

If You Give a Boy a Baby:

Encouraging Empathy in Preschool Boys through Toy Play and Emotion Talk

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### Abstract

Empathy, the ability to respond to another's distress with a similar emotion, develops in children as young as two to three years old as their role-taking abilities and emotion regulation skills increase (Feshbach, 1982). Yet, in as early as preschool, moderate gender differences favor girls over boys in empathy-related responding, a psychological measure which incorporates sympathy, personal distress, and empathy (Grusec, Davidov, & Lundell, 2002; Zhou, Valiente, & Eisenberg, 2003). Social cognitive theory suggests that both the environment and cognitions of the child impact this differential development of empathy (Bussey & Bandura, 1999). It may be that parent traditionality influences this empathy difference, such that parents socialize children differently, characterizing young girls as empathic and interpersonal, and young boys as autonomous (Fivush, Brotman, Buckner, & Goodman, 2000). Boys' insufficient practice with baby dolls, in which they take the role of caregiver in pretend play and emotion talk, may also influence the gender gap. The present study was designed to examine mechanisms of empathy development for preschool boys, through doll play (to practice caregiving) and/or emotion talk (to practice identifying and responding to emotions). The baby doll intervention, a guided play with the doll and its accessory, effectively enhanced empathy as those boys responded more quickly to an empathy paradigm than did those in the control condition, which indicates support for the hypothesis. The intervention success suggests the importance of continuing intervention research for the development of socioemotional skills in young children.

*Keywords:* empathy, doll play, empathy training, gender differences

## If You Give a Boy a Baby: Encouraging Empathy in Preschool Boys through Toy Play and Emotion Talk

Empathy is the ability to respond to another's distress with a similar emotion, and it is defined by the presence of three essential skills: (1) the capacity to discriminate an emotional state in another person, (2) the ability to assume the perspective or role of another person, and (3) the ability to respond effectively (Feshbach, 1982). Empathy is considered the root of prosocial behavior and develops throughout childhood (Eisenberg & Mussen, 1989). At the core of understanding the development of empathy in children, it is necessary to look at childrearing practices and how parents induct or direct children to think about how their behavior impacts others (Grusec, Davidov, & Lundell, 2002). While empathy is not considered an emotion itself, it is an emotionally-regulated response that involves perspective-taking, temperament, arousal, empathic models, and secure attachments (Lockwood, Seara-Cardoso, & Vindig, 2014). Social functioning and emotion regulation are directly related to both sympathy and empathy-related responding as well (Eisenberg et al., 1996). All of these outside factors, such as secure attachments, emotion regulation, and social functioning, suggest that empathy is a moral response that can be developed and encouraged in children through other skills.

Perhaps this is why empathy seems to develop differently in boys and girls in preschool. Meta-analyses on empathy and prosocial behavior show moderate gender differences favoring girls (Grusec et al., 2002). For preschool-age girls, empathy is associated with positive self-concept with teachers and peers and high self-ratings of prosocial behavior (Feshbach, 1982). Conversely, empathy in preschool-age boys is

associated with strong cognitive skills, such as vocabulary, reading ability, and comprehension (Feshbach, 1982). Girls show more prosocial behaviors than do boys, and it is likely that the gender difference in preschool-age children on empathy is deeper than just the association differences (cognition versus self-concept). These gender differences may stem from contextual factors as well (Feshbach, 1982). Social cognitive theory explains the development of empathy through children's cognitions and their environments, and perhaps their models within the environment. It may be that differential parenting behaviors, efficacy in responding, and practice in empathy-related responding also differ in preschool boys and girls, creating a divide in this moral response. Intervention that encourages both emotion skills (through talk and identification practice with emotions) and role-taking as caregiver (through doll play) may bridge this gap for young boys.

### **Gender Differences in Empathic Responding**

Empathy is the ability of an "observer to make assumptions about another based on their environment, cues, or information" (Eisenberg, Spinrad, & Sadovsky, 2005), so empathy-related responding is the observer's actions towards the other once they understand those assumptions. It is the affective and behavioral response to the cognitive processing of information about another's state or condition, either positive or negative emotions (Zhou, Valiente, & Eisenberg, 2003). Empathy develops differently for young boys and girls, and the gender differences which favor girls may be a result of this differential development (Feshbach, 1982).

There are a variety of ways to measure empathy-related responding, and it may be that boys and girls express or show empathy differently. Empathy-related responding

in experimental design studies encompasses three sub-constructs: sympathy, personal distress, and empathy (Zhou et al., 2003). These have been measured as self-report, outside reports (by parents, teachers, peers, etc.), facial/gestural/vocal cues, and physiological cues (Zhou et al., 2003). Particularly in childhood, facial/gestural/vocal measurements of empathy are generally very accurate, as children at such a young age are not as subject to social desirability as adults (Zhou et al., 2003). Multi-method approaches are best practice for empathy-related responding and yet even with multiple types of measurements, moderate gender differences still favor girls in their use of empathy-related responding over boys (Feshbach, 1982). While much of the research on empathy is older (1980s-1990s), research on the methods and measurements of empathy-related responding is more current (Zhou et al., 2003). Currently, research seems less oriented towards the gender difference or interventions for promoting empathy, and more focused on its correlates and relationship with attachment and other developmental constructs (Murphy & Laible, 2013; Stern & Cassidy, 2017).

Feshbach (1982) posits that empathy itself is an interpersonal response that blurs the line between self and others, where emotions motivate an individual to act or help another. Empathy related-responding seems to increase with age, as children have a better understanding of affective experiences as well as societal expectations. Conversely in adulthood, men are more likely to respond with prosocial behavior than are women, yet the gender gap of empathy-related responding clearly favors girls in preschool years. Perhaps, early childhood influences, such as play, parenting practices, and emotional skills, are given to and affect boys and girls differently.

In the development of empathy, both determinants of childrearing practices and internalization of values seem to be important (Grusec et al., 2002). Parents' socialization of their children contributes to the development of socioemotional skills as early as preschool, and thus may be relevant to empathy development as well. Parents' affect and encouragement of children's moral emotions and behaviors increases children's sympathy, regardless of gender (Spinrad et al., 1999). Similarly, parental warmth and positive expressivity are associated with children's emotion-regulation and social functioning, which directly impact their sympathy- and empathy-related responding (Zhou et al., 2002). It is clear from this research that the positive relationship a child has with their parents impacts their use of empathy, but it may be that there are other impacts, such as parental socialization.

Parents are more likely to socialize their boys to "be tough" and their girls to be interpersonal, as reflected in gender differences in parent-child emotion narratives (Fivush, Brotman, Buckner, & Goodman, 2000). By steering the conversation toward certain emotions, girls are reminded and encouraged to express emotions and use them in conversation with others, whereas boys are taught to discuss emotions within situations they control, describing only the causes (rather than true feelings) of emotional situations (Fivush et al., 2000). Girls are reminded and cued to talk about empathy, particularly as they identify, evaluate, and respond to their emotions. Through these conversations, emotional skills that directly impact empathy are strengthened, while boys are not guided through this emotion evaluation process as well or as often by their parents (Feshbach, 1979). It may be that because of this gap in key emotional

skills, the relevance and use of empathy-related responding is developed and utilized differently in boys and girls.

### **Social Cognitive Theory**

One theory that addresses the development of empathy directly is Bussey and Bandura's (1999) social cognitive theory of gender development and differentiation, which explains how these gender differences in empathy may develop. Social cognitive theory is oriented by the triadic reciprocal causation; such that personal factors, behavioral patterns, and the environment influence each other and the child in the development of gender (Bussey & Bandura, 1999). Simplified, this perspective on social cognitive theory boils down to two components: cognitions and observation.

The two cognitive processes associated with the development of empathy are the concepts of the moral standard and efficacy. Once a child understands their own emotions and they set goals for themselves to act in line with those emotions, they have developed a "moral standard" (Eisenberg & Mussen, 1989). This internal protocol of behavior prompts actions in line with the emotions they identify, and encourages children to look for this standard in others (Eisenberg & Mussen, 1989). Connections between parents and children's development of moral standards have been drawn, demonstrating the damaging impact of harsh discipline and punishment on the child's moral standard (Hoffman, 1979). Parents serve as children's "original source of moral guidance" (Damon, 1999), impacting their development of moral standard, an underlying, cognitive mechanism of empathy-related responding.

Efficacy is feeling able to produce a desired or intended result, which is impacted by practice and confidence (Bussey & Bandura, 1999). Children who are encouraged and taught to use certain skills, such as empathy, are more likely to do so than those who receive no instruction or guidance on the task (Bussey & Bandura, 1999). Because empathy is not an emotion, but an emotionally-regulated skill that can be encouraged, efficacy is a crucial component to the development of empathy. On the one hand, girls may feel more efficacious for empathy than boys, because empathic responses are seen as feminine. Thus, it may be more likely that empathy is included in girls' self-concept (Feshbach, 1982). It seems that in this way, the moral standard and efficacy may work together in girls' development of empathy; not only might girls feel they must act with empathy to fulfill their internal protocol, but they may also feel more efficacious in responding empathically. Boys, on the other hand, may be less likely to consider empathy a key component of their self-concept, and may in turn have a slower development of moral standard and empathic behaviors.

Provided that successful empathy-building in girls can be traced to this self-concept and moral standard connection, this effect should transfer to boys with similar instruction and encouragement. These findings suggest that empathy can be taught in the preschool years by integrating emotional skills and confidence into children's self-concept. If boys feel that being empathic is a part of who they are and who they are meant to be, the gender difference in empathy-related responding may diminish. When children feel efficacious for empathy, they are more likely to act with empathy in the future (Bussey & Bandura, 1999). Thus, girls who are taught and encouraged to be empathic seem to be more likely to do so than boys who are not instructed in the same



way (Feshbach, 1982). Efficacy is built through practice; the more children practice a skill, the more efficacious they feel in that skill (Bussey & Bandura, 1999). The principle of practice applies to empathy as it does any other emotional or social skill; as children practice responding to their peers and parents with empathy, the more confident they are in doing so the next time.

Additionally, social cognitive theory describes how children learn through modeling their same-gender attachment figure (Bussey & Bandura, 1999; Stern & Cassidy, 2017). Repeated modeling of gender-typed behavior is a conveyor of gender role information; thus, behaviors of a same-gender parent serve as a template for children's own future behaviors and are incorporated into the child's ideas about how men and women should behave (Bussey & Bandura, 1999). Specifically, with empathy, parental characteristics and practices are related to children's vicarious emotional responding, primarily from the same-gender parent (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991). When children see their parents, teachers, and peers act with empathy, they learn to act with empathy by following and mimicking the adult models they love and respect. These actions are most successful with a same-gender model and if direct tuition is matched with congruent behaviors (Bussey & Bandura, 1999). Mothers act more empathically than do fathers, so girls more often see their same-gender model respond in this way than do boys (Kalliopuska, 1984). When fathers do act with empathy, son's dispositional sympathy and empathy are positively correlated (Eisenberg et al., 1991). The issue is not that parents respond with more empathy to girls than to boys; rather, it is that fathers do not serve as emotion and empathy models enough for their sons (Eisenberg et al., 1991). There may not be enough caretaking and

empathic behaviors from boys' same-gender role model, which in turn may be negatively impactful on boys' development of empathy-related responding.

