

## Developmental Predictors of Preschoolers Peer Collaboration

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### Planned Project Activities

For the 2<sup>nd</sup> year of the grant, we plan to pursue the activities outlined in the original proposal. We have completed all of our testing, as below. Our principal activities are to finish: (1) coding children's behavior and parental interviews, (2) obtaining information from children's preschools, (3) analyzing the data so as to respond to our Research Questions, and (4) to disseminate our results to the general public and research communities.

### Research Questions

- Which aspects of children's home and preschool environments influence their social cognitive development?
- Which aspects of children's home and preschool environments influence their arousal responses to social interaction?
- Does children's social cognition relate to and support their ability to collaborate (i.e. coordinate actions with a peer towards a common goal)?
- Does children's individual competencies in the activity influence how, and how much, they collaborate together?
- Do children collaborate to overcome challenges in the task?
- Does children's arousal responsiveness relate to and support their ability to collaborate?

### Sample

100 preschoolers and their parents (i.e. 50 dyads).

### Methods

The study uses a mixed methods approach including detailed behavioral coding, and quantitative and qualitative methodologies.

### *Primary Data Collection Measures and Procedures*

- *Semi-structured Parental Interview.* Parents are asked to describe a recent day with their child and also a recent conflict. The parent-child social dynamic is evaluated using the Early Childhood Emotional Availability Scale, in addition to variables relating to cognitive development, family rituals, preschool experience, etc. (Easterbrooks & Biringen, 2005).
- *Parental and Child Demographics and Home Chaos.* Parents provide demographic information relating to income, preschool experience, social support, etc. Home chaos is also assessed (Matheny, Wachs, Ludwig, & Phillips, 1995).
- *Preschool Characteristics.* Class size, teacher to student ratio, teacher training, and teacher experience are obtained.
- *Arousal Measures.* Skin conductance, cortisol reactivity, and Nerve Growth Factor reactivity measure children's arousal.
- *Social Cognition.* Children complete the Theory of Mind Scale and parents complete measures of children's sociability and shyness.
- *Competence.* Children complete one toy independently. Their accuracy in doing so produces their Competency Score.
- *Step Difficulty.* An independent, Non-collaboration Group of preschoolers ( $N = 28$ ) completed all of the toys individually. Their average score on each step produced the step difficulty score for dyads on each of the two Test Toys.
- *Peer Collaboration.* Unfamiliar, same aged, same gender, and same income bracket peers construct toys with colorful boxes, similar to a super-sized Lego set. The sequences of their actions and visual attention coded and analyzed.

## **Progress Update**

Consistent with our project timeline, our research group's primary activities at this stage are to code our data in preparation for analysis.

We have collected about 100% (50 of 50 dyads) of our data. We have coded 80% (40 dyads) of the parental interviews, 70% (dyads) of children's action and visual attention, and 100% (50 dyads) of children's social cognition. Additionally, we have structured most of the environmental data for analysis and collected the preschool data for 82% (41 dyads) of the children we have tested. At this point, we are slightly ahead of schedule according to our projected timeline.

In terms of results, we have coded and structured enough of the data to speak to our research questions in a preliminary fashion (above). Thus far, we can state that children increase their collaboration on the steps that are cognitively and motorically difficult. Thus, preschoolers do adapt their collaborative dynamics in response to the task! This is consistent with our prior research on young children's help-seeking with adults as information gathering.

Additionally, as the average individual competency of the dyad rises, children collaborate more. Moreover, as the gap in the dyad's competency rises, children collaborate less! So we are able to gain predictability on children's subsequent collaborative dynamic by knowing the children's individual competencies in the task. These effects demonstrate the importance of cognitive factors in children's collaborative dynamics.

Also, we have found that children from lower income homes tend to collaborate less with one another. We have explored parental behavior as a possible mediating factor. Specifically, as the dyadic average in parental structuring and parental sensitivity decrease, children tend to collaborate less. Furthermore, the effect of family income on children's collaboration is indeed mediated by parental structuring and parental sensitivity. Thus, lower income children are, on average, exposed to lower parental structuring and sensitivity, and this influences their collaborative dynamics. Using our other environmental variables we will attempt to identify other significant environmental factors (e.g. preschool variables) to better understand how children's environments influences their social development.

Lastly, we have found that children's explicit theory of mind does not relate to their collaboration. So it is unlikely that low income children collaborate less due to theory of mind deficits.

## **Implications for policy/practice**

The basic result that children increase their collaboration on difficult activities, but do not collaborate often on easy activities, has implications for educational material directed at dyads or groups of young children. Specifically, collaborative activities should be very difficult for a single child, thereby encouraging children to collaborate by necessity.

Also the result that children of similar competency collaborate more has implications for teachers, who may want to know what sorts of dyadic matches will result in the most involvement of both children.

Lastly, parenting behavior is, thus far, an important mediating factor in how family income relates to children's social development. Specifically, having emotionally sensitive and responsive parents who provide appropriate structure in children's daily lives is a significant predictor of children's own social dynamics.

We emphasize that these results are preliminary and that we will explore other hypotheses of interest with the rich data set we have collected for this project. In terms of our primary research questions, we will be in a position to address them more conclusively in the Summer and Fall of 2016.

## **Implications for research**

Thus far, our project indicates that: (1) a strong immediate (or proximate) cause of young children's peer collaboration is a difficult common goal, (2) children's own competencies at a task influence how they collaborate, and (3) parental behavior mediates the relationship between family income and children's social dynamics. All of these results contribute to our understanding to the development of children's collaboration and social development. One prominent implication is that parenting behavior is an important target for future research and interventions directed at the early social development of low income children.

## **For more information**

We will have publications available at a more advanced stage in the next year. See the Contact for more information.

## **Contact**

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