Linking Parenting Styles to Parent and Child Behaviors in a Joint Task

Celia Kohler

Undergraduate Honors Thesis in the Department of Psychology and Neuroscience

Duke University, Trinity College of Arts and Science

Durham, North Carolina

2019

Abstract

This study explored: 1) the link between parenting questionnaire data and parenting behaviors in a parent-child play task, with the aim of creating a short behavioral task to more sensitively empirically measure parenting; 2) how parenting measures relate to child behaviors, including child helping and compliance/noncompliance; and 3) how different contexts, namely the presence or absence of time pressure during a joint task, affect parent-child relationships. Thirty-five 3- to 4.5-year-old children and one of their parents participated in four behavioral tasks, and questionnaire data were collected for each parent-child dyad. Authoritative parenting style scores were related to increases in the amount of commands and praise used during the behavioral tasks, as well as a decrease in the number of questions used. Authoritarian parenting style scores were related to an increase in the amount of negative feedback used. Permissive parenting style scores were not significantly related to any parenting behaviors. No parent measures were found to be significantly related to child behaviors, possibly due to the child measures not being sensitive enough. When comparing how parents and children behaved under time pressure, parents used less praise, less questions, more commands, and more negative feedback, whereas children complied significantly less on average under pressure. Findings suggest that the dyadic relationship is affected by the context in which it is found, and that using behavioral measures leads to a more robust understanding of individual parenting practices and effects. Future directions and improvements to the current study are discussed.

Linking Parenting Styles to Parent and Child Behaviors in a Joint Task

Most people have seen a parent deal with their toddler throwing a tantrum in a public place… in a supermarket, a gas station, a park. And next time, instead of looking away, pay attention to what the parent does, or doesn't do, because the different strategies parents use in their relationships with their children can lay some of the foundations of child development. For instance, parenting practices have been found to affect many child outcomes from physical to mental health (Berge, Wall, Bauer, & Neumark-Sztainer, 2010; Hasebe, Nucci, & Nucci, 2004), from autonomous decision making to empathic acting (Davidov & Grusec, 2006; Bernier, Carlson, Deschênes, & Matte-Gangé, 2012; Fay-Stammbach, Hawes, & Meredith, 2014), and from school achievement to interpersonal relationships (Newland & Crnic, 2017; Spera, 2005; Rothbaum & Weisz, 1994; Waller, Gardner, & Hyde, 2013). And all this is because parenting plays a large, often behind the scenes, role in normative child development. Parenting has been a fundamental part of human life for centuries; however, parenting today is very different from the parenting of thirty years ago, let alone three hundred years ago. Early on in child development research, parenting did not play a central part, but it was understood that parents play a large role in shaping a child's tendencies, behaviors, beliefs, and outcomes (Erikson, 1950). Parenting began taking center stage in child development research starting in the 1960s, largely thanks to the standardization of how parenting is measures and categorized.

In the late 1960s, Diana Baumrind published her theory of parenting styles, where she compiled different parenting behaviors and tendencies in to an empirically measurable set of styles—authoritative, authoritarian, permissive (Baumrind, 1971; 1977; 1989). A fourth style, neglectful, was added later by Maccoby and Martin (1983); however, this parenting style describes parents who are uninvolved in their child's development and is therefore very hard to measure in the lab. For this reason, neglectful parenting is often excluded from empirical

measures, like questionnaires, and empirical studies generally. For this reason, our study will focus on authoritarian, authoritative, and permissive parenting styles. And, while these styles have been adapted and altered by different researchers, the general premise has remained the same.

Parenting is categorized on two dimensions. Although the labeling of dimensions may be different, the theory remains constant across different studies and measures. One dimension of parenting is control/demandingness, and the other dimension is warmth/affect/responsiveness; this paper will use control and warmth. These two dimensions are then combined in a plus-sign diagram, and the style is described by the quadrant it is found in (Figure 1). Authoritarian parents exhibit behaviors high in control and low in warmth. They tend to enforce parental values without much sensitivity or explanation. In popular media, authoritarian parents are often portrayed as demanding, overbearing parents that don't reward or praise their child often—the tiger moms of modern-day parenting. Completely opposite to authoritarian parents, permissive parents are low in control and high in warmth. Permissive parenting is often described as not having much control over their child's behaviors and being overly affectionate; think of the parent in the super market who is begging and pleading with their child to behave—without much success. While both authoritarian and permissive parenting are only high in one dimension, the style that is most recognized as being the one to emulate is the authoritative parenting style. Authoritative parenting is characterized by high control and high warmth, and these parents tend to display behaviors that are structured as well as nurturing and supportive. Of all the parenting styles, the authoritative style is often considered to be the best, as it involves a healthy balance of structuring and caring behaviors, which are related to positive child outcomes, discussed in the next section. Overall, studying parenting is important because the way in which someone parents can profoundly shape and alter a child's life. Furthermore, as research has

found that there are types of parenting conducive to the successful socialization of children, promoting these types of parenting strategies, and correcting less beneficial parenting practices early on in a child's life, could help prevent later child issues (Darling & Steinberg, 1993).

Parenting Styles and Child Outcomes

In the past forty years, parenting has been linked to a variety of different child outcomes, including children's physical health, prosocial and problem behaviors, executive function, mental health, and a variety of adolescent outcomes.

Child Health – Mental and Physical. Parenting styles have been found to be related to a child's overweight status in the first grade, which is indicative of the subtle effects parenting can have on a child's life and development. Specifically, children with authoritarian mothers had an increased risk of being overweight compared to children of authoritative mothers. However, children of neglectful and permissive mothers were twice as likely to be overweight compared to children of authoritative mothers (Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006). Additionally, one key aspect to a child's physical and mental wellbeing is the child's ability to self-regulate, set goals, plan, and deal with ambiguous situations, all of which fall under the psychological construct of executive functioning (Bernier et al., 2012; Fay-Stammbach et al., 2014; Sulik, Blair, Mills-Koonce, Berry, & Greenberg, 2015). The link between children's executive functioning and parenting behaviors has been studied in great detail. For instance, one study on parent-infant interactions and attachment security found that children experiencing higher quality parenting techniques (those of the authoritative style) and secure attachment had greater executive functioning scores, and dealt with conflict better (Bernier et al., 2012). Furthermore, a meta-analysis found that specific parenting behaviors were important for the proper development of executive function. These behaviors included high parental scaffolding, high parental sensitivity, and high parental stimulation (Fay-Stammbach et al., 2014). It should

be noted that the meta-analysis attempted to discern the relationship between parental

control/discipline and child executive functioning; however, only three studies addressed it, and

their results were inconclusive or contradictory, so more research is needed to understand the

relationship between parental control and child executive functioning. All in all, the

aforementioned research supports the idea that the authoritative parenting style is the most

efficient at promoting positive physical health outcomes, as well as the normative development

of children's executive functioning.

   Parenting practices have also been linked to child psychopathology, including callous-

unemotional traits and antisocial behaviors. For instance, Wootton and colleagues investigated

the interaction between parenting quality and child callous-unemotional traits, which are

predictors for conduct behaviors later on (Wootton, Prick, Shelton, & Silverthorn, 1997). Callous

traits include a lack of empathy and manipulativeness, and unemotional traits include lack of

guilt and emotional "constrictedness." When combined, children who are high in callous-

unemotional traits are considered at risk for psychopathology. This study found that parenting

had an effect on conduct behavior, especially antisocial behaviors, when children had low levels

of callous and unemotional traits. On the other hand, children with high levels of callous and

unemotional traits were found to have conduct problems regardless of the quality of parenting

they experienced. This is important because it demonstrates that parenting is not solely

responsible for any child outcomes, and that some outcomes happen regardless of parenting

practices. A different study found that children with high levels of both callous-unemotional and

antisocial behavior traits tended to experience negative parenting tendencies (Waller, Gardner, &

Hyde, 2013); however, causation was not determined, so it is unclear if the negative parenting

tendencies were prompted by the child's behaviors, caused the child's behaviors, or if the two

were correlated due to another variable's influence. What is most interesting is that, while

parenting may not be the cause of conduct problems in children with high levels of callous-unemotional and antisocial behavior traits, parenting-focused interventions seem effective at reducing both traits in youth (Waller et al., 2013; McDonald, Dodson, Rosenfield, & Jouriles, 2011), which goes to show just how important parenting can be at shaping child behaviors and outcomes.

Additionally, parenting interventions have also been found to be effective at reducing other features of psychopathy in children. Specifically, one randomized control trial found that a parenting intervention's "effects on features of psychopathy were mediated by improvements in mothers' harsh and inconsistent parenting" (McDonald et al., 2011; p. 1013). Overall, parenting has been shown to have effects on the physical and mental health of children, which has implications for future interventions and clinical implementations. Generally, the same pattern is seen throughout these different outcomes—higher parenting quality (i.e., parenting more similar to the authoritative style) is related to improved child health outcomes.