Moreover, the development of role-taking, the ability of a child to understand another's emotions or perspective, enhances children's use of empathy (Hoffman, 2000). Role-taking, which develops as early as two to three years old, calls for a deeper understanding of what someone else is dealing with and is crucial to the use of empathy-related responding (Hoffman, 2000). When a child can understand their own emotions and identify emotions in others, their absorption of actions and behaviors increases (Stern & Cassidy, 2017). Their interpretation of situations and events, whether euphoric or dysphoric, and responses to those instances are more emotionally-invested and supportive when role-taking skills are used. There are not defined gender differences in role-taking; it seems that the ability to understand another's emotions or perspective develops at the same rate in young boys and girls. Yet while no gender difference exists in role-taking, moderate differences do exist in empathy-related responding, a mechanism of role-taking (Grusec et al., 2002; Hoffman, 1979). This suggests that the gender gap in empathy-related responding can be eliminated, as the crucial tool of role-taking has no gender difference.

### **Parent Traditionality**

Social cognitive theory of the development of empathy is constructed of efficacy and observations of parents, though how these components develop may be different between boys and girls. Because of the importance and responsibility of the same-gender model, the values and actions stressed by those models may differ between men and women. Following traditional standards, women models may demonstrate

care-taking more than work or career-related tasks, and vice versa for men (Patterson, Sutfin, & Fulcher, 2004). It may be that this differential behavior by parents impacts children's use of empathy, such that young boys' efficacy in empathy-related responding is not encouraged by parents and thus not often used as a response to others in need or distress. Perhaps if boys were instructed to be interpersonal and emotional with peers and adults in the same way girls are, they may be more confident in responding emotionally to others' needs. Without this encouragement, boys may be less likely to practice responding to others' needs with empathy, stunting their efficacy for empathy-related responding.

Thus, a link between parent traditionality and children's development and use of empathy may exist. Since empathy is traditionally viewed as a component of a girl's gender identity, parents' traditionality regarding gendered traits may impact how often they see men and women being empathic (Feshbach, 1982). For example, if fathers were primary caregivers, there could be a connection between boys feeling more efficacious in responding (as they act like their fathers do). Yet, if mothers actively model care-giving and emotional skills more to their daughters (as congruent with gendered, traditional emotion socialization of children) than sons in the house, differences in empathy-related responding may emerge. Differential parenting may impact how parents instruct emotion identification and response skills, as traditional gender roles stress those abilities for young girls but not young boys. Research shows (Eisenberg et al., 1991; Eisenberg et al., 1992) parental connections to the development of empathy, particularly on mother-daughter and father-son relationships. Empathy in girls was found to be linked to positive, non-restrictive relationships with mothers in

early years, while empathy in boys was negatively associated with paternal emphasis on competition (Feshbach, 1982). While this finding addresses just two specific features of a parent-child relationship, it does suggest that parents hold much responsibility in the development of their child's empathy, particularly a same-gender child.

### **Toy Play**

Another reason why there may be a difference in empathy between preschool boys and girls is the amount of practice they have in empathy-related responding scenarios. It may be that because boys spend more time with building and construction toys than dolls, they get less practice with nurturing and empathy-encouraging toys (Tracy, 1987). When provided with dolls, boys are less likely to play with them than are girls by as early as twelve months old (Snow, Jacklin, & Maccoby, 1983). Doll play often encourages pretend play and allows children to construct visions of their future work and family roles (Fulcher & Coyle, 2018). Many pretend play toys are associated with female roles, such as a baby doll (act as a caregiver) or a toy kitchen (cook for the family) (Blakemore & Centers, 2005). This is the most literal form of role-taking, where children pretend to be or act out the job of someone else.

Without having these toys in the home or being encouraged to play with them, preschool boys do not get the chance to practice being a caregiver. It may be that practice with dolls themselves promotes boys to respond empathically like girls do, closing the gender gap in this moral and emotional reaction. Fathers are more likely to withhold dolls from their sons than to give them to them, which may limit the availability of baby dolls in young boys' toy boxes (Snow et al., 1983). Simply having a doll in the home to play with would provide a preschool boy with the opportunity to engage in

pretend play, likely related to nurturing or caregiving roles, which may influence their later use of emotional or empathy-related skills.

### **Potential Mechanisms of Intervention**

Research on teaching and supplementing socioemotional skills such as empathy, problem solving, and social functioning has shown support for in-school intervention programs (Eisenberg, Wentzel, & Harris, 1998; Pickens, 2009; Cotton, 2001). For example, the Peace Education Foundation (PEF) program successfully promoted social skills, like emotion regulation and cooperation with parents, teachers, and peers, in preschool samples (Pickens, 2009). Similarly, the Empathy Training Program (Feshbach, 1979) taught preschoolers how to identify, discriminate, and respond to a variety of emotions, and repeatedly minimized children's aggressive behaviors (Feshbach, 1982). Programs like PEF, Empathy Training, Child Development Project, Interpersonal Cognitive Problem Solving, and others have all been successfully carried out and made lasting impacts on children's empathy in preschool classrooms (Eisenberg et al., 1998).

While these school programs effectively reach many children at once, they do not provide individual attention to each child. Perhaps there is room for individual interventions regarding the development of empathy through the instruction of emotion talk and skills. It would be necessary for an individual program to encapsulate the key components of these successful classroom practices, which include identifying one's own emotions, discussing feelings and problems, finding similarities between oneself and others, and role-taking (Cotton, 2001). An individual program would not only give young boys the opportunity to practice empathy but would also provide direct instruction

and conversation about the emotional skills that underlie empathy-related responding. Walking young boys through the components of emotion talk (affect identification, perspective taking, and emotional responsiveness) would not only encourage their use of empathy but also make them feel more efficacious to do so. Self-efficacy may be a factor in boys' use of empathy-related responding, so greater knowledge of emotional skills may encourage their confidence and later behaviors in acting prosocially.

Similarly, doll play may be used as intervention for empathy as it encourages pretend play, specifically for acting out caregiving scenarios and behaviors. Playing with a baby doll simulates interpersonal pretend play and helping situations, which might enhance empathy development. Individual instruction of stimulating play with baby dolls could be especially efficacious in helping boys engage in these caregiving types of play scenarios.

### **The Current Study**

Preschool girls engage in moderately more prosocial behaviors and use more empathy-related solutions than do boys (Grusec et al., 2002). It may be that preschool-age boys do not get enough practice with dolls or pretend play role-taking as caretakers, limiting their efficacy for empathy-related responding (Tracy, 1987). Promoting the use of dolls may be the key to more empathy-related responding in children who do not typically play, or get practice, as caregivers (Fulcher & Coyle, 2018). Additionally, instruction of empathy-related skills through emotional talk in school curriculum has been known to improve these skills in the past, so instruction through reading and emotion talk of empathy skills may also enhance empathy development (Feshbach, 1979). Moreover, efficacy may be an important component of empathy-related

responding, as children who feel more efficacious for helping others may actually help and respond more often (Bussey & Bandura, 1999). The current study applied those findings, utilizing doll play and emotion talk as interventions in a one-on-one setting, which may have more impact on an individual child, and tested empathy using a crying baby paradigm and a series of self-report questionnaires.

A pilot study was included in this project to test the measures and methods, and to determine some coding and data components. The pilot study included the empathy simulations (described below) and the self-efficacy questionnaire with an entirely female sample, so to preview all possible behavioral responses to the empathy simulation. For the primary research project, the first component of the study was an in-depth parent questionnaire (featuring questions about the child's family, division of paid labor and childcare, parent demographic information, and child information). For the participant, a self-report measurement of self-efficacy for empathy was completed before the interventions. The first intervention was a book reading, designed to enhance emotion talk, while the second was toy play with a baby doll, serving as a practice with caregiving and emotional responsiveness skills. Finally, the child participated in two empathy simulations; the first featured a crying baby paradigm, allowing the researcher to measure both behavioral and facial empathy responses. The second simulation was a self-report scale for sympathy, and the last step was a post-intervention measurement of self-efficacy for empathy.

**Pilot study.** The aims of the pilot study are as follows.

*Aim 1:* Gain a stronger understanding of preschool-age girls' responses to the empathy simulations.

*Aim 2:* Determine proper behavioral coding scheme for primary study, based on the behaviors recorded for Aim 1.

*Aim 3:* Condense self-report questionnaires and parent questionnaire, so to make the research process easier for participants and their parents.

**Primary study.** The primary study tested the effects of two interventions for empathy in preschool-age boys, one using guided baby doll play and the other using emotion talk through a storybook reading.

*Hypothesis 1:* Boys whose parents have more non-traditional gender roles will use more empathy-related responding (demonstrated through self-report, behavior, and facial expressions) in the empathy simulations and show an increase in empathy self-efficacy than will those whose parents have more traditional gender roles.

*Hypothesis 2:* Boys who play with a doll during the guided and free play period will use more empathy-related responding (demonstrated through self-report, behavior, and facial expressions) in the empathy simulations and show an increase in empathy self-efficacy than will those who play with the control toy.

*Hypothesis 3:* Boys who are given the emotion talk instruction will use more empathy-related responding (demonstrated through self-report, behavior, and facial expressions) in the empathy simulations and show an increase in empathy self-efficacy than will those who are given the alternative lesson.

*Hypothesis 4:* Boys who receive the emotion lesson and play with the doll will show more empathy-related responding (demonstrated through self-report,



behavior, and facial expressions) in the empathy simulations and show an increase in empathy self-efficacy than those who only received one or none of the two interventions.

## Pilot Study

### Method

**Participants.** Participants of the study were nine ( $N = 9$ ) three- to six-year-old girls ( $M_{\text{age}} = 3.89$ ,  $SD = 1.05$ ), who participated during a four-week data collection period. Children were primarily white (88.9%; 11.1% African American). Families were recruited through word-of-mouth and flyers posted on campus, and children received a small prize (bouncy ball or small stuffed animal) for their participation.

### Measures.

***Empathy-related responding.*** A multi-method approach was utilized to measure empathy-related responding.

*Modified Eisenberg et al. Child Report Sympathy Scale (1991).* This scoring system allows researchers to gather children's responses (either verbal or denoted on a visual scale) on empathic and sympathetic feelings to sentence-length vignettes about children their age. This scale is an adaptation of Bryant's (1982) Index of Empathy for Children and Adolescents and has been useful and successful in previous research on children's empathy (Valiente, Eisenberg, Fabes, Shepard, Cumberland, & Losoya, 2004). To make it easiest for preschool-age children to understand, the statements were modified by the researcher into straight-forward questions that are less complex and are less focused on perspective taking of another (see Appendix A). Each of the six

statements were presented verbally, and a smiley face visual aid, featuring five faces (0 = really good, 2 = okay, 4 = bad) was used to help children respond with how they feel in response to each statement (see Appendix A). A sample question is as follows: "How do you feel when you see someone being picked on?" High scores indicated the highest empathy-related responding. Each statement response was averaged into one numerical variable for data analyses, with a possible range of 0 to 4. Reliability for this measure is reported in its original presentation ( $\alpha = .63$ ), on a sample of third graders and sixth graders (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991).

