



Effects of Preschool in the Child-Parent Centers on Achievement Motivation

Erika L. Taylor, Sarah D. Robison, Meghan C. Hickey, & Arthur J. Reynolds

Institute of Child Development
University of Minnesota



Introduction

- Longitudinal studies have shown that high quality preschool intervention programs can have significant long-term effects on children.
- While there is substantial evidence that early intervention can lead to a number of positive cognitive outcomes for students, few studies have examined the role of these programs on motivation and other noncognitive factors (Karoly et al., 2005; Niles et al., 2006).
- The purpose of this study was to investigate if participation in the Child-Parent Center (CPC) preschool, an established school-based program, affected children's achievement motivation during elementary school.
- While the definitions vary, a motivated student has generally been described as one who wants to learn, likes learning-related activities, and believes school is important.
- These students tend to be actively engaged in the learning process, approach challenging tasks eagerly, and persist on difficult tasks (Stipek, 1996).
- Based on the existing literature, it was predicted that children participating in a comprehensive, high-quality preschool intervention program would show higher achievement motivation than children who did not.

Participants

- The study sample was drawn from the Chicago Longitudinal Study, an ongoing investigation of the educational and social development of low-income, minority children who grew up in high-poverty neighborhoods in Chicago.
- For the present study, the sample included 881 children who attended the Child-Parent Center (CPC) preschool program and 524 who participated in an alternative kindergarten intervention in randomly selected schools.
- The CPC program is a center-based early intervention that provides comprehensive educational and family-support services to children beginning at age 3 or 4 (see Reynolds, 2000 for a more complete review).

Measures & Methods

Overall Motivation

Overall Motivation was assessed in kindergarten through grade 2 with teacher ratings, which included items such as *is eager to learn, reads for enjoyment, and tries hard*. Items were summed and standardized to create Overall Motivation scales for each grade. Two composite variables (*Overall Motivation K-1, Overall Motivation 1-2*) were created by taking the mean of the standardized values for grades K-1 and grades 1-2, respectively.

Overall Motivation was also assessed in grades 3 and 4 with student ratings, which included items such as *school is important, I like to learn things, and schoolwork is easy for me*. Items were summed and standardized to create Overall Motivation scales for each grade. The composite variable *Overall Motivation 3-4* was created by taking the mean of the standardized values for grades 3-4.

School Commitment

School Commitment is a subscale of Overall Motivation from the grades 3-4 student survey. Example items include *school is important and I try hard in school*. Items were summed and standardized within each grade to create a School Commitment scale. The composite variable *School Commitment 3-4* was created by taking the mean of the standardized values for grades 3-4.

General School Attitudes

General School Attitudes is a subscale of Overall Motivation from the grades 3-4 student survey. Example items include *I like school and learning is fun*. Items were summed and standardized within each grade to create a School Commitment scale. The composite variable *General School Attitudes 3-4* was created by taking the mean of the standardized values for grades 3-4.

Perceived Cognitive Competence

Perceived Cognitive Competence is a subscale of Overall Motivation from the grades 3-4 student survey. Example items include *I am smart and schoolwork is easy for me*. Items were summed and standardized within each grade to create a Perceived Cognitive Competence scale. The composite variable *Perceived Cognitive Competence 3-4* was created by taking the mean of the standardized values for grades 3-4.

Data Analysis & Results

- Multiple regression analyses were used to examine the predictive effects of early risk factors and CPC participation on measures of children's achievement motivation (see Table 1).
 - Participation in the CPC preschool was a significant predictor of children's overall motivation in grades K-1 ($\beta = .223$, $p < .01$), grades 1-2 ($\beta = .198$, $p < .01$), and grades 3-4 ($\beta = .106$, $p < .10$) above and beyond early risk factors.
 - CPC preschool participation significantly predicted children's school commitment ($\beta = .139$, $p < .01$) and cognitive competence ($\beta = .093$, $p < .10$) beyond early risk factors.
 - Main effects also emerged for gender and mother's educational attainment.
 - In addition, there was a significant interaction between preschool participation and gender ($\beta = -.212$, $p < .05$) for overall motivation K-1.
- Adjusted mean comparisons were calculated for each scale for the grade levels measured using ANCOVA (see Table 2).
 - Results confirmed hypotheses that children participating in a high-quality preschool intervention would show higher achievement motivation than children who did not.
 - More specifically, children who participated in the CPC preschool had higher overall motivation in grades K-1 ($F = 17.76$, $p < .01$), overall motivation in grades 1-2 ($F = 15.69$, $p < .01$), and school commitment in grades 3-4 ($F = 6.29$, $p < .01$).
- Follow-up analyses were conducted to test the effect of preschool participation on motivation for selected subgroups (i.e., gender, see Figure 1).
 - While females generally had higher motivation than males, the effects of CPC participation on motivation were larger for boys than for girls.