Child Behaviors – Problem and Prosocial. Along these lines, parenting has also been related to child prosocial behaviors, as well as child problem behaviors. Maternal responsiveness to distress, one of the aspects that applies to the warmth dimension of parenting styles, has been shown to predict children's empathic and prosocial responding (Davidov & Grusec, 2006). Maternal warmth and maternal speech about mental states have both been related to child cooperation, a prosocial behavior that is important for fostering normative relationships and bonds. Researchers found that maternal talk about mental states and maternal warmth both facilitate cooperation, with the justification being that focusing on other people's feelings and perspectives might teach children that other people should be treated well (Ruffman, Slade, Devitt, & Crowe, 2006). Another study on mother-child conflict and later child socioemotional development found that mothers who used justification, resolution, and mitigation in conflict

early on had children with higher levels of socioemotional development at age three (Laible &

Thompson, 2002). Overall, the above research suggests that warm, responsive, and controlled

parenting behaviors are highly linked to children's socioemotional development, and

consequently the development of children's prosocial tendencies and behaviors.

Given that certain parenting practices and behaviors have been related to the development

of prosocial behaviors in children, it follows that there are other, possibly opposite, parenting

practices and behaviors that are related to the development of problem behaviors in children. For

instance, in a previously described study (Wootton et al., 1997), ineffective or negative parenting

tendencies were correlated with conduct behaviors in children who were low on callous traits and

low on unemotional traits. Another study found that parenting stress, which negatively affects

parenting behaviors, is correlated with children's behavior in preschool, especially children's

social competence; additionally, parental expectations for their child's behavior moderated the

relationship between externalizing behavior and parenting stress (Anthony et al., 2005).

Externalizing behaviors are defined as problem behaviors that are outwardly directed, including

such behaviors as physical aggression, stealing, and disobeying rules. This finding is important

because it shows the dynamic relationship between parenting expectations and parenting

behaviors, which could explain why some parents with negative parenting styles may have

children without externalizing problems.

Another study, looking specifically at the subsets of parenting style (i.e., affection,

behavioral control, and psychological control) found that: 1) low levels of psychological control

and higher levels of behavioral control decreased children's external problem behaviors; and 2)

high levels of both psychological control and affection predicted "increases in the levels of both

internal and external problem behaviors among children" (Aunola & Nurmi, 2005, p. 1144). This

result is fascinating because it seems to go against the Baumrind model—high warmth and high

control was found to have a negative effect on children's behaviors in preschool. However, authoritative parenting, just like the other styles, has drawbacks, with this being an example of an instance in which the authoritative parenting style may not be the best. Another link between parenting and child problem behaviors is that parenting has been found to affect children's externalizing behaviors in a way that was longitudinally mediated by executive function (Sulik et al., 2015). This goes back to how parenting affects executive functioning, because positive parenting tendencies promote child self-regulation, which in turn can reduce a child's externalizing behaviors.

Finally, another way in which child externalizing behaviors can be reduced is through parenting-focused interventions. One study found that a parenting-centered intervention's effect on behavior problems was driven primarily by changes in parenting skills, which reaffirms previous findings that parenting interventions are useful for reducing conduct issues in children, regardless of the parenting style at the start of the intervention (Gardner, Burton, & Klimes, 2006). In the end, parenting affects both prosocial and problem behaviors, and there are ways parenting skills can be changed in order to promote prosocial behaviors and reduce problem behaviors in children.

Adolescent Outcomes. Although the current study investigates the relationship between parenting and preschoolers' behaviors, it is important to introduce the relationship between parenting tendencies and a child's later life outcomes. Since parenting has been linked to mental health, physical health, executive function, prosocial behaviors, and conduct issues in preschool-age children, it follows that parenting practices will also affect these constructs later on in a child's life. Specifically, maladaptive parenting practices not only have immediate consequences, but can also have ripple effects into adolescence if not properly addressed. For instance, negative parenting practices were correlated with child over-weight status in the first grade, and similar

negative practices were also found to be related to adolescent weight and weight-related issues (Rhee et al., 2006; Berge, Wall, Bauer, & Neumark-Sztainer, 2010; Berge, Wall, Loth, & Neumark-Sztainer, 2010). Additionally, parenting's effects on problem behaviors, described previously, continue in to adolescence if not properly addressed (Llorca, Richaud, & Malonda, 2017; Vieno, Nation, Pastore, & Santinello, 2009). However, there are some aspects of parenting that affect an adolescent in unique ways.

First, parenting styles have been found to be related to adolescent school achievement, with authoritative parenting seeing the strongest correlation with adolescent school achievement (Spera, 2005). Secondly, parenting style has been related to adolescent self-esteem and depression, as well as overall life satisfaction (Milevsky, Schlechter, Netter, & Keehn, 2006; Suldo & Huebner, 2004). Specifically, one study intended to identify particular aspects of authoritative parenting that were related to life satisfaction throughout adolescence (Suldo et al., 2004). The study looked at strictness-supervision, social support/involvement, and psychological autonomy granting dimensions of authoritative parenting, which were all positively correlated with life satisfaction. Furthermore, this study found that life satisfaction mediated the relationship between social support and adolescent problem behavior.

Finally, parenting has been related to adolescent competence and substance use. Authoritative parents who exhibit high control and high warmth behaviors tended to have children who were higher on competence scales and who did not exhibit problem drug use (Baumrind, 1991). Furthermore, juvenile offenders who "described their parents as authoritative were more psychologically mature, more academically competence, less prone to internalize distress, and less prone to externalizing problems" than offenders with neglectful parents; offenders with authoritarian and permissive parents tended to lie somewhere between the two extremes (Steinberg, Blatt-Eisengart, & Cauffman, 2006; p. 47). In the end, parenting affects

adolescent competence, school achievement, mental health, substance use, and criminality, often following along with the trends that have been demonstrated in younger children, pointing to the long-term effects parenting can have on child development and child outcomes.

Present Study

The present study has three distinct aims, or research questions. The first is to determine how parenting styles relate to parenting behaviors in a play task. By developing a behavioral task, the goal is to collect more robust parenting data compared to the current standard of relying heavily on self-reported information from questionnaires, which have the potential to be biased. The second aim is to determine the relationship between parenting and child compliance and prosocial behaviors, specifically child helping. Lastly, the third aim is to determine how each individual in the parent-child dyad is affected by different situations, such as stressful or challenging situations.

Parenting Behaviors and Questionnaire Data. Parenting is almost always measured in terms of parenting styles; however, the way in which parents are categorized into different styles depends on the study. Some studies use observational or interview data, but most studies use questionnaires, as they are easy to administer, analyze, and consistent across participants. Yet questionnaires are not all the same and can be used to measure different aspects of parenting. Some questionnaires measure parental acceptance-rejection, such as the Parental Acceptance-Rejection Questionnaire (Rohner, 1984; Rohner & Pettengill, 1985); and others measure parental control, such as the Parental Authority Questionnaire (Buri, 1991). Some studies use indices, such as the Parental Authority Index (Hasebee, Nucci, & Nucci, 2004), or scales, such as the Closeness to Parents Scale (Buchanan, Maccoby, & Dornbusch, 1991; Locke & Prinz, 2002). However, the common issue with all of these measures is the fact that they rely on self-report data. This, paired with the fact that studies have found that parent-child associations were best

measured by observations, especially observations that measured "combinations of parenting behaviors (patterns), as opposed to single behaviors" (Rothbaum & Weisz, 1994, p. 55), suggests that using a combination of parental behavioral and questionnaire measures may provide a more comprehensive and accurate way of indexing parenting. Therefore, this study will attempt to address the gap between observational and questionnaire data, with the end-goal of creating a short behavioral task that can be easily implemented and analyzed to give more robust data on parenting styles. So, for the purposes of this study, it was necessary to find a questionnaire that measured parenting style, as defined by Baumrind, in order to be able to relate and compare the behavioral task to a validated measure. Therefore, the Parenting Styles and Dimensions Questionnaire-Short Form (PSDQ) was chosen for the current study (Robinson, Mandleco, Olsen, & Hart, 1995). The PSDQ was selected because it provided data not only on parenting styles, but also on different style dimensions, to allow for a more sensitive characterization of parenting style.

Additionally, our study involved four behavioral tasks from which parental behavior and child behavior data were collected. The first was a helping task between the child and experimenter, and the rest were parent-child play tasks centered around a simple ball and stick magnetic puzzle. Parental behaviors that were measured included: teaching behaviors, such as explanatory instructions and commands; parental emotional state, including praise and affect; and parental intrusion, including instances in which the parent restricted or changed the way in which their child was playing with a toy.

We hypothesized that authoritative parenting style scores would be positively correlated with measures of parental teaching (i.e. explanatory instructions, commands, questions, and positive and negative feedback), as well as to parental praise. Authoritative scores were expected to be negatively correlated with parental intrusion. On the other hand, authoritarian scores were

expected to be positively correlated with parental intrusion, commands, and negative feedback, and negatively correlated with explanatory instructions, questions, praise and positive feedback. Lastly, permissive scores were hypothesized to be positively correlated with explanatory instructions, questions, praise, and positive feedback, but negatively correlated with intrusion, commands, and negative feedback.

All three parenting styles were examined for their ability to function as significant unique predictors for certain parenting behaviors, such as praise, intrusion, explanatory instructions, questions, and commands. Authoritative scores were hypothesized to be a unique predictor of total explanatory instructions given and total questions asked. Authoritarian scores were hypothesized to be unique predictors for total commands given and total intrusion during the behavioral tasks. Permissive scores are hypothesized to be a unique predictor of praise.

