.28)	-.48 (.86)	17.43 (13.55)	.24 (5.31)

Note. 166 clusters observed [+]p< .1, *p< .05. The slope is the rate of change in tactic use between same and mixed sex conditions (same = 0)

Table 18.

Within-Level Conditional Model Estimates and Variances by Sex

		Within			Between	
		Boy Dyad Sex	Girl Dyad Sex	Residual Variance	Means	Variance
	ICC	β (*SE*)	β (*SE*)	β (*SE*)	β (*SE*)	β (*SE*)
Physical	0.005	-.04 (1.62)	1.32 (1.67)	116.97 (14.09)***	10.11 (.94)***	1.94 (13.48)
Assertion	0.04	.47 (1.63)	.07 (1.71)	119.29 (16.03)***	16.04 (.95)***	1.98 (12.46)
Negotiation	0.27	-1.5 (1.27)	1.47 (1.33)	64.05 (8.89)***	8.33 (.81)***	24.23 (9.21)**
Peer	0.15	-1.09 (1.11)	.05 (1.16)	52.92 (7.07)***	5.66 (.67)***	8.67 (6.06)
Adult	0.26	-.301 (1.28)*	.05 (1.36)	66.56 (9.51)***	9.53 (.82)***	25.11 (9.99)*
Investigation	0.02	.81 (1.45)	2.69 (1.5)+	93.91 (11.88)***	5.86 (.85)***	4.5 (9.92)
Distraction	0.19	.26 (.55)	-1.46 (.58)*	12.62 (1.69)***	1.75 (.34)***	2.88 (1.52)*
Avoidance	0.15	-.15 (.99)	-.86 (1.04)	42.06 (5.79)***	4.03 (.61)***	7.75 (5.26)
Perseveration	0.01	-.89 (.53)+	.31 (.55)	12.81 (.143)***	.89 (.31)***	.34 (1.07)

Note. 166 clusters were observed +*p* < .1, **p* < .05, ***p* <.01, ****p* <.001.

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Table 19.

Between-Level Conditional Model Estimates and Variance by Sex

	ICC	Age	SC	Slope		Variance		Residual Variance
				Boy Dyad	Girl Dyad	Boy Dyad	Girl Dyad	
Negotiation	0.27	2.7 (1.52)+	.003 (.004)	-1.2 (1.27)	1.21 (1.33)	.77 (22.89)	1.04 (17.4)	21.89 (9.66)*
Seeking Adult Assistance	0.25	1.81 (1.5)	.004 (.004)	-2.22 (1.32)+	.27 (1.37)	.63 (24.53)	.99 (18.86)	20.6 (10.26)*
Distraction	0.2	1.37 (.58)*	.002 (.001)	.26 (.59)	-1.23 (.55)*	5.11 (3.42)	.12 (.36)	2.12 (1.46)