Table 1: Summary Multiple Regression Analyses: Predicting Motivation from Early Risk Indicator and CPC Participation

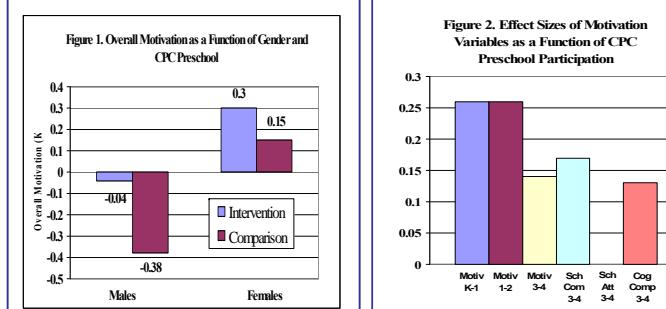
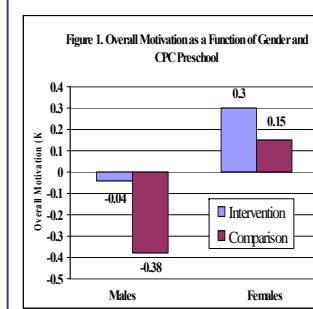
Predictors	Motiv. K-1		Motiv. 1-2		Motiv. 3-4		Sch. Com. 3-4		Sch. Att. 3-4		Cog. Comp. 3-4	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1		.06**		.06**		.02**		.02**		.01**		.01
Gender	.42**		.42**		.26**		.23**		.17**		.10*	
Ethnicity	-.31**		-.19+		-.12		-.03		-.16		.01	
Low Birth Weight	-.16*		-.20**		-.09		-.07		.04		-.11	
Area Poverty	-.21**		-.05		-.00		.03		.06		.00	
Step 2		.02**		.03**		.02**		.02**		.01		.01
Mother's Education	-.16**		-.20**		-.17**		-.14*		.00		-.11	
TANF/AFDC	-.09		-.06		-.10		-.08		-.04		-.02	
Mother's Employ.	-.09		-.06		-.04		-.11		-.04		.01	
Single Parent	.11+		-.01		.04		-.02		.07		-.00	
Mother < 18	-.05		-.03		.16*		.21**		.06		.10	
4+ Kids in Home	-.02		-.06		.02		-.00		-.04		-.00	
Free Lunch Eligible	.02		-.08		.04		-.10		.17*		.04	
Step 3		.01**		.01**		.003*		.01**		.00		.003+
CPC Preschool	.22**		.20**		.11+		.14**		-.00		.09+	
Step 4		.003*		.00		.00		.00		.00		.00
CPC * Gender	-.21*		-.04		-.01		-.18		.13		.00	
Total R^2	.09**		.10*		.04**		.05**		.02*		.01	

**p-value < 0.01, *p-value < 0.05, +p-value < 0.10

Table 2: Adjusted Mean Comparisons and Effect Sizes for Motivation Variables

Measure	N	Total Sample		CPC Preschool	Effect Size
		Mean ¹	Any		
Overall Motivation K-1	1336	.03	.13**	-.13	.26
Overall Motivation 1-2	1296	-.01	.07**	-.17	.26
Overall Motivation 3-4	1165	-.03	.01+	-.11	.14
School Commitment 3-4	1160	-.03	.03**	-.13	.17
School Attitudes 3-4	1168	-.00	-.00	-.00	.00
Cognitive Competence 3-4	1164	-.03	.01+	-.01	.13

1. Means adjusted for gender, ethnicity, low birth weight, single parent status, child welfare, mother is less than 18, mother did not complete high school, mother is not employed, 4 or more children in household, TANF/AFDC participation, eligible for free lunch, and 60% or greater poverty
2. **p-value < 0.01, *p-value < 0.05, +p-value < 0.10



Discussion

- Overall, results supported the hypotheses that participation in the CPC preschool program significantly affected children's achievement motivation, even after controlling for important background variables.
 - Children participating in the CPC preschool had higher achievement motivation than children who did not.
 - Effects were stronger during the early years of elementary school (K-2) than in later grades (3-4) indicating that motivation effects may fade as children get older.
 - While females generally had higher motivation than males, the effects of CPC participation on motivation were larger for boys than for girls.
 - This is similar to research suggesting that boys tend to experience greater gains from early interventions compared to girls (Reynolds et al., 2002).
 - Overall, these findings suggest that participation in high-quality preschool programs may in fact have a significant impact on students' motivation to succeed during the early years of school.

References

- Karoly, L.A., Kilburn, M.R., & Cannon, J.S. (2005). *Early Childhood Interventions: Proven Results, Future Promise*. Santa Monica, CA: RAND.
- Niles, M.D., Reynolds, A.J., Nagasawa, M. (2006). Does early childhood intervention affect the social and emotional development of participants? *Early Childhood Research & Practice*, 8(1).
- Reynolds, A.J. (2000). *Success in Early Intervention: the Chicago Child-Parent Centers*. Lincoln, NE: University of Nebraska Press.
- Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2002). Age 21 cost-benefit analysis of the Title I Chicago Child-Parent Centers. *Educational Evaluation and Policy Analysis*, 24(4) 267-303.
- Stipek, D.J. (1996). Motivation and instruction. In D. C. Berliner & R.C. Calfee (Eds.), *Handbook of Educational Psychology* (pp. 85-113). New York, NY: Schuster MacMillan.

Acknowledgements

The research is supported by grants from the National Institute of Child Health and Human Development (R01HD034294).