Parenting and Child Compliance and Helping. The second portion of the current study aims to better understand the relationship between parenting and child compliance and prosocial behaviors, specifically child helping. Child helping was chosen to act as a proxy measure of child prosocial tendencies since helping is as well characterized construct, and several validated measures of child helping exist. To lay the foundation, studies have found that children begin demonstrating prosocial behaviors as early as the age of 18 months (Bar-Tal, 1976; Bar-Tal, 1982; Bar-Tal, Raviv, & Goldberg, 1982; Warneken & Tomasello, 2006). Another study found that children's prosocial behaviors tend to shift from understanding an action and explicit communication to an empathic understanding of others' emotions around the second year of life (Svetlova, Nichols, & Brownell, 2010). However, few studies have looked at the relationship between parenting and helping behaviors. Therefore, the current study will aim to determine how parenting styles, and parenting behaviors specifically, are related to child helping.

In terms of how the questionnaire data related to child behaviors, we hypothesized that authoritative scores would be positively correlated with child helping and child compliance, and negatively correlated with child noncompliance. Compliance is defined as the child responding appropriately to a parental directive, or desire; and noncompliance is defined as the child not responding appropriately to a parental prompt. Compliance and noncompliance are not whether the child follows a parent's instruction correctly or incorrectly, but measures of the child attempting to work with (or not work with) their parent. Compliance and noncompliance were measured in order to obtain data on how children's parent-driven behaviors can change depending on the parent's cues or instructions, thus measuring child behaviors in the context of the dyad working together. Authoritarian scores were also expected to be positively correlated with child compliance, but negatively correlated with child helping and child noncompliance. Permissive scores were hypothesized to be negatively correlated to child helping and compliance, but positively correlated with child noncompliance. In terms of how parenting behaviors relate to child behaviors, parental praise was expected to be positively correlated with child helping, whereas parental intrusion was expected to be negatively correlated with child helping. Parental praise was also expected to be positively correlated with child compliance, and negatively correlated with noncompliance. Parental intrusion was expected to be negatively related to child compliance and positively correlated with child noncompliance. Parental affect was hypothesized to be positively correlated with helping and compliance, and negatively correlated with noncompliance. Overall, we expected warm, supportive, and controlled parenting strategies to be correlated with higher levels of child helping, as authoritative parenting practices have been linked with the development of prosocial behaviors by facilitating a child's empathic development.

Parenting in Context. The last portion of the study intended to address the fact that parenting changes depending on the context the parent-child dyad finds itself in. The context can be anything from the mood of an individual in the dyad to the external environment surrounding the dyad. For example, if a little girl is cranky because she was woken up from her nap, her parent will likely interact with her differently than if she were in a great mood after coming home from a play-date. Or, a parent may be more demanding and controlling with their child if they are in a crowded shopping center and the parent is stressed. Similarly, if a parent is tired and being short with their child, this will affect how the child interacts with their parent. For this reason, the current study will include a condition with an external stressor, a time limit, to determine how, if at all, the parent and child's behaviors differ when compared to the same task at baseline (i.e. without a time limit).

We hypothesized that parents would be more commanding and intrusive, as well as use more negative feedback, in the challenge (time-limit) condition than in the baseline (no time limit) condition. We expected that the rate of explanatory instructions, questions, positive feedback, and praise would be lower in the challenge condition than baseline. Children were expected to comply less (and non-comply more) in the challenge condition.

Method

Participants

Thirty-five parent-child dyads participated in the study. The children were preschoolers, aged 3 to 4.5 years ($M = 3.92$, $SD = 0.41$; 17 males and 18 females). The majority of the parents who participated were mothers ($N = 30$), with only 14% of the parents being fathers ($N = 5$); however, this study did not necessitate a specific sex for the parent. Seven additional dyads were tested, but their data were not included because of procedural error (either experimenter or participant driven) or either participant's refusal to participate in any of the tasks. Participants

came from upper middle-class families from Durham county and surrounding areas. Twenty-seven parent-child dyads were Caucasian, seven dyads were Asian, African American, or Hispanic, and one parent declined to provide the information about their race.

Materials

This study was comprised of four distinct behavioral tasks, and included a questionnaire filled out by the parent or primary caregiver. The questionnaire chosen for this study was the Parenting Style and Dimensions Questionnaire (PSDQ) Short Form (Robinson, Mandleco, Olsen, & Hart, 2001). This questionnaire is based on the Parenting Practices Questionnaire (PPQ) for mothers that was developed by Robinson and colleagues (1995). However, the PPQ includes 124 questionnaire items, and the time-constraint for this study prevented us from administering such a long questionnaire. Therefore, the PSDQ-short form was adopted for this study (see Appendix A for the questionnaire). The PSDQ-Short Form is a 32-item questionnaire, where participants respond on a 5-point Likert scale how much they exhibit the behaviors described in the statements (1 = Never, 2 = Once in a While, 3 = About Half of the Time, 4 = Very Often, 5 = Always). The PSDQ is beneficial because it is short, easy to administer, and allows for data collection on two caregivers. Participants who co-parent have the option of filling out the PSDQ regarding their own personal parenting practices as well as their partner's, which allows for two sets of parenting data to be collected for each child who participates in the study. Lastly, the PSDQ is formatted in such a way as to categorize parents by parenting style, as well as by different dimensions within those styles, which allows researchers to tease apart what different types of behaviors (within a certain style) a parent exhibits the most of.

The splitting of the styles into different dimensions allows for a more in-depth analysis of parenting styles to be conducted, which was one key reason for choosing the PSDQ-Short Form as the questionnaire for this study. For the authoritative style, the dimensions are: 1) connection,

which captures behaviors such as responsiveness to child's feelings or needs and having warm

and intimate times with the child; 2) autonomy granting, which includes respecting the child's

opinions and taking the child's input into account when making rules or making plans for the

family; and 3) regulation, which includes explaining to the child why rules should be obeyed and

explaining the consequences of the child's behavior. Within the authoritarian parenting style, the

questionnaire separates behaviors in three dimensions: 1) physical coercion, which captures

behaviors such as spanking and using physical punishment to discipline the child; 2) verbal

hostility, which includes arguing, yelling, or disagreeing with the child; and 3) non-

reasoning/punitive, which is characterized by behaviors such as taking away privileges with little

or no explanations to the child and using threats as punishment with little or no justification.

Lastly, for the permissive style, there is only one dimension, labeled the indulgent dimension.

The indulgent dimension includes behaviors such as stating punishment and not following

through, as well as spoiling and finding it difficult to discipline the child. One limitation of the

PSDQ-Short Form is the fact that permissiveness is only measured by one dimension. However,

time and experimental constraints made administering the full PSDQ impossible. The

questionnaire was administered to the parent after the behavioral portion of the study was

completed, in order to not bias the parent's behaviors during the tasks.

Procedure

When participants arrived at the lab, we took them to the waiting room to explain the

forms and study, then have the parent sign the consent forms. Then, the order of the study was:

1) helping task, 2) inhibition task, 3) puzzle task, 4) challenge task, and 5) questionnaire; most of

the behavioral tasks were modeled after previous studies. The helping task was between the child

and the experimenter, whereas the other three tasks involved the parent-child dyad together in a

room, without the experimenter present. All tasks were video-recorded, with consent, in order to

be coded later.

Helping Task. This task was based on previous studies that used a quick, simple task to

measure a child's helping behaviors. Studies on helping behavior usually use observational data

and interactions between the experimenter and the child (Severy & Davis, 1971; Clapp, 1966;

Svetlova et al., 2010). However, in order to simplify analysis and due an inability to have

multiple experimenters simultaneously observe the interactions, we modified a previous helping

task (Macrae & Johnston, 1998; Over & Carpenter, 2009). In the current study's helping task, a

female experimenter dropped ten popsicle sticks and was unable to retrieve them, because her

hands were full, and she could not reach the sticks. Before the commencement of the task, the

parent was told to not instruct the child to help the experimenter, as this would bias results;

therefore, if a parent interfered, the data for that child were excluded. The child's helping

behavior was coded based on how quickly he/she picked up the sticks and what level of

experimenter prompting was needed. If the child picked up the ten popsicle sticks within the first

ten seconds, without the experimenter giving a prompt, this was classified as spontaneous

helping. After the first ten seconds, if the child has not picked up the sticks, the experimenter

made it increasingly clearer to the child that she would like the child to pick up the sticks and

give them back to her (see Appendix B for the exact script and prompts). If the child failed to

pick up any of the sticks by the end of the designated time (after 40 seconds), the experimenter

picked them up and continued on to the next part of the study. The child's behavior was then

coded as "not helping." This task was coded on a scale of 0 to 4 (0 = not helping, 1 = helping

after the 3rd prompt, 2 = helping after the 2nd prompt, 3 = helping after the 1st prompt, 4 =

spontaneous helping). This task was chosen because the degree to which a child helped,

measured by the number of popsicle sticks retrieved and what degree of prompting was needed until the child picked up the first stick, could be measured consistently across participants.