Note. 166 clusters observed +p< .1, *p< .05. The slope is the rate of change in tactic use between same and mixed sex conditions (same = 0)
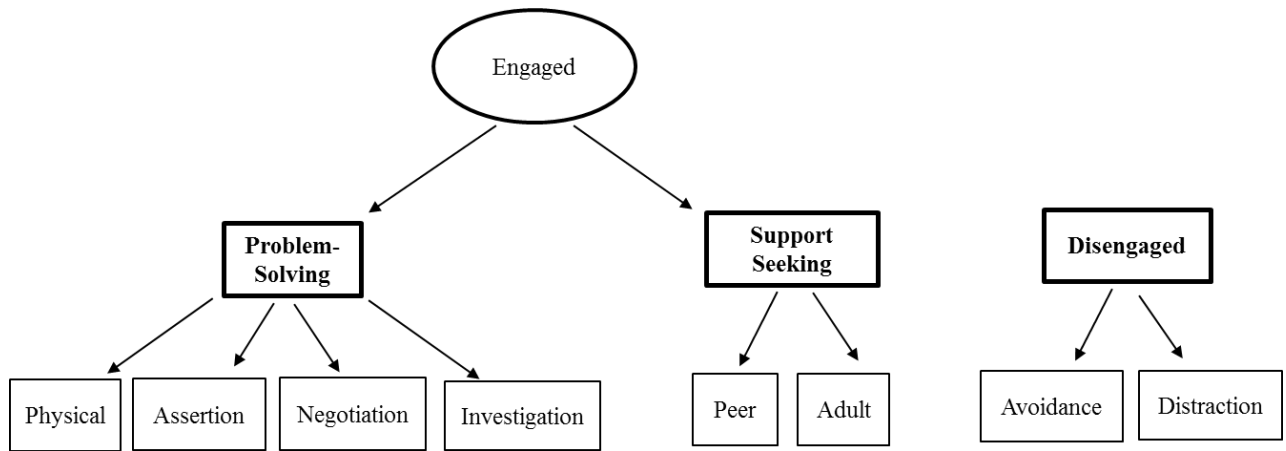
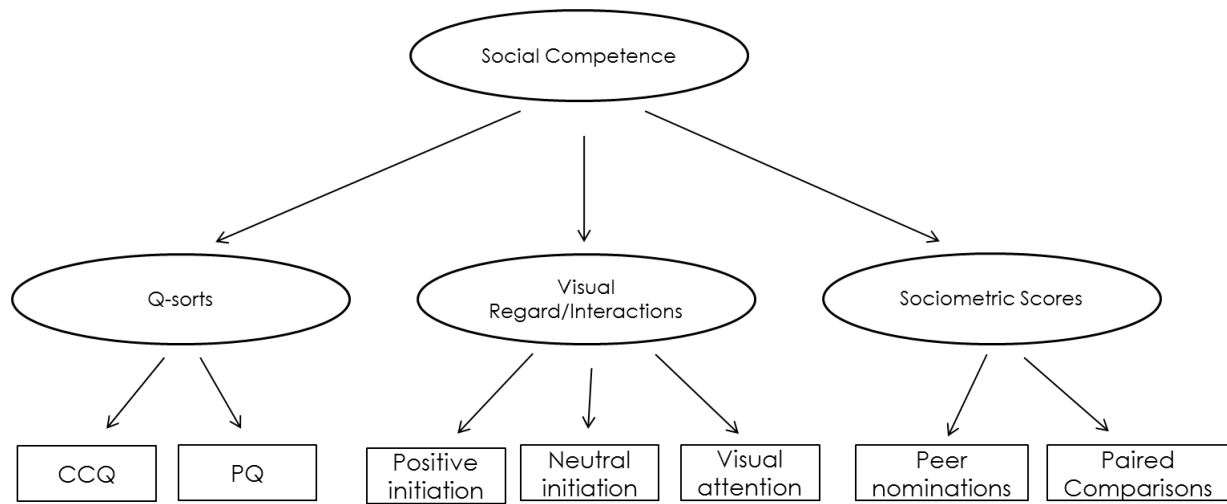*Figure 1*. Hypothesized model demonstrating how the coping tactics are organized.
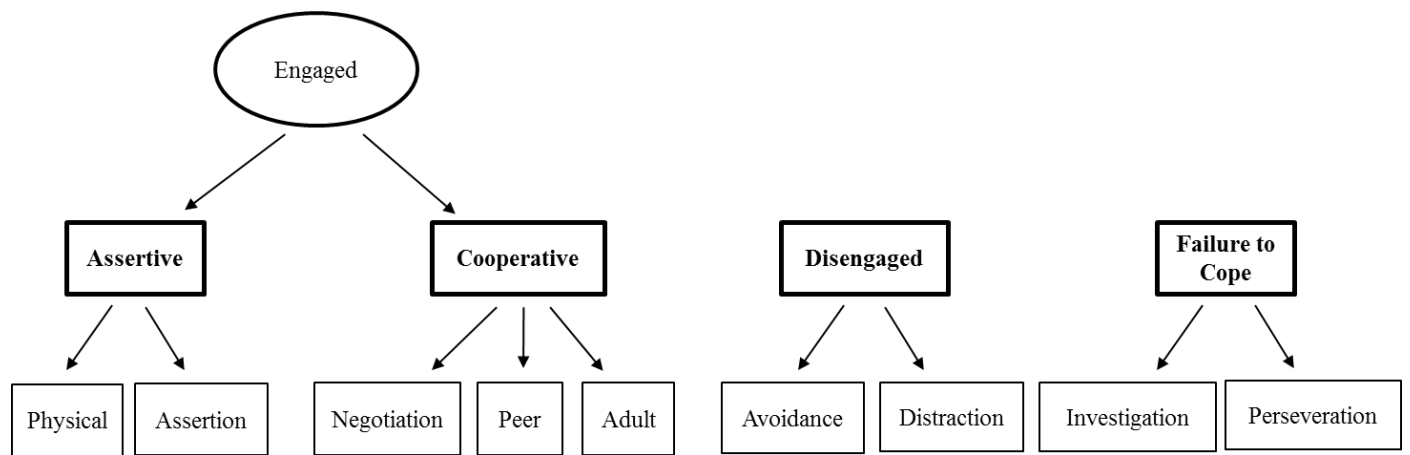
Figure 2. Social competence measurement families

