

## **Improving School Readiness: Pretend-Play's Impact on Emotion Regulation, Physiological Reactivity, and Executive Function Development**

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### **Project Description**

The aim of the present study is to investigate if pretend-play serves as a protective factor to minimize deficits in school readiness in an underserved Head Start population in West Alabama.

Although previous research has demonstrated developmental benefits associated with pretend-play (e.g., Black, 1992; Carlson et al., 2014; Thibodeau et al., 2016), these studies have been conducted with samples of convenience and not with children who are at-risk for school readiness deficits, such as those attending Head Start. Furthermore, current school readiness curricula for at-risk preschoolers are often very costly and require extensive training to implement. In order to improve upon the sustainability of these programs, it is important to identify natural environmental experiences, such as pretend-play, that are implicated in normative development.

Pretend-play typically involves cooperation, shared affect, and support among peers and adults. Thus, consistently engaging in pretend-play could naturally create a positive environment that may minimize the observed negative effects of poor emotion regulation/ stress reactivity on cognitive development and school readiness.

In the present study, children's emotion regulation skills, physiological reactivity to stress, executive functions (proximal measure of school readiness), grades and behavior in kindergarten (distal measure of school readiness), and level/style of pretend-play were assessed to determine if pretend-play moderates the relationship between emotion regulation/physiological stress reactivity and school readiness, both proximally and distally.

### **Research Questions**

Does a child's level/style of pretend-play moderate the relationship between:

- emotion regulation and executive function skills?
- physiological stress reactivity and executive function skills?
- emotion regulation and school readiness?
- physiological stress reactivity and school readiness?

### **Sample**

A total of 343 children from 14 Head Start preschools in West Alabama participated in the present study. These children, their parents, and their teachers were concurrently enrolled in a larger federally funded, longitudinal, socio-emotional intervention (PowerPATH) for at-risk families (90YR0075).

### **Methods**

In preschool, all children were individually interviewed by research assistants during two separate 60-minute sessions. During these sessions, emotion regulation, executive function, and pretend-play data as well as physiological responses to mild cognitive, social, and emotional challenges were collected. Parents and preschool teachers also completed demographic, emotion regulation, executive function, and pretend-play questionnaires at this time.

In kindergarten, children were interviewed by a research assistant at their school for approximately one hour and teachers reported on children's behavior and academic learning. All teachers, parents, children, and interviewers were blind to the purpose and the hypotheses of the present study.

### **Progress Update**

To date, all preschool assessments and kindergarten assessments have been completed. Our power analysis requires approximately 114 participants at

most for power so this large cohort of 343 children gives us a nice padding for missing data given the longitudinal nature of our study.

Results revealed that fantastical-imagination moderated the relationship between children's emotion regulation and executive function skills in preschool. Better cognitive performance was observed among children with poor emotion regulation skills and a high propensity towards fantastical-imagination compared to peers who had poor emotion regulation and a low propensity towards fantastical-imagination. Pretend-play also moderated the relationship between physiological reactivity and executive function in preschool. Among children with low reactivity, those with a higher propensity towards pretend-play demonstrated better executive function outcomes than peers who had a low propensity towards pretend-play. Finally, longitudinal analyses indicated that a propensity towards pretend-play/imagination also impacts executive functions and school readiness outcomes in kindergarten.

### **Implications for policy/practice**

Given the results of the present study, we have gained important insights into an additional, cost-effective method (i.e., pretend-play) to facilitate school-readiness among Head Start preschool children who have trouble regulating their emotions and/or have low levels of physiological arousal. Because pretend-play is easily implemented into existing classroom curricula at little to no cost, the findings from the present study will have an even broader impact on curriculum development, and thus may potentially help close achievement gaps throughout the nation.

Children who are well prepared for school are much more likely to be occupationally successful. Indeed, a conservative estimate for the return on investment for preparing children for school is 7:1 based on several longitudinal school readiness interventions such as the Chicago and High/Scope Perry Preschool Projects (Bruner, 2004). Thus, legislators and education specialists should be very interested in learning about the effects of a low-cost intervention involving pretend-play to prepare children for school success.

### **Implications for research**

This study offers a number of key innovations:

1) The proposed study is the first to empirically examine pretend-play as a moderator in the relationship between emotion regulation/physiological stress reactivity and executive function. In the future, the results may stimulate intervention and dissemination research including experimental studies of the effects of pretend-play in Head Start settings and inform the development of pretend-play curricula for Head Start classrooms.

2) The proposed study was also the first to longitudinally examine how high levels of pretend-play in preschool influence school readiness in kindergarten.

3) The current study helps delineate what aspects of pretend-play are important for school readiness. These data suggest that a cognitive aspect of pretend-play (e.g., fantastical imagination) is important for children who have trouble regulating their emotions whereas a behavioral aspect of pretend-play is important for children with low levels of physiological reactivity. Therefore, in addition to encouraging pretending behaviors in their classroom, preschool teachers should specifically focus on scaffolding fantastical pretense in order to facilitate both the behavioral and cognitive aspects of pretend-play that seem to be driving positive developmental outcomes.

4) Finally, this study is the first to incorporate innovative physiological measures into a study of pretend-play to help us identify pathways toward differential well-being that may be poorly represented in self-report or behavioral observation measures.

### **For more information**

We currently have one manuscript under review and one in preparation. Please contact us using the information below for more information regarding these papers.

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