     Inhibition Task. The second behavioral task of the study involved coding the way in which a parent inhibited their child's behavior. For this task, the puzzle that the dyad would be working on together was left in the room while the experimenter left for about one minute, under the pretense of having left the instructions for the task in another room. The parent was instructed to not let their child play with the puzzle while the experimenter was out of the room. The parent's inhibition techniques were measured in this task. Examples of parental techniques that were coded included physically restricting the child from playing with the toy, distracting the child (e.g. playing a different game, singing a song, telling the child a story), and bribing the child (e.g. "if you wait until she comes back, you can play with the iPad in the car home").

     Puzzle Task. The third task was the longest and involved leaving the dyad alone in the room to make four shapes with the puzzle (see Appendix C for the instructions given to the parent). This part of the study was modeled after the Parent-Child Challenge Task (PCCT) (Lunkenheimer, Kemp, Lucas-Thompson, Cole, & Albrecht, 2016). The PCCT was developed to study "dyadic patterns during a challenging, problem-solving situation in early childhood" (Lunkenheimer et al., 2016; p. 7). The parent was instructed to help their child complete the puzzle, following an instruction sheet showing them the four shapes the dyad needed to complete; however, the parent was instructed to not touch the puzzle, meaning that the parent was not allowed to physically help their child build the different shapes. The puzzle involved magnetic balls and sticks that could be used to make a variety of different shapes, both two-dimensional and three-dimensional. The four different shapes the dyad was instructed to build increased in difficulty, and the dyad was not given a time limit; however, a time limit of 19 minutes was used when dyads were taking too long to make all the shapes. Nineteen minutes was

chosen to allow for the total time in task to not exceed 20 minutes, after completion of the following, challenge task. The child was told that if he/she completed all four of the shapes, then he/she would win a prize, which was intended to help motivate the child to complete all four tasks. However, regardless of whether children completed the task or not, all children received a prize at the end of the study. After the dyad finished the third shape, the experimenter re-entered the room and imposed an unexpected time limit, telling the dyad they only have one more minute to finish, which initiated the challenge condition.

  Challenge Task. The challenge task lasted about one minute and was also based on the Lunkenheimer PCCT design. The challenge condition from the original PCCT was used to measure physiological changes under pressure; although the current study did not measure physiological changes, our challenge task measured behavioral changes under pressure. This task was used to determine how parent and child behaviors differ depending on the situation, in this case a "time-pressure" stressor. This allowed data to be collected specifically in relation to the third research question on how the dyad's individual behaviors differ in different situation—at baseline (puzzle task) compared to under pressure (challenge task). After approximately one minute, the experimenter returned to the room, and the behavioral portion of the study concluded. The parents were then asked to fill out the questionnaire, and the child was given a prize for participating in the study.

Behavior Coding and Reliability

  Throughout the study, a variety of parental behaviors and child behaviors were measured. The following section will go through the different measures, for children and parents, this study used and how they were coded and tested for reliability. A behavioral coding scheme was developed in order to quantify the observational data from the inhibition task and the parent-child play task, both the baseline and the challenge condition.

Parent Measures. Since the helping task did not involve the parent, there were no measures relating to parental behaviors for that task. For the inhibition task, parental behaviors and strategies for inhibiting the child from playing with the puzzle were analyzed. Parental behaviors were split into two separate categories. The first category was Verbal Directives, which included: 1) explanatory instruction, or an instruction that is followed by or prefaced by an explanation (e.g. "We need to wait to play with that because the nice lady told us to"); and 2) command, which is an instruction that does not have an explanation or reasoning given (e.g. "Don't touch that yet"). The second category was Strategies that the parent used to get the child to not touch the puzzle yet. Strategies include bribery, distraction, and physically restricting the child from paying with the toy (e.g. moving the toy out of reach, having the child sit on the parent's lap).

Behaviors measured in the puzzle task and challenge task were the same, in order to be able to compare behaviors between the two tasks. In these tasks, the parent measures fell into four general categories. The first was parental *teaching*, which related directly to the building of the shapes. Teaching behaviors included explanatory instructions (e.g. "The green one goes in the middle"), commands (e.g. "Put that piece in the middle", "Don't move that piece"), open- and close-ended questions relating to the task (e.g. "Where should that piece go?", "How many sticks should you use?"), and positive and negative feedback that indicated whether a child did something correctly or incorrectly (e.g. positive - "That's right", "Mhmm" / negative - "No", "Umm"). The second category was parental *intrusion*, which were instances in which the parent intruded on the child's completion of the task. Parental intrusion included instances of the parent touching and taking over the task and/or physically restricting the child from completing the task in a certain way (e.g. having the child sit on the parent's lap so that the child will sit still in front of the puzzle). The third category was parental *praise*, which were moments of celebrating the

child's accomplishments that were more positive than simply indicating that the child did

something correctly.

The fourth, and final, category was parental *affect*, where affect is defined as being the

expression of a person's emotional state through emotional cues, like facial expressions, tone of

voice, and body language. Affect was measured on a 5-point scale from negative two to positive

two. A negative two was negative affect, which included sighing, eye-rolling, irritation, anger,

anxiety, sadness, and other similar emotional states. A zero was neutral affect, which was

categorized as the absence of verbal or nonverbal affective expression (e.g. lack of eye contact,

lack of facial emotion, etc.). A positive two was positive affect, which included smiling, verbal

praise, laughter, positive vocal tones, and such.

Each instance of the parent behaviors was coded, then a total rate of instances of the

behaviors per minute was calculated. Standardizing each measure to a rate/minute allowed

comparisons to be done across the different tasks and between different dyads, since there was

variability in how much time each dyad spent on a task. Then, an aggregate measure was

computed to give a parent's total rate of the behavior in all tasks (e.g. total commands, total

praise, total intrusion).

Child Measures. During the Helping Task, the child's behaviors during the interaction

between the child and the experimenter were analyzed. As stated previously, this task was then

coded on a scale of 0 to 4 (0 = not helping, 1 = helping after the 3rd prompt, 2 = helping after the

2nd prompt, 3 = helping after the 1st prompt, 4 = spontaneous helping). No child measures were

collected during the inhibition task. During both the puzzle and challenge tasks, the child's

affect, and compliance and noncompliance to different parental instructions were coded. To

reiterate, compliance was defined as the child responding appropriately in a verbal or behavioral

way to a parental directive or prompt; compliance did not depend on whether the child reacted

correctly or incorrectly—what matters is that the child tried an appropriate action in response to a parental prompt. Noncompliance was defined as passive or blatant refusal/defiance of a parental prompt, or complying after a pause (usually around ten seconds) indicating that the child did not want to comply. Lastly, child affect was coded on the same 5-point scale that parental affect was coded.

Each instance of the child compliance and noncompliance was coded. Then, in the same way as with parental behavior measures, a total rate of instances of the behaviors per minute was calculated, and an aggregate measure was computed to give a child's total rate of compliance and noncompliance in all tasks.

Reliability. In terms of reliability, the behavioral tasks were coded by the author and a second researcher, where each researcher then coded 25% of the other coder's videos in order to check inter-coder reliability. The author and second coder agreed on 100% of the helping task scores. Since multiple behavioral measures were coded in the inhibition, puzzle and challenge tasks, the percent agreement for each parental measure is listed in Table 1 and percent agreement for each child measure is listed in Table 2. Notably, the percent agreement for parental negative feedback and child non-compliance were the lowest, at 56.05% and 51.39% respectively. This could be due to a poor description/defining of what negative feedback and non-compliance were in the code-book. In general, the reliability was low, so all results should be interpreted with caution.

Results

Preliminary analyses for sex and age differences revealed no significant effects for any measure, in any task, so all analyses were collapsed over sex and age. The partner data from the questionnaire could not be used to relate to parenting behaviors, since that partner did not come to the lab, and partner data did not relate to any child measures (helping, affect or compliance).

Therefore, we report the results from analyses of the self-report questionnaire data and parenting

behaviors and child outcomes.

Parenting Behaviors and Questionnaire Data

In order to assess how questionnaire data related to actual parent behaviors during the

puzzle and challenge tasks, bivariate correlation analyses were conducted comparing the self-

questionnaire data and parenting behaviors. One important note is that when analyzing the

correlations that related parent questionnaire data to parenting behaviors, if a parenting style was

found to be significantly correlated to a certain parenting behavior, exploratory analyses would

be conducted to determine how the dimensions of that parenting style correlated to the behavior.