Figure 3. Adjusted coping tactic structure.

CODING CLASSIFICATION MANUAL
Primary vs Secondary Variables

While watching the video, rate the coping tactics attempted by the target child to manage their peer conflict as primary or secondary *for each minute*. In this study, coping is viewed as the child's voluntary response to manage his or her resource distribution conflict with his or her partner. The resource distribution conflict is viewed as the two children attempting to control the same desirable resource. There can be multiple primary or secondary within each minute**.** Code ALL tactics on the given form as described by the rating scale below.

*If the conflict is not related to the toys (resources), do not code that event

Primary:

- The coping tactic was (or was one of) the main tactics used by the child in attempt to manage the conflict of interest. The child appears to fully commit to the coping tactic in order to deal with the problem, which is demonstrated through their clear intention for a direct request for change. The number of times the child used the tactic may signify their clear intentional use of the tactic, but in order to be a principle tactic, it does not need to be repeatedly used by the child. As an example, two primary coping tactic possibilities are described below.

  1. Child persists/repeats a coping tactic over the course of the interval
     a. "John we have to share!" "We have to share John" "It's my turn we have to share" "John share!" "You're not sharing"
     b. Primary coping tactic = assertion
  2. Child intentionally requests for change with a direct and effortful request, and the partner quickly accepts the request or target child moves on to next coping tactic.
     a. "John, can you help get it to talk?"
     b. Primary coping tactic = seeking peer assistance

- Therefore, coping tactics that are intentional and deliberate but only utilized once still receive the same score as those that are used a multitude of times over the course of the minute. Consistent and repetitive use, *or* direct intention and thoughtful use, signify a primary rating for the coping tactic.

Secondary:

- A secondary coping tactic is a tactic that is **PAIRED** with the child's primary tactic. The secondary tactic *lacks clear intention* and is performed in a less committed, less

developed, or less articulated sense than the paired primary tactic. In order to be considered "paired" the tactics must occur either simultaneously, or within 10 seconds. It is important to note it is very possible to have *no* secondary coping tactics but one *cannot* have *only* secondary coping tactics. Therefore, to have a secondary coping tactic, there must be a primary coping tactic. If there are no secondary coping tactics for the minute, that suggests there was only a primary coping tactic used or no coping tactic at all.

1. Paired simultaneously
   a. John it's my turn (while placing hand on resource, or placing hand palm up towards partner)
   b. Primary = Assertion; Secondary = Physical
2. Within 10 seconds
   a. John you have to share. John, share! This isn't fair, John! *John will you please share?* You're not sharing! John!
   b. Primary = Assertion; Secondary = Negotiation

Coping Tactics

No tactic: 0

- There was either no conflict event, and/or the child did not use a coping tactic during the minute

Physical Tactic: 1

- The child uses physical action in attempt to resolve the problem.

With Desired Toy	Without desired toy
Pulls away toy from partner. Physically not allowing partner to get access desired toy	Attempts to obtain the desired toy through physical means (reaching, grabbing, snatching, not letting go of toy, hitting partner, etc.).