*Behavioral observation.* The pilot study tested two behavioral coding methods, Spinrad and Stifter (2006) and Lin and Grisham (2017), in order to determine which was a better fit for primary research project with preschool boys based on the methods' efficiency and accuracy.

First, Spinrad and Stifter's (2006) method codes for the following behavioral categories (and examples): positive affect (smiling, squealing, laughing), negative affect (frowning, fussing, whining), self-comforting (hand-or finger-sucking, touching objects to face), concerned awareness (stopping, staring at distressed), and aggression (hitting, kicking). Behaviors were coded for both a count of occurrence and duration score (in seconds).

Secondly Lin and Grisham's (2017) method codes for categories (and examples), including infant-oriented behavior (moving to baby, patting it), personal distress behaviors (nervous crying/laughing, seeking comfort), and disengagement (irrelevant speech, looking away). In this version, behaviors were tallied for the number of

occurrences and their duration, by calculating what percentage of the total simulation time they had that particular response.

Finally, facial data was not recorded during the pilot study, because the camera to record facial response was not yet available during the pilot study. In order to determine whether or not facial data would be important for the primary study, the researcher recorded whether or not children went up to the crying baby, but not for specific facial expression responses.

***Self-efficacy in empathy-related responding.*** Seven questions regarding self-efficacy for responding to another's distress through empathy-related responding were asked both before and after the intervention. The questions derive from the Self-Efficacy Questionnaire for Children (Muris, 2001) but were modified to address caregiving and empathic responding (see Appendix B). The researcher delivered each of the seven statements verbally, and a star visual aid, featuring five stars (4 = really good, 2 = okay, 0 = bad) was used to help children respond to each statement (see Appendix B). A sample question is as follows: "How good of a dad will you be?" High scores indicated the highest self-efficacy in empathy-related responding. Pre-intervention and post-intervention responses were averaged separately into two numerical scores. A change score was then calculated between these two variables for data analyses, with a range from 0 to 4. Reliability for this measure is reported in its original presentation, on a sample of adolescents ages 14 to 17 ( $\alpha = .88$ ) (Muris, 2001).

***Parent questionnaire.*** Basic information regarding the family structure was reported (see Appendix C). All questionnaires were filled out by the child's mother.

*Parent traditionality.* The *Who Does What?* (Cowan & Cowan, 1988)

questionnaire gathered data regarding the family division of labor, particularly a ratio of time each parent spends on childcare (cleaning or bathing our child), household work (cleaning up after meals), and decision-making (how we spend time at home), as well as their satisfaction with that division of labor (see Appendix D). The parent who accompanied the child reported what percentage of each of these subscales they typically perform from 1 “I do it all” to 9 “my partner does it all.” Low scores indicated the mother performs most of the work, while median scores indicated a more equal distribution of family work. Each subscale was averaged, with possible scores from 1 to 9. Reliability scores averaged between .72 and .85 in the original presentation of this measure for all three subscales (childcare, household work, and decision-making) (Cowan & Cowan, 1988).

*Toy preferences.* Four questions were asked so that the child's experience with doll and DUPLO play could be included as covariates. These statements included open-ended questions like what the child often played with, their favorite toys, and if parents had restrictions against certain toys. There were also their scale questions about how often children played with dolls (5-point Likert scale) and if toys were shared between siblings (4-point Likert scale).

*Division of paid labor.* Three supplementary questions regarding parents' roles in the family were asked to gather a better understanding of the family's traditionality. These questions asked for each parents' occupation, income range, paid work hours per week, and education level.

**Procedure.** Participant families were greeted in a laboratory setting. After reading and signing the informed consent on behalf of their child, parents filled out a demographic questionnaire. After the child assented to participate in research, the researcher and child moved to a separate toy lab. Parents were able to watch their child participate from the other side of a two-way mirror.

First, the researcher introduced herself to the child, asking a few basic questions (age, favorite color) for rapport building. Next, the child had free play time with both a set of DUPLO blocks and a baby doll and accessories. After about two minutes of free play, the researcher left the room to “prepare the next step of the project.” Upon exiting the room, the baby doll began to cry (to stimulate both facial and behavioral empathic responses). The doll was near the child, though not directly in front of them, and had not been addressed previously in the research session. A wireless speaker was placed in a baby doll rocker, to simulate play baby cries to simulate the doll crying. For behavioral coding, the central video camera was visible to the child, though placed in the back corner of the room, so the child never physically neared the camera herself. The camera’s angle was wide enough to include the child’s toy play area, as well as the realistic-looking crying baby doll. The researcher gave the child approximately 40 seconds to respond to the crying baby before entering the room, usually commenting, “did you help the baby?” then proceeding with the self-report measures.

The researcher read aloud the modified statements from Eisenberg et al.'s Child Report Sympathy Scale and asked for the child's responses via smiley face choice. Following the self-report measure, the self-efficacy for empathy questions were asked using a visual response scale. Following these reports, the child and parent were

debriefed on the general purpose of the study. The study typically lasted about ten minutes. See Appendix E for a graphic of the pilot procedure.

## Results

**Aim 1.** Observing girls' actions in response to the crying baby was the first priority of the pilot study in order to gather a pool of potential behavioral responses. These responses were then compiled to use as a coding scheme for the larger research project with boys. In surveying the pilot study videos, the following behaviors emerged: ignoring the baby, staring at the baby, picking up the baby, looking to or asking the researcher for help, patting or rubbing the baby, and kneeling down to see the baby.

Additionally, five participants (55.5%) went all the way up to the crying baby. This amount demonstrated that it was certainly a possibility preschool boys may also approach the baby, confirming the need for a small facial recording video camera for the primary study.

**Aim 2.** Based on the behaviors described, the best behavioral coding scheme for the primary study was established and titled the "Tri-Behavioral Scale." This scheme combined behavioral categories from both Spinrad and Stifter's (2006) model (specifically, the concerned awareness category) and Lin and Grisham's (2017) model (specifically, the infant-oriented category). A new category, ignoring behaviors, was developed to encompass both Spinrad and Stifter's (2006) negative affect category and Lin and Grisham's (2017) disengagement behaviors. All of the behaviors seen in the pilot study could be categorized into these three groups, and the three categories themselves were distinct from one another to properly reflect various levels of empathy-

related responding. It was also determined that total duration in seconds would be recorded for each behavior type, rather than both occurrences and duration, because it was such a short simulation in total.

**Aim 3.** Regarding the self-report scales and the parent questionnaire, some items were removed to better capture the variables of interest. Six sympathy self-report questions were presented in the pilot study, which were condensed into four sympathy self-report questions for the formal study (removing statements such as “How do you feel for people who don’t have the things that you have?”). Seven self-efficacy self-report questions were presented in the pilot study, which were condensed into four self-efficacy self-report questions for the formal study (removing statements such as “How good are you at making a friend feel better when they are sad?”). For both the sympathy and self-efficacy questionnaires, these statements (two from the sympathy questionnaire and three from the self-efficacy questionnaire) were eliminated as children were more likely to struggle to answer or understand the statements than others. From a qualitative perspective, the questions confused children, and would not be valuable for the primary study if they caused such misunderstanding.

Additionally, a series of questions of improvement (“how I would like it to be”) on each of the *Who Does What* questionnaire subscales was presented in the pilot survey, but was removed from the actual study because it was not a variable of interest.

## **Discussion**

The pilot study was a demonstration of how the primary study might run and shed light on potential areas of improvement. Thus, the self-report questionnaires were

revised to ease children's experience, and similarly the parent questionnaire was revised to ease parents' experience. Perhaps most importantly, the pilot study provided concrete examples of behavioral responses to the empathy simulation, and demonstrated that facial data may be valuable to the primary research project. The pilot videos served as sample data to develop a more accurate coding scheme for the project at hand, and confirmed the need for a small, facial recording camera to allow for facial coding. After the four-week data collection and a series of debrief meetings, the methods, measures, and procedure for the primary study were set and recruitment for the primary project began.

## Primary Study

### Method

**Participants.** Participants of the study were 37 boys, ages three to five years old (approximately preschool-age) ( $M_{age} = 3.09$ ,  $SD = 0.78$ ). Children were primarily White (82.4% White, 2.9% African American, 8.8% American Indian, 5.9% Asian). One participant was excluded due to incomplete data, resulting in a total participant count of 36.

Families were recruited through word-of-mouth, campus notices, and flyers posted around campus and the community. The first 15 participants received a small prize (bouncy ball or small stuffed animal) after completing the research session. Then, the researcher received a grant from the Virginia Academy of Science, allotting the full \$750 grant for participant compensation. With the anticipated participant count goal of 64, each remaining participant could be paid \$15. Sixteen participants received \$15 for



their time. After increased difficulty in participant recruiting, it seemed unlikely the project could reach 64 total participants, so the researcher increased the compensation amount to \$25 in hopes of reaching more families. The final five participants received \$25 for their time.

**Design.** A 2 (Lesson Type: emotion talk, alternative) x 2 (Toy Type: DUPLO, baby doll) between-subjects design was used. The dependent variable of interest was empathy-related responding, measured in three forms: self-report, facial expression, and behavioral response (comprised of three separate behaviors: ignoring, concerned awareness, and infant-oriented). Self-efficacy was also measured as a dependent variable. Random assignment was used to assign children to conditions, so that children received either the emotion lesson or the alternative lesson, and the baby doll or the DUPLOs for guided and free play toy time.

### **Materials.**

**Lesson plans.** Lesson plans were taught using a picture book and a pre-determined, accompanying script for the researcher. The control and intervention book and lesson plan pairs were the same length, both in number of pages and number of accompanying words, and the same level of difficulty. The researcher recorded the child's interest and engagement in the book reading, on a scale of 0 to 2 (0 = uninvolved, silent; 2 = talkative, engaged).

*Modified Empathy Training System (Feshbach, 1979).* The empathy lesson stems from the Feshbach Empathy Training system (1979), a program created to foster personal growth in children while enhancing the development of positive social

behaviors, particularly that of empathy to reduce aggressive behaviors. The program was designed to teach the affective and cognitive skills of empathy, particularly these three components: (1) affect identification, (2) perspective taking, and (3) emotional responsiveness (Feshbach, 1979). Designed to be taught in multi-sitting, 45-minute length sessions to groups of students, the basic components of this program served as guidance for the writing of the emotion lesson.

The emotion lesson occurred through a reading of *The Lion and the Mouse* by Jerry Pinkney. The script, written by the researcher, gave basic descriptions of the illustration and guided questions that focused on affect identification, perspective taking, and emotional responsiveness. See Appendix F for the book's pages and paired script.

*Alternative lesson.* The alternative lesson focused on numbers and illustration descriptions (of mostly animals and children). The lesson was taught using the picture book *One to One Hundred* by Teri Sloat. See Appendix G for the book's pages and paired script.

**Guided toy play.** In order for the child to feel comfortable with their toy, they were guided through play with the toy and its accessories. The baby doll condition included a stroller, a bottle, and a few other accessories. The baby doll and accessories were blue (not pink), so as to avoid any gender-related color cues. The DUPLO condition included a variety of DUPLO blocks, specifically ones without faces or symbols that may have sparked more pretend-style of play.