The full results of the correlation analysis of parenting style and behaviors are reported in Table

3, as nonsignificant relationships are not discussed. Notably, as hypothesized, authoritative

scores were positively correlated with commands ($r = .335$, $p = .049$) and praise ($r = .389$, $p =$

.021); however, authoritative scores were trending towards being negatively correlated with

questions ($r = -.324$, $p = .058$), which did not support the hypothesis that authoritative scores

would be positively correlated with questions. Supporting the hypothesis, authoritarian scores

were significantly positively correlated with negative feedback ($r = .338$, $p = .049$). Authoritarian

scores were trending towards being significantly positively correlated with praise ($r = .318$, $p =$

.063), which did not support the hypothesis that authoritarian scores would be negatively

correlated with praise. Because authoritative parenting was found to be related to three parenting

behaviors, an exploratory analysis using the authoritative dimensions of the PSDQ was

conducted (Table 4). Following the significant correlations found for authoritative scores overall,

commands and praise were found to be significantly related to two dimensions of authoritative

parenting. Commands were positively correlated with both the regulation dimension ($r = .439$, p

$= .008$) and the autonomy granting dimension ($r = .353$, $p = .038$). Praise was positively

correlated with the regulation dimension ($r = .435$, $p = .009$) and the autonomy granting

dimension ($r = .453$, $p = .006$). Given that questions were trending towards being negatively

correlated with authoritative scores, the fact that questions were found to be significantly

negatively related to the regulation dimension was expected ($r = -.483$, $p = .003$). One

unexpected finding of the exploratory analysis was that positive feedback was trending towards

being positively correlated with the autonomy granting dimension ($r = .321$, $p = .06$).

Multiple linear regression analyses were used to test if the parenting style scores

significantly predicted parental behaviors, including praise, intrusion, explanatory instructions,

commands, and questions. Praise, intrusion, and explanatory instructions were not significantly

predicted by parenting scores; however, two models showed promise – commands and questions.

As reported in Table 5, the results of the regression for commands indicated that the three

predictors did not significantly predict commands, *adjusted R^2* = .089, $F(3,31) = 2.11$, $p = .119$.

Similarly, as reported in Table 6, the results of the regression for questions indicated that the

three predictors did not significantly predict commands, *adjusted R^2* = .058, $F(3,31) = 1.70$, $p = $

.187. Despite the overall models not being significant, upon closer examination, the beta for

authoritative scores was itself significant for commands and questions. Authoritative scores

predicted commands, $\beta = .403$, $t(35) = 2.37$, $p = .024$, meaning that for every one unit increase in

authoritative parenting there was a .403 unit increase in commands. Authoritative scores also

predicted questions, $\beta = -.371$, $t(35) = -2.14$, $p = .040$, meaning that for every one unit increase in

authoritative parenting, there was a .371 unit decrease in questions. Given that all parents were

highest on authoritative style and our sample size was small, we decided to simplify our model

and look at just the predictive power of authoritative style as a predictor of questions and

commands, via exploratory simple regressions.

Using simple regressions, authoritative scores significantly predicted commands, $\beta =$ .335, $t(35) = 2.04$, $p = .049$, as well as explained a significant proportion of the variance in commands, *adjusted R^2* = .085, $F(3,31) = 4.17$, $p = .049$, meaning that authoritative scores predicted 8.5% of the variance in commands (Table 7). Furthermore, authoritative scores trended towards significantly predicting questions, $\beta = -.324$, $t(35) = -1.97$, $p = .058$. Authoritative scores also explained a close to significant proportion of the variance in questions, *adjusted R^2* = .078, $F(3,31) = 3.87$, $p = .058$, meaning that authoritative scores were trending towards predicting 7.8% of the variance in questions (Table 8). If the sample were larger, and power thereby increased, perhaps these regressions would have been more significant; however, as they were not, these results need to be interpreted with caution and replicated.

Parenting and Child Compliance and Helping

In order to assess how parenting data related to child helping and compliance, bivariate correlation analyses were conducted (Table 9). Child helping and compliance were not significantly correlated with any of the hypothesized measures—authoritative scores, authoritarian scores, permissive scores, parental affect, intrusion, or praise. The only significant correlation was a negative correlation between parental affect and noncompliance ($r = -.408$, $p = .015$), which supports the hypothesis that more positive parental affect would be related with decreases in child noncompliance. It must be noted, however, that noncompliance had the lowest reliability in coding, so this result must be interpreted with caution.

Parenting in Context

In order to assess how parenting and child behaviors changed between the puzzle and challenge tasks, paired-samples t-test analyses were conducted. To reiterate our hypotheses, child compliance was expected to decrease in the challenge task and noncompliance to increase in the challenge task; parental explanatory instructions, questions, positive feedback, and praise were

hypothesized to decrease in the challenge task; and, parental commands, negative feedback, and intrusion were expected to increase in the challenge task. The full results for these paired-samples t-tests are reported in Table 10; the following only describes the significant results, all of which supported the aforementioned hypotheses. There was a significant difference in the scores for child compliance for the puzzle (M = 4.37, SD = 1.57) and challenge (M = 2.48, SD = 2.48) tasks; $t(34)$= 5.36, p < .001, meaning that child compliance decreased significantly in the challenge task compared to the puzzle task. There was a significant difference in the scores for parental praise for the puzzle (M = .680, SD = .548) and challenge (M = .111, SD = .362) tasks; $t(34)$= 5.35, p < .001, meaning that parental praise significantly decreased in the challenge task compared to the puzzle task. There was a trend towards significant difference in the scores for parental commands for the puzzle (M = 2.63, SD = 1.86) and challenge (M = 3.70, SD = 3.31) tasks; $t(34)$= -.176, p = .087, indicating that parental commands trended towards decreasing in the challenge task. There was a trending towards significant difference in the scores for parental questions for the puzzle (M = 2.15, SD = 1.24) and challenge (M = 1.69, SD = 1.56) tasks; $t(34)$= 1.89, p = .068, indicating that parental questions trended towards decreasing in the challenge task. There was a trend towards significant difference in the scores for parental negative feedback for the puzzle (M = .434, SD = .436) and challenge (M = .835, SD = 1.20) tasks; $t(34)$= -1.91, p = .065, indicating that parental negative feedback trended towards increasing in the challenge task. In the challenge task, overall, children complied less, encouraging and supportive parenting practices (e.g. praise and questions) tended to decrease, and more controlling parenting practices (e.g. commands and negative feedback) tended to increase.

Discussion

Given that parenting has been linked to a variety of different child outcomes, including children's physical health, prosocial and problem behaviors, executive function, mental health,

and a variety of adolescent outcomes, studying parenting has become an increasingly more integral part of child psychology and developmental research. Our study aimed to link parenting behaviors in a short play task to questionnaire data, link different measures of parenting to different child behaviors, including helping and compliance, and explore how parents and their children behaved differently depending on the situation/context.

The first research question had to do with how parenting behaviors in the lab related to parenting styles obtained from the PSDQ. We found that an increase in authoritarian scores as measured by the PSDQ was significantly related to an increase in the amount of negative feedback given to a child. This finding follows previous research that found authoritarian parenting tendencies to be more controlling and less warm, as negative feedback serves to correct and control child behaviors. Permissive parenting style scores on the PSDQ were not significantly related to any parenting behaviors. Most interesting were the results related to the authoritative parenting styles scores. An increase in authoritative scores was significantly related to an increase in both the number of commands and praise given to the child, and trended towards relating to a decrease in the number of questions asked during the behavioral portions of the study. The increase in commands and praise fit our hypotheses as they follow the authoritative parenting style's tendency to be simultaneously warm and controlling. The close to significant negative correlation with questions was surprising since authoritative parents are often characterized as allowing their children to have input in decision making, as captured by the autonomy granting dimension of the PSDQ. However, through exploratory analyses, this correlation was found to be very significantly correlated with the regulation dimension of the authoritative parenting style. This suggests that parents who were more likely to regulate their child's behaviors were less likely to ask questions, since questions (compared to commands or explanatory instructions) allow the child to have more control over their completion of the task.

Additionally, it was determined, by exploratory analyses, that the regulation dimension, a measure of how controlling a parent is of their child's behaviors, was positively correlated with praise as well as commands. This could be interpreted as parents who are more controlling giving children more commands and praising them more in order to encourage more of such desired behaviors. The autonomy granting dimension, which is a measure of how much freedom of choice a parent gives their child, was found to be positively related to commands and praise as well. Conversely to the previous result, this could indicate that parents who are more likely to allow their children to make their own decisions are more likely to use commands, followed by praise, when attempting to elicit very specific behaviors, as necessitated by the puzzle and challenge tasks. In general, although the small sample size made it difficult to find significant trends, authoritative parenting tendencies seemed to be likely predictors of more commands and less questions, indicating that a more authoritative parenting style could be a predictor of a more controlled teaching style in the task.

By demonstrating that parenting behaviors in an observational task are significantly related to parenting style data, this study takes a step towards developing a short behavioral task that can accompany questionnaires in order to more sensitively empirically measure parenting. Additionally, every parent in this sample scored highest on authoritative parenting style score of the PSDQ. Although this may have been due to the recruitment process, time constraints, and small sample size overall, this indicates that there is a need for a more sensitive measure of parenting—one that can differentiate between parents who tend to score similarly on a questionnaire. Every parent parents their child in a unique way, whether that be because of their child's disposition or because of their own parental tendencies. Therefore, creating an observational task that allows researchers to differentiate between parents with similar questionnaire data will make studies of parenting more sensitive and impactful.