Assertion: 2

- *Declaring* their reasons for why they should have the toy, *demanding* that something needs to change, or *stating* a rule

With Desired Toy	Without desired toy
"We'll each press a button and then we'll switch" "I had it first"	"You have to share" "It is my turn now"

> *Shaking head (to say no) or holding up a finger (to say one minute) are to be coded as secondary tactics (if there is another tactic used that could be a primary tactic).
> > Example: Child moves toy away from partner, while shaking head no (Primary = physical; Secondary = assertion)

Negotiation: 3

- *Asks* the partner to have a turn or develop a strategy in how they can spend their time with the desired toy.

With Desired Toy	Without desired toy
"Can I have it back when you're done?"	"Can I play with you?" "Hey, can we take turns/share?

Self-Investigation: 6

- Child attempts to solve his/her problem by his/herself. The child manipulates and investigates the toy independently to correct the current problem with their toy. To be self-investigation, the child's attempt must last at least 15 seconds, and include the child pressing various buttons or areas of the toy, and flipping the toy over to check the battery pack (Velcro area).
- This tactic can ONLY occur in the context with two toys.

Without desired toy
Without talking to others, investigates the toy in search of uncovering why the toy will not work. Flips toy over, tries pressing various combinations of buttons, attempts to open battery area

Seeking Assistance

- Peer Assistance (4): The child asks or approaches their partner for help with the current problem (toy not working). Here the child is asking their partner *directly for help*. If the child states or identifies the problem to him/herself (and the partner provides assistance) that would not be **seeking** for assistance because the child did not intentionally seek out his or her partner's assistance (partner is being *prosocial). **This tactic can ONLY occur in the context with two toys, and may ONLY be a primary tactic.**

Without desired toy
"Hey how did you turn that on? Can you help me get mine?"   "Child, can you help me?"

- Adult Assistance (5): The child asks or approaches the researcher for help or to report their partner's undesirable behavior that is blocking their goal. The child is clearly *attempting to communicate to the adult* that there is a problem that needs assistance (use of "sir", "excuse me", or "hey" looking at the researchers direction). In the context of one toy- ONLY involves the sharing of the toy- not what the different buttons do, stickers they might receive or the amount of time left.

Without desired toy
"Hey can you help me fix this toy?   "Excuse me, my toy is not working"   "Sir she's not sharing!!"

- *Seeking adult assistance is a secondary tactic if the child indirectly attempts to receive help from the researcher in the room. For example, if the child states "my toy is not working" and glances up at the adult, the child is not directly seeking help, but is expecting the adult to come help him or her through their indirect response. Can only be secondary if there is a primary tactic, but in the case of adult assistance, it does NOT have to be paired.

Distraction: 7

- Suggests, finds, states or directs partner to something that is not related to their partner's problem. In order to be distraction, the child's partner must have attempted to obtain his or her toy such that the child distracts his or her partner in attempt to maintain the desired toy. Distraction cannot occur without being prompted by the partner.

With Desired Toy
"I hope my mom is having a good day today. Do you think your mom is having a good day?" "Look, I have a chair, and you have a chair" "This one works just fine" (does not)

Avoidance: 8 – only a primary variable--

- The child ignores their partner's requests or call for action. They hear the child but continue to play as if they had not. This differs from distraction as the child avoids the conflict, and does not say anything in response to his or her partner's question or statement to obtain the desired toy.

With Desired Toy
Ignores partners request to obtain the toy

- *Avoidance can be paired with physical, if the child avoids his or her partner's question or statement, but slightly moves their toy away from his or her partner. In this case, it must be certain that the child's physical attempt is indirect and lacking clear intention (only a minor move, thus physical is secondary).

Perseveration: 9 – only a primary variable--

- The child *continuously* states the problem and is making no direct attempt to solve it. They are "stuck" in a state of acknowledging the problem, but not attempting to actually manage or resolve their situation. In order to be perseveration, NO other tactics can occur during the minute interval.

Without desired toy
"Mine doesn't work" (continuous)
"Mines not working" (continuous)

- *Perseveration is paired with a 6 (self-investigation = secondary) when the child is perseverating while touching the toy, but clearly not focused on directly attempting to fix or investigate why the toy is not working. No other primary tactics occur in the minute.
- *Perseveration is paired with a 5 (seeking adult assistance = secondary) when the child is perseverating while occasionally glancing at the researcher in the room. No other primary tactics occur in the minute.