This guided play lasted approximately five minutes; it involved the researcher demonstrating some ways to play with the doll and how to pair it with accessories, or

with the DUPLO blocks. Following the five-minute guided play, the child was given a maximum of five additional minutes to free play on their own with the toy. The child could either ask to stop free play and move on, or the researcher would automatically begin the following steps after five minutes of free play. The amount of time spent free-playing was recorded. See Appendix H for the doll and DUPLO guided toy play scripts.

### **Measures.**

***Empathy-related responding.*** Most measures are the same as described above for the pilot study, though some were modified for the primary project.

*Modified Eisenberg et al. Child Report Sympathy Scale (1991).* This scoring system was used in the same way as described for the pilot study, but two statements were removed to alleviate child confusion. The removed statements were as follows: (1) “How do you feel for people who don’t have the things that you have?” and (2) “How do you feel for children who are sad or in trouble?” The final questionnaire for the primary study included four statements.

*Behavioral observation.* The Tri-Behavioral Scale, a modified version of Lin and Grisham's (2017) and Spinrad and Stifter's (2006) coding schemes described in the pilot study results was used to code empathy-related response behaviors (see Appendix I). It included categories (and examples) including infant-oriented behavior (moving to baby, patting it), concerned awareness behaviors (stopping play, looking at baby) and ignoring behaviors (irrelevant speech, looking away). Shorter durations of ignoring behaviors could also be interpreted as responding more quickly to the crying baby. In this scheme, the amount of time (a duration score in seconds) that each child showed each behavior

type was utilized to represent higher or lower empathy-related responding, with infant-oriented behaviors as the highest form of response and ignoring behaviors as the lowest form of response.

Two hypotheses-blind undergraduate research assistants were trained together and analyzed the videos for the boy sample. Interrater-reliability was conducted on 10% of data; coders demonstrated 100% agreement on the presence or absence of a behavior type, and varied within an average of 2.63 seconds on the duration of a behavior type (minimum of 0 seconds, maximum of 9.22 seconds). Research assistants recorded the amount of time each child spent demonstrating each type of behavior using ELAN, a video coding software (Max Planck Institute for Psycholinguistics, 2019). The software allows the coder to imbed a video while simultaneously marking each behavior type. It also automatically calculates the total duration of those behaviors, allowing for quick comparison of each coder's data to one another.

*Facial expression observation.* Children's affective responses were coded using a scheme developed by Murphy and Laible (2013) (see Appendix I). The process examines concerned expressions in four different categories (1: no concern or change in expression, 2: sobering of attention, slight concern, 3: moderate concern, including brow furrowing for at least 5 seconds, 4: strong facial concern, including brow furrowing and downward turned mouth for at least 8 seconds). Once a child's face appeared on the camera screen, it was coded immediately for facial expression. Children who did not approach the crying baby doll were not coded (received a score of 0) for facial expression. Two hypotheses-blind coders were trained together and analyzed the videos for the boy sample. The facial expressions of the five children who approached

the baby were coded by both research assistants to ensure interrater reliability, with 100% agreement.

***Self-efficacy in empathy-related responding.*** This scoring system was used in the same way as described for the pilot study, but three statements were removed to alleviate child confusion. The removed statements were as follows: (1) “How good are you at making a friend feel better when they are sad?”, (2) “How good are you at telling someone that you are feeling sad?”, and (3) “How good are you at noticing when someone is feeling sad?” The final questionnaire for the primary study included four statements.

***Parent questionnaire.*** Basic information regarding the family structure was reported (see Appendix C). Most children were brought in by their mother, so the majority of surveys were filled out by the mother (eight surveys were filled out by the father).

***Parent Traditionality.*** The *Who Does What?* (Cowan & Cowan, 1988) questionnaire appeared the same as it did in the pilot study, with the only modification being the removal of the questions regarding improvement (“how I would like it to be”).

***Toy preferences.*** Questions regarding home toy play appeared the same as they did in the pilot study.

***Division of paid labor.*** Questions regarding parents' roles in the family appeared the same as they did in the pilot study.

***Procedure.*** Participant families were greeted in a laboratory setting. After reading and signing the informed consent on behalf of their child, parents filled out a

demographic questionnaire. After the child assented to participate in research, the researcher and child moved to a separate toy lab. Parents were able to watch their child participate from the other side of a two-way mirror.

First, the researcher introduced herself to the child, asking a few basic questions (age, favorite color) for rapport building and then the initial self-efficacy questions. Next, the researcher read a book to the child. After completing the book, the child was handed the assigned toy and introduced to the play setting in the laboratory for the toy. After five minutes of guided play time, the child had free play time with the toy and its accessories. The child had up to five minutes of free play time, but could stop whenever they wished. The amount of time spent in free play was recorded.

At the five minute mark of free play time, or when the child expressed they were done with free play, the researcher left the room to “prepare the next step of the project.” Then, the researcher performed a series of tasks to test the child’s empathy-related responding as described in the pilot study. The only difference between the crying baby paradigm in the pilot and primary study was the inclusion of a second video camera. In order to more closely record boys’ facial responses, a small video camera was attached to the rocker of the realistic-looking, crying baby. This camera was not visible to the child.

As in the pilot study, the next step was both of the self-report questionnaires. Following these reports, the child and parent were debriefed on the general purpose of the study. The study typically lasted about thirty minutes. See Appendix J for a graphic of the primary study procedure per condition.

## Results

**Preliminary analyses.** For the self-report measurements, reliability was established using Cronbach's alpha and item analyses. Reliability for the self-report sympathy measure was low ( $\alpha = .58$ ). Cronbach's alpha for the pre-intervention and post-intervention self-efficacy items were low (.51 and .55). For both the self-report sympathy and self-efficacy questionnaires, item analyses were conducted, and removing any item did not increase reliability. Reliability for the *Who Does What* subscales (family tasks, family decisions, and childcare, respectively) were variable (.34, .59, and .85). Item analyses for the family decisions subscale suggested removing one item ("how we spend time at home") would increase the alpha to .68, so that item was removed for further analyses.

Correlations were conducted to test whether participants' age, parent demographics (education, work hours, and income), and home doll play were associated with primary study dependent variables [1: self-efficacy change, 2: self-report sympathy, 3: behavioral empathy (comprised of three separate behaviors: ignoring, concerned awareness, infant-oriented), 4: facial empathy]. There was a correlation between low or infrequent home doll play and ignoring behaviors during the crying baby simulation,  $r(35) = .387, p = .022$ . However home doll play did not differ between condition thus it was not considered as a covariate for later analyses. See Table 1 for the correlation matrix including participants' demographic variables and outcome variables.

Some significant relationships emerged between demographic variables, including a positive correlation between income and work hours for mothers,  $r(33) = .65,$

$p < .001$ . Unsurprisingly, there was a positive correlation between education and income for both mothers ( $r(35) = .57, p = .001$ ) and fathers ( $r(33) = .51, p = .002$ ). Mothers' work hours and fathers' education were negatively correlated,  $r(35) = -.44, p = .009$ . See Table 1.

Regarding outcome variables, there were also some interesting correlations. Mothers' work hours was negatively associated with self-efficacy change,  $r(35) = -.37, p = .03$ . Child age was positively associated with ignoring behaviors ( $r(35) = .43, p = .009$ ) but was negatively associated with infant-oriented behaviors during the empathy simulation ( $r(35) = -.39, p = .02$ ). See Table 1.

Behavioral empathy was designed to have three separate behaviors: ignoring, concerned awareness, and infant-oriented. However, only two of the behavior types, concerned awareness and infant-oriented, were related to one another,  $r(36) = -.50, p = .002$ . These two components of behavioral empathy were analyzed together for hypothesis testing, but ignoring behavior scores were tested separately.

A series of six one-way ANOVAs were conducted to test whether the dependent primary study variables differed by the demographic variable of having a baby in the home. No significant main effect emerged. See Table 2.

Four 2 (Lesson Type: emotion talk, alternative) x 2 (Toy Type: DUPLO, baby doll) ANOVAs were conducted to test whether the variables age, home doll play, mother education, and father work hours differed by condition. There were no main effects for Lesson Type or Toy Type for any of these four ANOVAs. Next, a series of two 2 (Lesson Type: emotion talk, alternative) x 2 (Toy Type: DUPLO, baby doll) MANOVAs



were conducted to test whether related dependent variables differed by condition. The dependent variables were as follows: (1) mother work hours and mother income and (2) father income and father education. There were no significant differences as a function of Lesson Type or Toy Type. A chi-square tested if participants in any condition were more likely to have a baby sibling at home. Participants in all four conditions did not differ significantly from one another in the likelihood of having a baby in the house. See Table 3 for means, standard deviations, and chi-squares of participants' demographic variables by condition.

For preliminary analyses of the parent questionnaire data, most families reported being equally split on family tasks, family decisions, and childcare between mother and father. Means and standard deviations of parent data are reported in Table 4 and Table 5.

Means and standard deviations for all dependent variables are reported in Table 6. During the crying baby empathy simulation, 80.6% of boys demonstrated ignoring behaviors, 91.7% of boys demonstrated concerned awareness behaviors, and 41.7% of boys demonstrated infant-oriented behaviors.

**Hypothesis one.** It was expected that boys whose parents are more non-traditional in gender roles would use more empathy-related responding toward the crying baby than those whose parents have more traditional gender roles. A series (total of 18) of multiple regressions tested this hypothesis, where the averages for each of the three *Who Does What* subscales (family tasks, family decisions, and childcare) were independent variables that predicted each outcome variable (1: self-efficacy change, 2: self-report sympathy average, 3: behavioral empathy (comprised of three separate

behaviors: ignoring, concerned awareness, infant-oriented), 4: facial empathy). None of the regressions were significant. See Table 7 for hypothesis one results.

**Hypothesis two and three.** A series of three 2 (Lesson Type: emotion talk, alternative) x 2 (Toy Type: DUPLO, baby doll) factorial ANOVAs were conducted to test hypothesis two (boys who are given a doll during the free play period will use more empathy-related responding at the baby's cries than those who played with the control toy) and hypothesis three (boys who are given the emotion talk instruction will use more empathy-related responding at the baby's cries than those who were given the alternative lesson) regarding the following dependent variables: (1) self-efficacy change, (2) self-report sympathy, and (3) facial empathy. No significant main effects of toy type or book type emerged for self-efficacy, sympathy, or facial empathy,  $p$ 's > .05.

Next, a 2 (Lesson Type: emotion talk, alternative) x 2 (Toy Type: DUPLO, baby doll) ANOVA tested the effects of the independent variables on one of the behavioral measures of empathy, ignoring behaviors. A main effect for toy type on ignoring behaviors of behavioral empathy did emerge,  $F(1,32) = 11.42$ ,  $p = .002$ , such that participants who were in the baby doll intervention ( $n = 19$ ,  $M = 6.88$ ,  $SD = 7.24$ ) responded more quickly to the crying baby simulation than those in the DUPLO condition ( $n = 18$ ,  $M = 16.40$ ,  $SD = 9.58$ ) (see Figure 4). The effect size ( $\eta^2 = .26$ ) was large. No significant main effects of book type emerged for ignoring behaviors,  $p$ 's > .05.

A 2 (Lesson Type: emotion talk, alternative) x 2 (Toy Type: DUPLO, baby doll) MANOVA was conducted on the correlated dependent behavioral measures of empathy, concerned awareness and infant-oriented behaviors. No significant main

effects of book type or toy type emerged for either of the behavior types,  $p$ 's > .05. See Table 8 for hypothesis two results and Table 9 for hypothesis three results.