The second research question was centered on relating measures of parenting to child behaviors, in order to more closely examine how certain parenting tendencies—behavioral and questionnaire-based—related to child compliance and helping. However, the measures of compliance and helping were not sensitive enough to overcome the small sample size and find significant relationships with any of the parenting measures. And, while noncompliance was found to be significantly related to parental affect, this result must be replicated since noncompliance was the least reliably coded child measure. Generally, this suggests that the more positive and sensitive a parent was, the less likely their child was to not comply with an instruction or parental desire. Overall, more sensitive measures of child helping, compliance, and noncompliance are necessary, along with a larger sample, in order to find significant relationships between child behaviors and parenting. Future studies should focus on determining how parenting behaviors can directly affect child behaviors, as such findings could impact the types of parenting interventions that attempt to address child behavioral issues and the way in which such interventions are disseminated and implemented.

The third, and final, research aim investigated the manner in which context, or external environment, can change the parent-child relationship, especially in terms of how the individuals in the dyad interact with one another. By comparing child and parent behaviors in the puzzle task to the challenge task, it was determined that parents and children did differ in the types of behaviors they displayed. It was hypothesized that with the added challenge of the time pressure, parents would be more controlling and less warm, and that children would comply less and non-comply more. Our results showed that indeed, in the challenge task, parents used less praise and questions, and more commands and negative feedback than in the baseline puzzle task. Children also complied significantly less on average in the challenge task than in the puzzle task. In general, all behaviors trended in the hypothesized directions; however, larger power (i.e. a larger

sample size) is necessary for these trends to be significant. This is important because it sheds light on the effects external stressors can have parent and child behaviors, and the parent-child relationship as a whole. This finding has implications for research and policy on the effects of adversity on child development, specifically in that real parental stress can lead to less positive parenting, less attention to the child, and various negative child outcomes. Therefore, research, policies, and programs that investigate ways to decrease parental stress could have far reaching effects on children's development and outcomes. Additionally, specifically related to research on parent-child relationships, this finding suggests that it is important to develop tasks and testing environments that are comfortable and low-pressure, in order for the participants to demonstrate their full potential.

Limitations and Future Directions

Several aspects of this research limit its reach and require further studies to investigate these themes in the absence of said limitations. First, the sample size was very small, due to time constraints and limited resources available as an undergraduate independent study. Future studies should implement a large sample size in order to develop a behavioral measure of parenting and investigate parenting's effects on prosocial behaviors. Second, this study only uses one questionnaire and one simple measure of helping, which limits our ability to fully understand the link between questionnaire data and behavioral data. Future studies should implement a variety of questionnaires and child prosocial measures. Furthermore, as evidenced by the lack of any significant relationship between the helping task measure and parenting data, a more sensitive measure of child helping should be used. Thirdly, the reliability of behavioral coding was low, so more efforts to increase reliability and ease of behavioral coding should be implemented. Finally, the sample in the current study was relatively homogeneous and drawn largely from middle-class neighborhoods. As there is evidence that socioeconomic status differences affect parenting styles

(Hoff, Laursen, Tardif, & Bornstein, 2002), this could have biased the results of this study. This could explain why all parents scored highest on authoritative questionnaire measures in the PSDQ and necessitates that the study be replicated with a more diverse sample, in terms of socioeconomic status, race, and cultural influences on parenting. Further study is needed to decide whether the associations uncovered in the current study are significant in a larger sample, as well as generalizable to a boarder population.

Conclusions

Overall, our study showed that authoritative parenting style scores were related to increases in controlling and warm teaching practices, including an increase in both the amount of commands and praise; however, authoritarian scores were related to an increase in less supportive and less warm parenting practices, including an increase in the amount of negative feedback. No parent measures were found to be significantly related to child compliance or helping, possibly due to the sensitivity of the child measures. And, when comparing how parents' and children's behaviors changed in the challenge task, parents used less praise, less questions, more commands, and more negative feedback, whereas children complied significantly less on average under pressure. These findings suggest that the dyadic relationship is affected by the context in which it is found, and that using behavioral measures leads to a more robust understanding of individual parenting practices and effects.

References

Anthony, L. G., Anthony, B. J., Glanville, D. N., Naiman, D. Q., Waanders, C., & Shaffer, S.
(2005). The relationships between parenting stress, parenting behaviour and preschoolers'
social competence and behaviour problems in the classroom. *Infant and Child
Development, 14*, 133-154. doi:10.1002/icd.385

Aunola, K., & Nurmi, J. (2005). The role of parenting styles in children's problem behavior.
Child Development, 76, 1144-1159. doi:10.1111/j.1467-8624.2005.00840.x-i1

Bar-Tal, D. (1976). *Prosocial behavior: Theory and Research.* Washington, DC, US:
Hemisphere Publishing Corp.

Bar-Tal, D. (1982). Sequential development of helping behavior: A cognitive-learning approach.
Developmental Review, *2*(2), 101–124. https://doi.org/10.1016/0273-2297(82)90006-5

Bar-Tal, D., Raviv, A., & Goldberg, M. (1982). Helping Behavior among Preschool Children:
An Observational Study. *Child Development, 53*(2), 396-402. doi:10.2307/1128982

Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology, 4*(1,
Pt.2), 1-103. http://dx.doi.org/10.1037/h0030372

Baumrind, D. (1977). What research is teaching us about the differences between authoritative
and authoritarian child-rearing styles. In D. E. Hanachek (Ed.), *Human Dynamics in
Psychology and Education* (3rd ed.). Boston: Allyn & Bacon.

Baumrind, D. (1989). Rearing competent children. In W. Damon (Ed.), *Child Development
Today and Tomorrow* (pp. 349-378). San Francisco: Jossey-Bass.

Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance
use. *Journal of Early Adolescence, 11*, 56-95.

Berge, J. M., Wall, M., Bauer, K. W., & Neumark-Sztainer, D. (2010). Parenting characteristics

      in the home environment and adolescent overweight: A latent class analysis. *Obesity, 18*,

      818-825. doi:10.1038/oby.2009.324

Berge, J. M., Wall, M., Loth, K., & Neumark-Sztainer, D. (2010). Parenting style as a predictor

      of adolescent weight and weight-related behaviors. *Journal of Adolescent Health, 21(4),*

      457-83.

Bernier, A., Carlson, S. M., Deschênes, M., & Matte-Gagné, C. (2012). Social factors in the

      development of early executive functioning: A closer look at the caregiving environment.

      Developmental Science, 15, 12-24. doi:10.1111/j.1467-7687.2011.01093.x

Buchanan, C. M., Maccoby, E. E., & Dornbusch, S. M. (1991) Caught between parents:

      Adolescents' experience in divorced homes. *Child Development, 62*, 1008-1029.

      doi:10.1111/j.1467-8624.1991.tb01586.x

Buri, J. R. (1991). Parental authority questionnaire. *Journal of Personality Assessment, 57*(1),

      110-119. http://dx.doi.org/10.1207/s15327752jpa5701_13

Clapp, W. F. (1966). Dependence and competence in children: Parental treatment for four-year

      old boys. Unpublished doctoral dissertation, University of Colorado.

Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative

      model. *Psychological Bulletin, 113*(3), 487-496. http://dx.doi.org/10.1037/0033-

      2909.113.3.487

Davidov, M., & Grusec, J. (2006). Untangling the links of parental responsiveness to distress and

      warmth to child outcomes. *Child Development, 77(1)*, 44-58.

Erikson, E. H. (1950). *Childhood and Society*. New York, NY, US: W W Norton & Co.

Fay-Stammbach, T., Hawes, D. J., & Meredith, P. (2014). Parenting influences on executive

    function in early childhood: A review. *Child Development Perspectives, 8*, 258-264.

    doi:10.1111/cdep.12095

Gardner, F., Burton, J., & Klimes, I. (2006). Randomised controlled trial of a parenting

    intervention in the voluntary sector for reducing child conduct problems: Outcomes and

    mechanisms of change. *Journal of Child Psychology and Psychiatry, 47*, 1123-1132.

    doi:10.1111/j.1469-7610.2006.01668.x

Hasebe, Y., Nucci, L., & Nucci, M. S. (2004). Parental control of the personal domain and

    adolescent symptoms of psychopathology: A cross-national study in the United States

    and Japan. *Child Development, 75*, 815-828. doi:10.1111/j.1467-8624.2004.00708.x

Hoff, E., Laursen, B., Tardif, T., & Bornstein, M. (2002). Socioeconomic status and parenting.

    Handbook of Parenting Volume 2: Biology and Ecology of Parenting, 8(2), 231-52.

Laible, D. J., & Thompson, R. A. (2002). Mother-child conflict in the toddler years: Lessons in

    emotion, morality, and relationships. *Child Development, 73(4),* 1187-203.

Llorca, A., Richaud, M., & Malonda, E. (2017). Parenting styles, prosocial, and aggressive

    behavior: The role of emotions in offender and non-offender adolescents. *Frontiers in

    Psychology, 8*, 1246. doi: 10.3389/fpsyg.2017.01246.

Locke, L. M., & Prinz, R. J. (2002). Measurement of parental discipline and nurturance. *Child

    Psychological Review, 22(6)*, 895-929.

Lunkenheimer, E., Kemp, C. J., Lucas-Thompson, R. G., Cole, P. M., & Albrecht, E. C. (2016).

    Assessing biobehavioural self-regulation and coregulation in early childhood: The parent-

    child challenge task. *Infant and Child Development, 26(1)*, e1965.

Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent-child

    interaction. In P. H. Mussen (Ed.), *Handbook of Child Psychology 4*, 1-101. New York:

    Wiley.