Due to low sample size, hypothesis 4 (regarding the additive effects of having both the baby doll and emotion book interventions) was not evaluated because cell sizes were very small (nine per condition).

**Additional analyses.** Over the course of the study, other variables became interesting and additional tests were conducted.

First, boys seemed to be more engaged overall with DUPLOs than the baby doll. Data from the parent questionnaire on children's favorite toy showed that DUPLOs were a favorite toy of many boys. Figure 2 presents this graphic. Parents listed children's favorite toy as LEGOs significantly more frequently than other toys, like trucks and action figures,  $\chi^2(4, N = 30) = 18.33, p < .01$ .

Indeed, boys spent more time playing with DUPLOs during free play than did boys in the baby doll condition. A 2 (Toy Type: Baby Doll, DUPLO) X 2 (Lesson Type: emotion talk, alternative) ANOVA on participants' free play behavior revealed a main effect for time spent in free play. Participants in the DUPLO condition ( $M = 257.25, SD = 63.67$ ) spent more time in free play than those in the baby doll intervention condition ( $M = 156.36, SD = 77.46$ ),  $F(1,30) = 16.82, p < 0.01, \eta^2 = .34$ .

Parents may prefer some toys than other for their boys. It may be that parents' restrict based on gender stereotypes. However, parents were as likely to restrict or not restrict against certain toys,  $\chi^2(1, N = 35) = 0.12, p = .07$ . When they did restrict, they

were significantly more likely to restrict against violence,  $\chi^2 (2, N = 18) = 9.43, p < .01$ . No parent listed gendered toys as a concern or reason to restrict. See Figure 1.

During the course of the study, it appeared some children paid more attention to the book reading lesson. Figure 3 presents the percentages of child engagement with the book reading, such that 14 children were moderately engaged and 22 children were extremely engaged.

## **Discussion**

Family division of childcare, household tasks, and decision-making was not correlated with children's empathy-related responding in the current sample. The parent sample was notably equal in their division of work in these domains, creating a smaller range of traditionally and non-traditionally divided families in terms of paid labor and childcare. It is more common for families to divide childcare unequally, with the mother working more hours in unpaid childcare work and the father working more hours of paid labor (Ehrenberg, Gearing-Small, Hunter, & Small, 2004; Patterson, Sutfin, & Fulcher, 2004). A sample with more division of labor variability is needed to test this hypothesis. It is plausible that children who do not view their same gender role model performing childcare tasks are not as efficacious for or as likely to respond to empathy simulations as boys who do frequently view their fathers as caregivers (Bussey & Bandura, 1999). Perhaps if the sample had reflected a more unequal distribution of childcare work, young boy's empathy responses may have been predicted by these family characteristics.

Boys who played with the baby doll during the toy intervention responded more quickly to the crying baby simulation than those who played with DUPLOs. This shows that boys who received the caretaking intervention, learning how to care for and play with a baby doll, more quickly responded to a situation of another's distress. This demonstrates that simple but guided toy play can be a successful intervention for empathy development. The doll itself was inexpensive and the teaching time was brief, suggesting even the most simple tools can serve as effective instruction of empathy and care-taking skills.

Hypothesis 3 was not supported though, as the emotion talk intervention was ineffective in enhancing empathy. It is likely that the storybook reading was not long enough, or did not engage children enough in its goals of affect identification, perspective taking, or emotional responsiveness. The original training system that the book lesson was based on was designed to be taught in the classroom, through multiple 45-minute sessions (Feshbach, 1979). The storybook, on the other hand, lasted about five to ten minutes, and involved surface-level questions regarding the three goals. Perhaps a longer, more intensive reading or multiple reading sessions may have had more of an impact on boys' empathy-related responding.

For developmental science, this project demonstrates the need to continue intervention research for young children. One significant finding, from a quick (average 20-minute) intervention project, suggests that there is potential for empathy interventions through toy play. The project itself was fairly uncomplicated, involving simple tasks of book reading and guided toy play, and yet still resulted in a significant difference for the children who did receive the toy intervention. Perhaps, with greater

intervention development and parent involvement, multiple measurements of empathy-related responding may improve in young boys.

For families themselves though, this research does demonstrate how toys and books may be used to promote socioemotional skills like empathy. The parent questionnaire results yielded some interesting parent trends and findings regarding toy play at home and children's favorite toys. From these findings, it seems that parents do limit which toys their children have, but also that they may not encourage feminine toys like dolls as much as masculine toys at home (see Figure 1). Without the opportunity to practice playing with baby dolls, it may be that empathy-related responding skills are not enhanced at home. Research demonstrates the success of emotional conversations (Van Bergen, Salmon, Dadds, & Allen, 2009) and doll play (Blakemore & Centers, 2005) as instructors of empathy or social skills, so the present research does encourage parents to continue to provide their children with these toys and to read stories with empathic or emotional themes to their children. Thus, it is necessary to encourage parents to provide their favorite toys like LEGOs and trucks as well as dolls to young boys, as they may be the key to learning empathy and similar skills (see Figure 2).

Moreover, one of the significant findings from this project demonstrates the importance of home doll play. Low home doll play was positively correlated with ignoring behaviors during the crying baby simulation. Thus, if parents provided dolls within the home, boys may be more comfortable in responding and acting with empathy in helping situations. Home is the perfect learning zone for socioemotional skills, and dolls are a crucial tool to developing empathy. With home doll play, boys may be more empathic in real world situations.

The project at hand is not without limitations though, namely that much of the sample came from high educational backgrounds and had fairly high income levels. All of the participating families were heterosexual as well, creating a less than ideal generalizable sample for developmental research. Additionally, the project was not a longitudinal design, which perhaps would have been a more informative method to look at the potential empathy development in preschool boys. Though the differing levels of compensation (prize, \$15, or \$25) were not significantly different across condition groups, they did complicate an element of consistency, but were necessary in order to recruit participants.

Equally important, the researcher for every participant was a female. Though this created reliability in delivery of measures and intervention, it does not provide variability or matching of gender in participant and researcher. A same gender model (Bussey & Bandura, 1999) is important for building efficacy. A male researcher may have been a more effective trainer for these interventions, because he may have served as a same gender role model for the young participant. The newness of the female researcher, as well as the incongruent match as a same gender role model, may have hindered the success of these interventions. Should future studies take this similar design, the researcher should be male to ensure same gender modeling of empathy skills during the interventions.

Additionally, there was variability in children's responsiveness and engagement with the book readings (see Figure 3). This implies that the book intervention may not have been best structured to children's reading and responding skills. These findings

were not significant by condition, so it was not that one book was more interesting than the other.

Finally, the Cronbach's alphas for the self-efficacy and sympathy self-report statements were fairly low. The researcher noted how children often used the visual scale as a game, choosing consecutive options because it was fun, rather than using the scale for their actual responses. The measures used in the current study were typically used with older samples, around first to third graders (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991). This provides reasoning for the low Cronbach's alpha, but also suggests room for improvement in developmental science. The low Cronbach's alphas do call into question the reliability of the self-report data, so it is possible that the statistical analyses regarding self-report sympathy and self-efficacy are not entirely trustworthy. The items used appeared to be the ones that were best understood by the sample, but perhaps they did not altogether measure the variable of interest when modified. Adjustments beyond adding a visual key may be necessary to properly reach preschool children's reading and listening comprehension skills, or new self-report measures entirely for this particular preschool age range. Conversely, self-report measurements with preschoolers may be too challenging or unreliable, though frequently used when taking multimethod approaches to experimental research.

It also may be that new behavioral methods of measuring empathy need to be developed, specifically due to the similarity between the toy play intervention and the first simulation. Baby doll play seems important as a practice task for empathy, but it may be that it is too similar to the actual testing of empathy itself, since the simulation involves a crying baby doll. Research on prosocial behaviors and empathy specifically



may need to develop new paradigms to test behavioral and facial empathy. The boys who had the baby doll intervention may have had a greater developed schema for baby dolls, thus had better responses to the simulation.

Moreover, a revised version of the current study should include a neutral task before the first empathy simulation, so to more clearly separate the toy play intervention from the first formal measurement of empathy. DUPLOs were reported as many boys' favorite toys (see Figure 2), so it may have been that the DUPLO condition was too fun for boys to turn away from in order to respond to the crying baby simulation. Inserting a neutral task (such as coloring) between the intervention and simulation may prevent this complication.

Future studies may also want to look into sibling relationships, and how children may learn from their same-gender or opposite-gender siblings. It may be that simply the presence of a baby doll in the house, or a sister playing with a baby doll while engaging with her brother, may increase empathy skills as well by sheer exposure.

A future study would take a longitudinal approach and would include parents as the interventionists in place of the researcher. It is hypothesized that parent involvement in these emotional book and baby doll lessons would result in deeper learning and understanding of empathy skills, like caretaking, emotion identification, and emotion response. In the family's home, the researcher would instruct the parent on asking elaborative questions or creating emotion-rich statements based on pictures in storybooks. The parent would be trained on developing three crucial skills (affect identification, perspective taking, and emotional responsiveness) of empathy-related responding through a picture book. The researcher would also train the parent on how

to facilitate stimulating play with a baby doll, instructing the child ways to care for and engage with the doll and accessories. These sessions would last about an hour, allotting 15 to 20 minutes for initial instruction, 20 to 30 minutes for parent-child play and reading, and the last few minutes for parent feedback and child free play. The project would include five sessions in total, resulting in at least five hours of stimulating parent-child play and interaction.

Overall, it seems that in-home interventions (through books and toys) may eventually exist to enhance empathy in young boys. It seems that the interventions may need to be longer than just one session and taught by a more salient teacher to be truly effective. This project demonstrates the need to continue to create and revise interventions for young boys. Encouraging and fostering empathy in boys at a young age may influence later adult career choices or societal gendered expectations. In order to alleviate the gendered separation of careers and the rigid following of the breadwinner-caregiver model in American families, it may be that exposure to and practice with doll play and emotional book reading at home at a young age are necessary steps.

Future studies may illuminate the role of gendered toys both in the practice they offer children and in the manner in which parents behave during play with gendered toys. Feasible and effective interventions may allow parents to feel more confident of their impact and ability in play with children, and the current study demonstrated where interventions may be successful. This study encourages toy companies to make products that build skills like empathy, sharing, and kindness, and encourages parents to become thoughtful facilitators of stimulating play with baby dolls, or other toys that

promote empathy and caregiving skills. The instruction of skills like empathy may make for better brothers and peers on the playground, and more men as future caregivers or in nurturing careers.

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Table 1

*Correlation Matrix for Outcome Variables*

Variable	Correlation													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Child age	--	-.59	-.22	-.08	.23	-.14	.28	.11	.32	.28	.43**	-.04	-.39**	-.22
2. Mother income	-.06	--	.65**	.57**	.06	.17	-.11	.25	-.12	-.01	.15	.15	-.06	-.04
3. Mother work hours	-.22	.65**	--	.31	-.21	.21	-.44**	-.01	-.12	-.37*	-.14	.07	.24	.05
4. Mother education	-.08	.57**	.31	--	-.18	-.15	.22	.10	-.1	-.12	.07	-.12	-.04	-.01
5. Father income	.23	.06	-.21	-.18	--	.18	.51**	.09	.20	.3	.04	.05	-.18	.12
6. Father work hours	-.14	.17	.21	-.15	.18	--	-.1	.03	.13	.14	-.16	.12	.11	.12
7. Father education	.28	-.11	-.43**	.22	.51**	-.1	--	.15	.20	.21	.18	-.15	-.24	.11
8. Home doll play	.11	.25	-.01	.10	.09	.03	.15	--	.10	-.05	.39**	.09	-.21	-.18
9. Sympathy score <sup>a</sup>	.32	-.12	-.12	-.09	.20	.13	.20	.10	--	.09	-.13	.04	.04	-.00
10. Self-efficacy change score <sup>b</sup>	.28	-.1	.37*	-.11	.3	.14	.21	-.05	.09	--	.15	-.12	-.05	-.02
11. Ignoring behaviors	.43**	.16	-.14	.07	.04	-.16	.18	.39*	-.13	.15	--	-.08	-.59**	-.43**
12. Concerned awareness behaviors	-.04	.15	.07	-.12	.05	.12	-.15	.09	.04	-.12	-.08	--	-.50**	-.42**
13. Infant-oriented behaviors	-.39*	-.1	.24	-.04	-.18	.11	-.24	-.21	.04	-.05	-.59**	-.50**	--	.59**
14. Facial score	-.22	-.04	.05	-.01	.12	.12	.11	-.18	-.00	-.02	-.43**	-.42**	.59**	--

*Note.* <sup>a</sup> Responses ranged from 0 (*really good*) to 4 (*bad*). <sup>b</sup> Responses ranged from 0 (*bad*) to 4 (*really good*). \* = <.05, \*\* = <.01, \*\*\* = <.001.

Table 2

*Baby in Home on Empathy Responses*

Variable	Baby in home				<i>F</i>	<i>p</i>
	Yes ( <i>n</i> = 8)		No ( <i>n</i> = 25)			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Sympathy	2.69	.61	2.98	.79	.91	.35
Self-efficacy change	.03	.21	.22	.66	.62	.44
Ignoring behaviors	12.35	12.88	10.78	8.72	.16	.69
Concerned awareness behaviors	13.04	9.53	14.39	8.44	.15	.70
Infant-oriented behaviors	3.52	4.28	4.28	7.21	.08	.78
Facial score	.00	.00	.33	.73	1.62	.21

*Note.* Behaviors and free play reported as the total duration in seconds.

Table 3

*Means and Standard Deviations for Demographic Variables by Condition*

Variable	Condition							
	Toy				Book			
	Baby doll		DUPLO		Emotion		Alternative	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Child age	2.11	.81	2.06	.78	2.17	.79	2.00	.79
Mother income	3.67	2.50	4.07	2.49	3.25	2.02	4.41	2.76
Mother work hours	31.22	19.08	26.33	17.91	26.81	16.55	31.06	19.38
Mother education	4.53	1.31	4.63	1.36	4.67	1.14	4.47	1.50
Father income	5.17	1.79	5.33	2.00	4.94	2.08	5.53	1.62
Father work hours	47.16	10.45	41.25	5.63	45.06	7.87	43.82	10.24
Father education	4.63	1.42	5.25	1.52	5.22	1.73	4.59	1.23
Home doll play	3.37	1.42	4.25	.68	4.00	.91	3.53	1.46
Baby in home	3	15.8%	5	31.3%	5	27.8%	3	17.6%

*Note.* For baby in home, *n* is reported as *M* and percentage is reported as *SD*. Age is reported on a scale, where 1 = three years old, 2 = four years old, and 3 = five years old. Income averages are reported on a scale, where 1 = <20k, 2 = 20-30k, 3 = 30-40k, 4 = 40-50k, 5 = 50-60k, 6 = 60-70k, 7 = >70k. Education averages are reported on a scale, where 1 = some high school, 2 = high school, 3 = some college/Associate's degree, 4 = Bachelor's degree, 5 = Master's degree, 6 = professional degree, 7 = doctorate. Home doll play is reported on a scale, where 1 = every day, 2 = one a week, 3 = once a month, 4 = a few times a year, and 5 = never.

Table 4

*Family Demographic Information*

Variable	Mothers		Fathers		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Income	3.84	2.46	5.24	1.85	-2.68	.012*
Work hours per week	29.62	17.6	44.45	8.98	-4.88	.000***
Education	4.57	1.31	4.91	1.52	-1.14	.263

*Note.* Income averages are reported on a scale, where 1 = <20k, 2 = 20-30k, 3 = 30-40k, 4 = 40-50k, 5 = 50-60k, 6 = 60-70k, 7 = >70k. Education averages are reported on a scale, where 1 = some high school, 2 = high school, 3 = some college/Associate's degree, 4 = Bachelor's degree, 5 = Master's degree, 6 = professional degree, 7 = doctorate. \* = <.05, \*\* = <.01, \*\*\* = <.001.

Table 5

*Means and Standard Deviations for Who Does What? Questionnaire*

Variable	<i>M</i>	<i>SD</i>
Family tasks	5.04	0.67
Family decisions	5.16	0.51
Childcare tasks	5.99	0.71

*Note.* Surveys were filled out by the parent present at the research session on a scale of “I do it all” to “my partner does it all,” but were recoded for analysis on a scale of (1) “father does it all” to (9) “mother does it all.” Median scores (5) indicated equal distribution of work between both parents.

Table 6

*Means and Standard Deviations for Outcome Variables*

Variable	<i>M</i>	<i>SD</i>
Pre-intervention self-efficacy	3.33	0.68
Post-intervention self-efficacy	3.50	0.60
Self-efficacy change	0.17	0.58
Sympathy	2.91	0.74
Ignoring behaviors	11.37	9.60
Concerned awareness behaviors	13.98	8.46
Infant-oriented behaviors	3.99	6.54
Facial score	0.25	0.65
Free play	202.49	87.00

*Note.* Behaviors and free play reported as the total duration in seconds.

Table 7

*Hypothesis One Results*

Predictor	Outcome																	
	Sympathy score			Self-efficacy change score			Ignoring behaviors			Concerned awareness behaviors			Infant-oriented behaviors			Facial score		
	B	SE	$\beta$	B	SE	$\beta$	B	SE	$\beta$	B	SE	$\beta$	B	SE	$\beta$	B	SE	$\beta$
Tasks	-.21	.17	-.23	.08	.21	.07	-.03	.02	-.37	-.02	.02	-.28	-.04	.03	-.42	.03	.28	.03
Family decisions	-.48	.25	-.33	-.09	.21	-.08	-1.73	3.32	-.06	-1.10	2.90	-.07	.80	2.27	.35	-.09	.21	-.08
Childcare	-.19	.17	-.20	.27	.22	.23	-.01	.02	-.08	-.02	.02	-.25	-.02	.03	-.18	-.15	.24	-.14

*Note.* Each *Who Does What* subscale score was analyzed in an individual regression.



Table 8

*Hypothesis Two Results*

Variable	Toy condition				<i>F</i>	<i>p</i>
	Baby doll ( <i>n</i> = 19)		DUPLO ( <i>n</i> = 18)			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Sympathy	3.04	.80	2.78	.67	1.03	.32
Self-efficacy change	.13	.72	.21	.43	.34	.57
Ignoring behaviors	6.88	7.24	16.40	9.59	11.42	.002**
Concerned awareness behaviors	15.91	9.89	11.83	6.12	1.93	.17
Infant-oriented behaviors	5.35	7.05	2.47	5.75	1.69	.20
Facial score	.39	.78	.13	.50	1.52	.23

*Note.* Behaviors reported as total duration in seconds. Sympathy and self-efficacy scores on a range from 0 to 4. \* = <.05, \*\* = <.01, \*\*\* = <.001.

Table 9

*Hypothesis Three Results*

Variable	Book condition				<i>F</i>	<i>p</i>
	Emotion ( <i>n</i> = 19)		Alternative ( <i>n</i> = 18)			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Sympathy	3.00	.69	2.88	.82	.05	.83
Self-efficacy change	.13	.68	.21	.51	.13	.73
Ignoring behaviors	13.23	10.05	9.32	8.92	1.88	.18
Concerned awareness behaviors	13.84	8.66	14.16	8.51	.03	.87
Infant-oriented behaviors	2.88	4.72	5.24	8.09	1.18	.29
Facial score	.24	.66	.29	.69	.10	.76

*Note.* Behaviors reported as total duration in seconds. Sympathy and self-efficacy scores on a range from 0 to 4.