Macrae, C. N., & Johnston, L. (1998). Help, I need somebody: Automatic action and

    inaction. *Social Cognition, 16*(4), 400-417. http://dx.doi.org/10.1521/soco.1998.16.4.400

McDonald, R., Dodson, M., Rosenfield, D., & Jouriles, E. (2011). Effects of a Parenting

    Intervention on Features of Psychopathy in Children. *Journal of Abnormal Psychology,

    39(7),* 1013-23. https://doi.org/10.1007/s10802-011-9512-8

Milevsky, A., Schlechter, M., Netter, S., & Keehn, D. (2007). Maternal and paternal parenting

    styles in adolescents: Associations with self-esteem, depression and life-satisfaction.

    Journal of Child and Family Studies, 16(1), 39-47. http://dx.doi.org/10.1007/s10826-006-

    9066-5

Newland, R. P., & Crnic, K. A. (2017). Developmental risk and goodness of fit in the mother-

    child relationship: Links to parenting stress and children's behaviour problems. *Infant

    Child Development, 26(2),* doi: 10.1002/icd.1980.

Over, H., & Carpenter, M. (2009). Eighteen-month-old infants show increased helping following

    priming with affiliation. *Psychological Science, 20(10),* 1189-

    1193. http://dx.doi.org/10.1111/j.1467-9280.2009.02419.x

Rhee, K. E., Lumeng, J. C., Appugliese, D. P., Kaciroti, N., & Bradley, R. H. (2006). Parenting

    styles and overweight status in first grade. *Pediatrics*, *117*(6), 2047.

    https://doi.org/10.1542/peds.2005-2259

Robinson, C. C., Mandleco, B., Olsen, S. F., & Hart, C. H. (1995). Authoritative, authoritarian,

    and permissive parenting practices: Development of a new measure. *Psychological

    Reports*, *77*(3), 819–830. https://doi.org/10.2466/pr0.1995.77.3.819

Rohner, R. P. (1984). Handbook for the study of parental acceptance and rejection (Rev. ed.).

> Storrs: Center for the Study of Parental Acceptance and Rejection, University of

> Connecticut.

Rohner, R. P., & Pettengill, S. M. (1985). Perceived parental acceptance-rejection and parental

> control among Korean adolescents. *Child Development, 56(2),* 524-28.

Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in

> nonclinical samples: A meta-analysis. *Psychological Bulletin, 116(1)*, 55-74.

> http://dx.doi.org/10.1037/0033-2909.116.1.55

Ruffman, T., Slade, L. , Devitt, K., & Crowe, E. (2006), What mothers say and what they do:

> The relation between parenting, theory of mind, language and conflict/cooperation.

> *British Journal of Developmental Psychology, 24*, 105-124.

> doi:10.1348/026151005X82848

Severy, L. J., & Davis, K. E. (1971). Helping behavior among normal and retarded children.

> *Child Development*, 42(4), 1017-1031. http://dx.doi.org/10.2307/1127788

Spera, C. (2005). A review of the relationship among parenting practices, parenting styles, and

> adolescent school achievement. *Educational Psychology Review*, *17*(2), 125–146.

> https://doi.org/10.1007/s10648-005-3950-1

Steinberg, L., Blatt-Eisengart, I., & Cauffman, E. (2006). Patterns of competence and adjustment

> among adolescents from authoritative, authoritarian, indulgent, and neglectful homes: A

> replication in a sample of serious juvenile offenders. *Journal of Research on*

> *Adolescence, 16*, 47-58. doi:10.1111/j.1532-7795.2006.00119.x

Suldo, S. M., & Huebner, E. S. (2004). The role of life satisfaction in the relationship between

> authoritative parenting dimensions and adolescent problem behavior. *Social Indicators*

> *Research, 66*, 165-195. http://dx.doi.org/10.1023/B:SOCI.0000007498.62080.1e

Sulik, M. J., Blair, C., Mills-Koonce, R., Berry, D., & Greenberg, M. (2015). Early parenting and

    the development of externalizing behavior problems: Longitudinal mediation through

    children's executive function. *Child Development, 86*, 1588-1603.

    doi:10.1111/cdev.12386

Svetlova, M., Nichols, S. R., & Brownell, C. A. (2010). Toddlers' prosocial behavior: From

    instrumental to empathic to altruistic helping. *Child Development 81*(6), 1814-27. doi:

    10.1111/j.1467-8624.2010.01512.x.

Vieno, A., Nation, M., Pastore, M., & Santinello, M. (2009). Parenting and antisocial behavior:

    A model of the relationship between adolescent self-disclosure, parental closeness,

    parental control, and adolescent antisocial behavior. *Developmental Psychology, 45*(6),

    1509-1519. http://dx.doi.org/10.1037/a0016929

Waller, R., Gardner, F., & Hyde, L.W. (2013). What are the associations between parenting,

    callous-unemotional traits, and antisocial behavior in youth? A systematic review of

    evidence. *Clinical Psychology Review, 33(4),* 593-608.

Warneken, F., & Tomasello, M. (2006). Altruistic helping in human infants and young

    chimpanzees. *Science*, *311*(5765), 1301. https://doi.org/10.1126/science.1121448

Wootton, J. M., Frick, P. J., Shelton, K. K., & Silverthorn, P. (1997). Ineffective parenting and

    childhood conduct problems: The moderating role of callous-unemotional traits. *Journal

    of Consulting and Clinical Psychology, 65(2),* 301-308. http://dx.doi.org/10.1037/0022-

    006X.65.2.292.b

Table 1

Percent Inter-Rater Agreement per Parent Measure

	Commands	Explanatory Instructions	Questions	Positive Feedback	Negative Feedback	Intrusion	Praise	Parental Affect
Percent Agreement (%)	69.74	64.62	65.60	61.20	56.04	88.89	67.59	89

Table 2

Percent Inter-Rater Agreement per Child Measure

	Compliance	Non-Compliance	Helping
Percent Agreement (%)	77.94	51.39	100

Table 3

Correlations between Parenting Style Scores and Parenting Behaviors

	M (*SD*)	Commands	Explanatory Instructions	Questions	Positive Feedback	Negative Feedback	Intrusion	Praise
Authoritative Score	4.15 (0.34)	.335*	.006	-.324	.228	.090	.227	.389*
Authoritarian Score	1.68 (0.32)	.114	.175	-.018	.118	.338*	-.030	.318
Permissive Score	2.07 (0.43)	.119	-.150	-.116	.001	.077	-.164	.069

* $p < .05$.

Table 4

Correlations between Authoritative Parenting Style Dimension Scores and Parenting Behaviors

	M (SD)	Commands	Explanatory Instructions	Questions	Positive Feedback	Negative Feedback	Intrusion	Praise
Connection Dimension	4.49 (0.37)	-.062	-.059	-.072	-.085	-.256	.181	-.031
Regulation Dimension	4.27 (0.47)	.439**	-.070	-.483**	.254	.229	.247	.435**
Autonomy Granting Dimension	3.69 (0.46)	.353*	.133	-.173	.321	.175	.110	.453**

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

Table 5

Multiple Regression Analysis Predicting Commands from Parenting Style

	Standardized β	t	p
Constant		-1.85	.074
Authoritative Score	.403	2.37	.024
Authoritarian Score	.157	0.866	.393
Permissive Score	.140	0.779	.442
R^2	.089		
F	2.11		.119

Note. N = 35.

Table 6

Multiple Regression Analysis Predicting Questions from Parenting Style

	Standardized β	t	p
Constant		2.753	.010
Authoritative Score	-.371	-2.14	.040
Authoritarian Score	-.038	-.206	.838
Permissive Score	-.178	-.973	.338
R^2	.058		
F	1.70		.187

Note. N = 35.

Table 7

Single Linear Regression Analysis Predicting Commands from Authoritative Parenting Style

	Standardized β	t	p
Constant		-1.20	.240
Authoritative Score	.335	2.04	.049
R^2	.085		
F	4.17		.049

Note. N = 35.

Table 8

Single Linear Regression Analysis Predicting Questions from Authoritative Parenting Style

	Standardized β	*t*	*p*
Constant		2.75	.010
Authoritative Score	-.324	-1.97	.058
R^2	.078		
F	3.87		.058

Note. N = 35.

Table 9

Correlations between Parenting Styles/Behaviors and Child Measures

	M (*SD*)	Authoritative Score	Authoritarian Score	Permissive Score	Parental Affect	Intrusion	Praise
Helping	3.03 (1.25)	.100	-.094	-.134	.041	.144	-.046
Compliance	6.85 (3.58)	.087	.080	-.035	.123	.068	.120
Non-Compliance	0.41 (0.71)	.012	-.190	-.086	-.408*	.223	-.136

* *p* < .05.