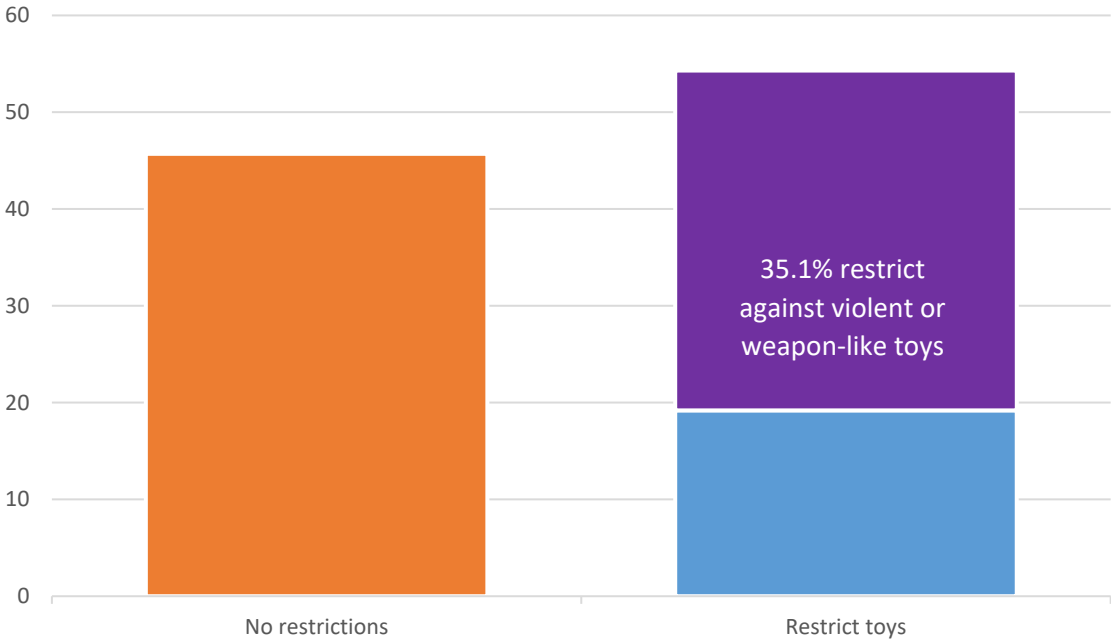
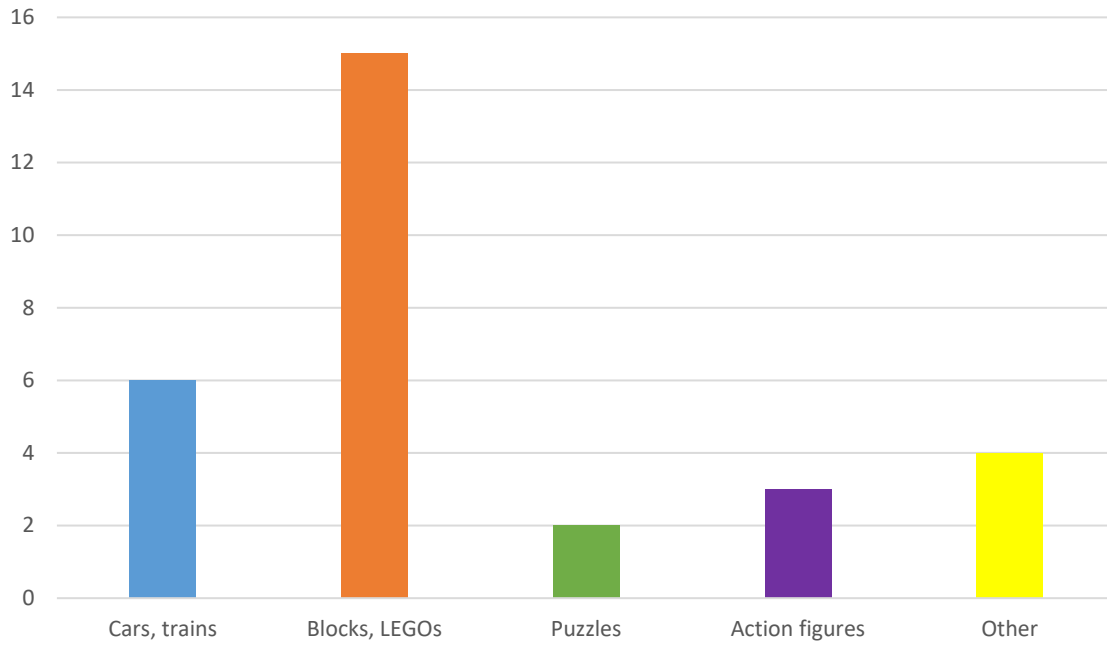
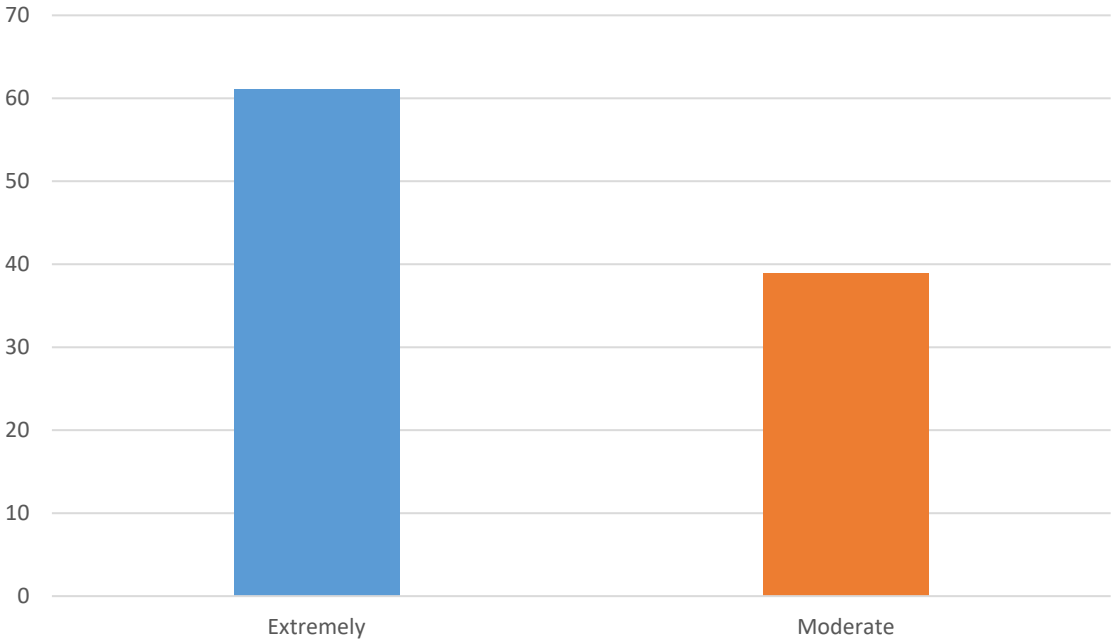


Figure 1. Parent toy preference. The restrictions group makes up 54.3% of the total; no restrictions makes up 45.7%.



*Figure 2.* Children's favorite toys. The first listed toy was tallied among the sample. Toys that were only listed by one family were consolidated into the "other" column.



*Figure 3.* Responsiveness to book reading. Y-axis shown in percentages; 61.1% of children were extremely responsive and 38.9% were moderately responsive.

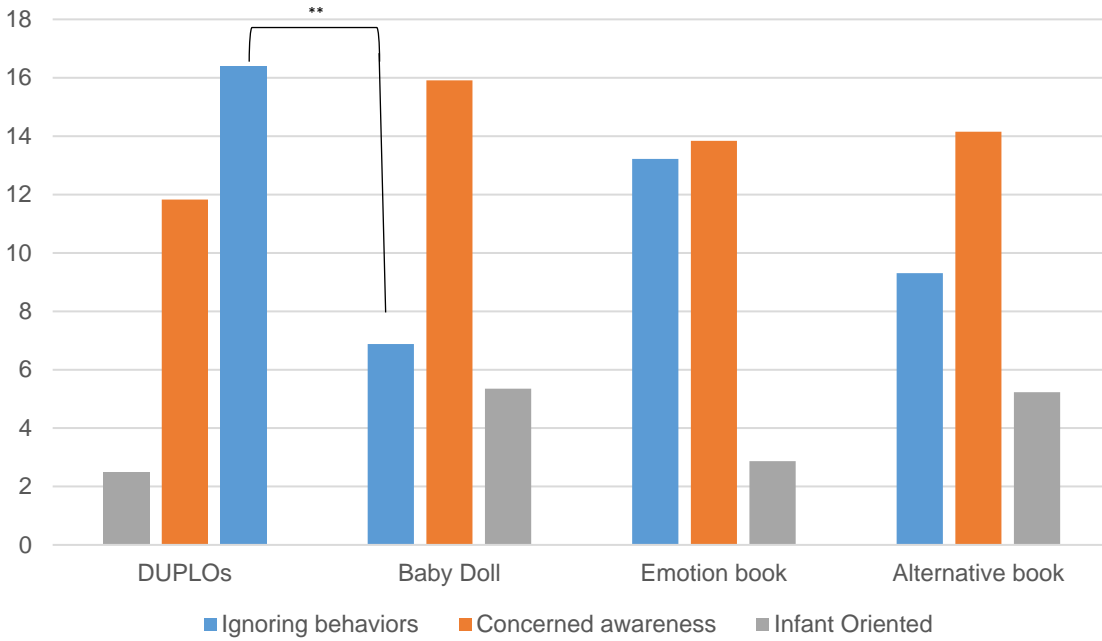


Figure 4. Duration of behaviors in crying baby paradigm by condition. Y-axis shown in seconds.

## Appendix A

## Modified Child Report Sympathy Scale (Eisenberg et al., 1991): Pilot

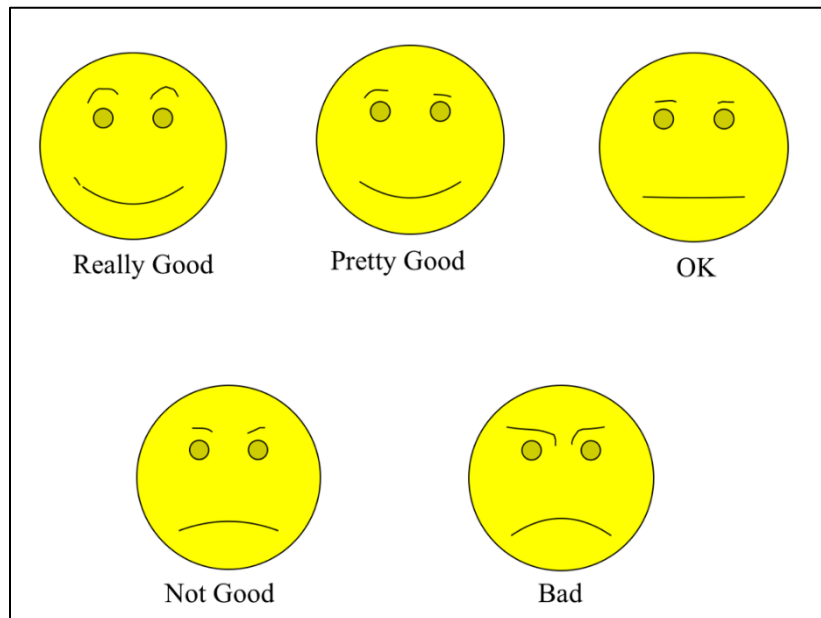
(Asterisks denote removed statements.)

1. How do you feel about other kids who don't have toys or clothes?
2. How do you feel when you see someone being picked on?
3. How do you feel for people who don't have the things that you have? \*\*
4. How do you feel when you see another child who is hurt or upset?
5. How do you feel for children who are sad or in trouble? \*\*
6. How do you feel when you are nice to a friend?

## Modified Child Report Sympathy Scale (Eisenberg et al., 1991): Boy sample

1. How do you feel about other kids who don't have toys or clothes?
2. How do you feel when you see someone being picked on?
3. How do you feel when you see another child who is hurt or upset?
4. How do you feel when you are nice to a friend?

## Visual Guide for Empathy Questionnaire



## Appendix B

## Self-Efficacy Questions: Pilot

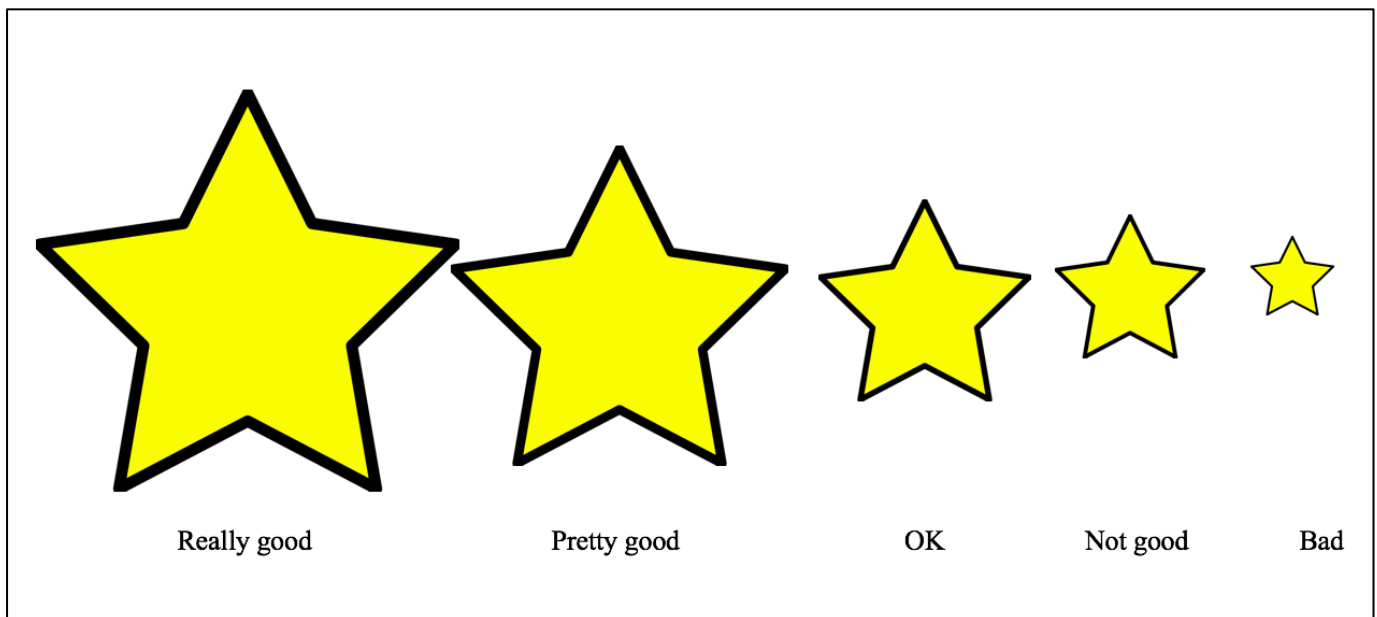
(Asterisks denote removed statements.)

1. How good are you at taking care of friends or siblings?
2. How good of a mom will you be?
3. How good are you at being caring and kind to someone who is sad?
4. How good are you at making a friend feel better when they are sad? \*\*
5. How good are you at telling someone that you are feeling sad? \*\*
6. How good are you at talking to and playing with your friends?
7. How good are you at noticing when someone is feeling sad? \*\*

## Self-Efficacy Questions: Boy Sample

1. How good are you at taking care of friends or siblings?
2. How good of a dad will you be?
3. How good are you at being caring and kind to someone who is sad?
4. How good are you at talking to and playing with your friends?

Visual response set for self-efficacy questions





## Appendix C

## Parent Questionnaire

Thank you for allowing us to interview your child for this study. We hope that you can give us a little bit of information about your child and your family.

1. Child's Name: \_\_\_\_\_

2. Child's Age: \_\_\_\_\_

3. Grade in School: \_\_\_\_\_

4. Race/Ethnicity: Check all that apply.

\_\_\_\_\_ African American

\_\_\_\_\_ American Indian

\_\_\_\_\_ Asian

\_\_\_\_\_ Hispanic/Latino

\_\_\_\_\_ White

5. Please list the age order of your children, and note which children are boys and girls.

\_\_\_\_\_

6. What are your child's favorite toys? \_\_\_\_\_

7. How often does your child play with dolls (baby dolls, Barbies, etc.)?

Every Day	Once a Week	Once a Month	A few times a year	Never
-----------	-------------	--------------	--------------------	-------

8. Does your child share toys with their siblings?

All toys are shared with all siblings	Some toys shared, some toys for each child	Each child keeps their toys to themselves	I only have one child
---------------------------------------	--	---	-----------------------

9. Are there any toys you do not want your child to have? \_\_\_\_\_

10. How many parents are in the household? \_\_\_\_\_

**11. Parent 1 information**

Parent	Mother or Father	Occupation
Parent 1		

Please circle parent 1's income range:

< 20 k	20 – 30 k	30 – 40 k	40 – 50 k	50 – 60 k	60 – 70 k	> 70 k
--------	-----------	-----------	-----------	-----------	-----------	--------

Total work hours/week in paid labor	
-------------------------------------	--

Please circle parent 1's education level:

Some high school	High school	Some college	Bachelor's degree	Master's degree	Professional degree	Doctorate
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**12. Parent 2 information**

Parent	Mother or Father	Occupation
Parent 2		

Please circle parent 2's income range:

< 20 k	20 – 30 k	30 – 40 k	40 – 50 k	50 – 60 k	60 – 70 k	> 70 k
--------	-----------	-----------	-----------	-----------	-----------	--------

Total work hours/week in paid labor	
-------------------------------------	--

Please circle parent 2's education level:

Some high school	High school	Some college	Bachelor's degree	Master's degree	Professional degree	Doctorate
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Appendix D

Who Does What?

For each of the questionnaires, the column “How I would like it to be” was included for the pilot survey but not the actual study parent survey.

Please show how you and your partner divide the **family tasks** listed here. Using the numbers on the scale below, show HOW IT IS NOW down the left side and HOW I WOULD LIKE IT TO BE on down the right side.

1	2	3	4	5	6	7	8	9
My partner does it all			We both do this about equally			I do it all		

How it is now

How I would like it to be

	A. Planning and preparing meals	
	B. Cleaning up after meals	
	C. Repairs around the home	
	D. House Cleaning	
	E. Taking out the garbage	
	F. Buying groceries, household needs	
	G. Paying bills	
	H. Laundry: washing, folding, ironing	
	I. Writing letters/making calls to family and friends	
	J. Looking after the car	
	K. Providing income for our family	
	L. Caring for plants, garden, yard	
	M. Working outside the family	

N. In general, how satisfied are you with the way you and your partner divide the family tasks?

Very satisfied	Pretty satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
----------------	------------------	---------	-----------------------	-------------------

O. In general, how satisfied are you with the way you and your partner divide the work outside the family?

Very satisfied	Pretty satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
----------------	------------------	---------	-----------------------	-------------------

Who Does What?

Please show here how much influence you and your partner have in the **family decisions** listed here. Using the numbers on the scale below, show HOW IT IS NOW down the left side and HOW I WOULD LIKE IT TO BE down the right side.

1      2      3      4      5      6      7      8      9

My partner  
decides it all

We decide this  
about equally

I decide it all

How it is now

How I would like it to be

	A. How we spend time at home	
	B. How we spend time out of the house	
	C. Deciding which friends and family to see, and when	
	D. Deciding about vacations: where, when, expenses	
	E. Deciding about major expenses: house, car, furniture	
	F. Deciding about financial planning: insurance, loans, taxes, plans for saving, etc.	
	G. Deciding when and how much time both partners should work outside the family	
	J. Deciding about religious practices in our family	
	K. Deciding about involvement in community activities	
	L. Deciding how people should behave toward one another in our family	

M. In general, how satisfied are you with the way you and your partner divide family decisions?

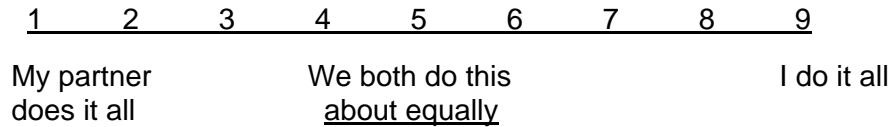
Very satisfied	Pretty satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
----------------	------------------	---------	-----------------------	-------------------

O. In your relationship with your partner, who would you say has the influence in decision-making?

Very satisfied	Pretty satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
----------------	------------------	---------	-----------------------	-------------------

Who Does What?

On this page we ask you about 3 aspects of **caring for the target child**. Using the numbers on our 1 to 9 scale, show HOW IT IS NOW and HOW YOU'D LIKE IT TO BE.



How it is now

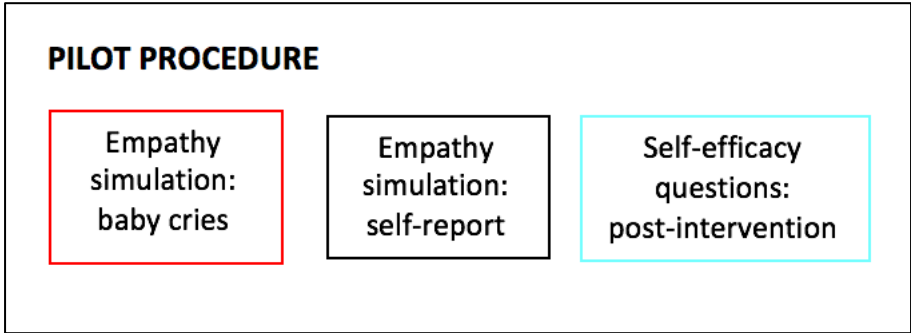
How I would like it to be

	A. Reading to our child	
	B. Preparing meals for our child	
	C. Dressing our child	
	D. Cleaning or bathing our child	
	E. Deciding whether/how to respond to child's crying	
	F. Getting up at night with our child	
	G. Taking our child out: drives, parks, walks, visits	
	H. Choosing toys for our child	
	I. Playing with our child	
	J. Doing our child's laundry	
	K. Arranging for babysitters or childcare	
	L. Dealing with doctor regarding our child's health	
	M. Getting our child to + from school	
	N. Tending to our child in public: restaurants, shopping, playgrounds	

	O. Setting limits for our child	
	P. Disciplining our child	
	Q. Teaching our child	
	R. Picking up after our child	
	S. Arranging our child's visits, play with friends	
	T. Helping when our child has a problem with playmates/siblings	

Appendix E

Pilot procedure



Appendix F

Empathy lesson, book and script (see attachment)



Appendix G

Alternative lesson, book and script (see attachment)

## Appendix H

### Guided Toy Play Script

#### **Doll play script**

“Now, you will have some time to play with this baby doll and its accessories. Have you ever played with a baby doll before? Here are some things you can do: you can rock the baby like this to calm it down, you can pretend to feed it with this bottle, or you can put it to sleep in this rocker. Baby dolls can be held in your arms, or you can sit them nicely in your lap. Which doll do you like to hold the best?”

Here are some toys that you can play along with the baby doll: a bottle, a little crib, a pacifier, and a blanket. [Show ways to use each accessory with the doll individually.] Do you have any questions? Please let me know when you are done playing or if you want to take a break.”

#### **DUPLO play script**

“Now, you will have some time to play with these DUPLO building blocks. Have you ever played with DUPLOs before? Here are some things you can do: you can stack the blocks on top of each other like this, or you can use these flat pieces to build shapes on top of it. You can play with the DUPLOs on the ground, at the table, in your lap, or however you like. Let’s count some of these DUPLOs! How many are here? What color are they?”

Here are some toys that you can play along with the DUPLOs: some blocks with different colors and some blocks with numbers. [Show ways to use each different shape/plate with DUPLOs individually]. Do you have any questions? Please let me know when you are done playing or if you want to take a break.”

## Appendix I

### Coding Schemes

#### Behavioral empathy (modified Lin and Grisham (2017) coding scheme)

- Recorded duration of each behavior:
- Infant-oriented behavior – responses with a clear focus on the well-being of the infant
  - Examples: concerned expression, cognitive inquiry, approaching infant, helping actions
- Concerned awareness – degree to which the child seemed to notice the distress of the other
  - Examples: stopping activity, staring at distressed
- Ignoring behaviors – responses reflecting the child's lack of attention, interest, or willingness to interact with the infant
  - Examples: irrelevant speech, looking away, covering ears with neutral expression

#### Facial expression observation (Murphy & Laible (2013))

- Each participant will be categorized with one of the following degrees of facial response
- 1: no concern or change in expression
- 2: sobering of attention, slight concern
- 3: moderate concern, including brow furrowing for at least 5 seconds
- 4: strong facial concern, including brow furrowing and downward turned mouth for at least 8 seconds

Appendix J

Primary study procedure