Table 10

Descriptive Statistics and t-test Results for Parent and Child Behaviors

Outcome	Puzzle Task (Baseline)		Challenge Task (Time-Pressure)		95% CI for Mean Difference	r	t	df	Sig. (2-tailed)
	M	SD	M	SD					
Explanatory Instruction	2.74	1.18	2.92	1.91	-.77, .42	.450**	-.599	34	.553
Commands	2.63	1.86	3.70	3.31	-2.31, .16	.115	-.176	34	.087
Questions	2.15	1.24	1.69	1.56	-.04, .96	.479**	1.89	34	.068
Positive Feedback	1.78	.978	1.62	2.01	-.44, .76	.510**	.544	34	.590
Negative Feedback	.434	.436	.835	1.20	-.83, .03	.071	-1.91	34	.065
Intrusion	.028	.010	.097	.298	-.18, .04	-.059	-1.27	34	.212
Praise	.680	.548	.111	.362	.35, .78	.093	5.35***	34	> .001
Compliance	4.37	1.57	2.48	2.48	1.17, 2.61	.546***	5.36***	34	> .001
Non-Compliance	.159	.259	.255	.652	-.34, .14	.019	-.819	34	.419

Note: Analyses were done using paired t-tests.

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

High Warmth

Permissive   Authoritative

Low Control ← → High Control

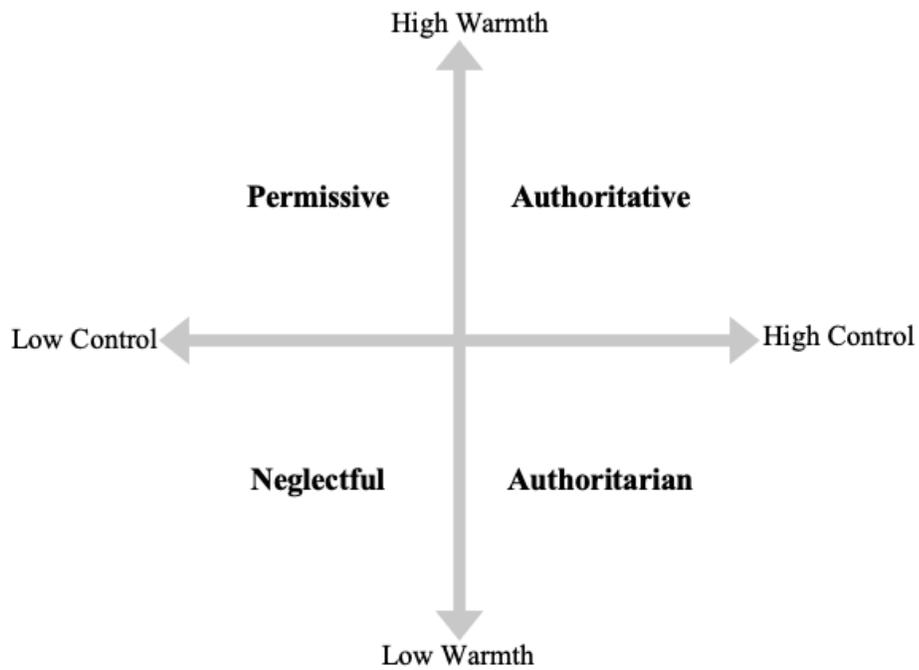Neglectful   Authoritarian

Low Warmth

Figure 1. Visualization of Parenting Styles (Baumrind, 1971; Maccoby & Martin, 1983).

Appendix A

Parenting Style and Dimensions Questionnaire (PSDQ) Short Form

Child's Name: _____ **Gender:** _____ **Date of Birth:** _____

REMEMBER: Make two ratings for each item; (1) rate how often your partner exhibits this behavior with your child and (2) how often you exhibit this behavior with your child.

PARTNER EXHIBITS BEHAVIOR:

1 = Never   2 = Once In Awhile   3 = About Half of the Time   4 = Very Often   5 = Always

I EXHIBIT THIS BEHAVIOR:

1 = Never   2 = Once In Awhile   3 = About Half of the Time   4 = Very Often   5 = Always

[Partner] [I]

_____ _____ 1. [My partner is] [I am] responsive to our child's feelings and needs.

_____ _____ 2. [My partner uses] [I use] physical punishment as a way of disciplining our child.

_____ _____ 3. [My partner takes] [I take] our child's desires into account before asking the child to do something.

_____ _____ 4. When our child asks why he/she has to conform, [My partner states] [I state]: because I said so, or I am your parent and I want you to.

_____ _____ 5. [My partner explains] [I explain] to our child how we feel about the child's good and bad behavior.

_____ _____ 6. [My partner spanks] [I spank] when our child is disobedient.

_____ _____ 7. [My partner encourages] [I encourage] our child to talk about his/her troubles.

_____ _____ 8. [My partner finds] [I find] it difficult to discipline our child.

_____ _____ 9. [My partner encourages] [I encourage] our child to freely express himself/herself even when disagreeing with parents.

_____ _____ 10. [My partner punishes] [I punish] by taking privileges away from our child with little if any explanations.

_____ _____ 11. [My partner emphasizes] [I emphasize] the reasons for rules.

_____ _____ 12. [My partner gives] [I give] comfort and understanding when our child is upset.

_____ _____ 13. [My partner yells or shouts] [I yell or shout] when our child misbehaves.

_____ _____ 14. [My partner gives praise] [I give praise] when our child is good.

_____ _____ 15. [My partner gives] [I give] into our child when the child causes a commotion about something.

_____ _____ 16. [My partner explodes] [I explode] in anger towards our child.

_____ _____ 17. [My partner threatens] [I threaten] our child with punishment more often than actually giving it.

_____ _____ 18. [My partner takes] [I take] into account our child's preferences in making plans for the family.

_____ _____ 19. [My partner grabs] [I grab] our child when being disobedient.

_____ _____ 20. [My partner states] [I state] punishments to our child and does not actually do them.

_____ _____ 21. [My partner shows] [I show] respect for our child's opinions by encouraging our child to express them.

_____ _____ 22. [My partner allows] [I allow] our child to give input into family rules.

_____ _____ 23. [My partner scolds and criticizes] [I scold and criticize] to make our child improve.

_____ _____ 24. [My partner spoils] [I spoil] our child.

_____ _____ 25. [My partner gives] [I give] our child reasons why rules should be obeyed.

_____ _____ 26. [My partner uses] [I use] threats as punishment with little or no justification.

_____ _____ 27. [My partner has] [I have] warm and intimate times together with our child.

_____ _____ 28. [My partner punishes] [I punish] by putting our child off somewhere alone with little if any explanations.

_____ _____ 29. [My partner helps] [I help] our child to understand the impact of behavior by encouraging our child to talk about the consequences of his/her own actions.

_____ _____ 30. [My partner scolds or criticizes] [I scold or criticize] when our child's behavior doesn't meet our expectations.

_____ _____ 31. [My partner explains] [I explain] the consequences of the child's behavior.

_____ _____ 32. [My partner slaps] [I slap] our child when the child misbehaves.
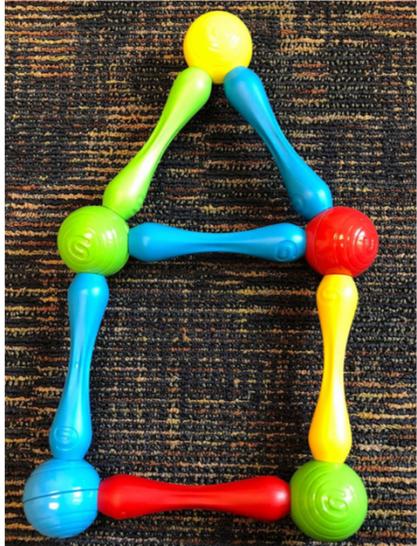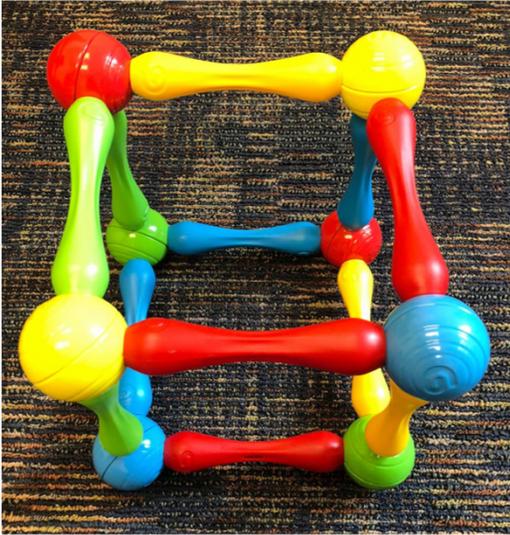
Appendix B

Helping Task Procedure

Time	Prompt	
0 – 10 s	None, Spontaneous Helping	
11 – 20 s	Look at and call C's name and say "My sticks, they've fallen on the floor." 2 attempts to reach sticks unsuccessfully	If any sticks remain, move on to next time prompt
21 – 30 s	Look at and call C's name and say "My sticks, I need them back." 2 attempts to reach sticks unsuccessfully	
31 – 40 s	Look at and say "Please will you help me?"	

Note: The bolded and blue text is the experimenter's script and C refers to the child.

Appendix C

Puzzle Task Instructions

Please complete the following puzzles in order, and check them off as done or attempted in the appropriate boxes below.

1. Triangle	3. Pyramid
Done: _____ Attempted: _____	Done: _____ Attempted: _____
2. House	**4. Box**
Done: _____ Attempted: _____	Done: _____ Attempted: _____