The Relation of Preschool Child Care Quality to Children's Longitudinal School Success through Sixth Grade

Ellen S. Peisner-Feinberg and Noreen Yazejian

FPG Child Development Institute

The University of North Carolina at Chapel Hill

CB 8180, 105 Smith Level Road

Chapel Hill, NC 27599-8180

http://www.fpg.unc.edu

Poster Presentation at the Annual Meeting of the

Child Care Research Policy Consortium

April 13–16, 2004

Washington, DC

Original Study

In the initial Cost, Quality, and Outcomes Study (CQO), begun in 1993, 828 children in 176 child care centers (183 classrooms) in North Carolina, California, Colorado, and Connecticut were followed from their 3-year-old year in child care through the end of second grade to examine the relations between preschool child care quality and children's language, cognitive, and social development.

Children's outcomes were measured each year through individual assessments and teacher ratings, while child care quality was measured through independent observations.

In addition, when children were in sixth-grade, parent survey data were gathered to examine parental perceptions of children's elementary school success in relation to earlier preschool experiences.

Description of Present Study

The purpose of the present study was to conduct a long-term follow-up of the CQO sample in order to examine real-world indicators of school success. A variety of data were gathered from children's kindergarten through sixth-grade school records to examine broad longitudinal school outcomes in relation to earlier preschool child care experiences and child/family characteristics. The present paper reports data from only one of the four states, North Carolina.

Child outcomes gathered from school records included:

- Reading and math achievement test percentile scores averaged across all achievement tests within a given domain each year. (Because very few children were administered achievement tests prior to the 3rd grade, only data from 3rd-6th grade were analyzed.)

- Total number of referrals for special services each year, excluding services related to gifted/talented education.

- Whether a child had an Individual Education Plan for special education services each year, excluding children identified for gifted/talented services.

- Total number of negative narrative comments, as defined by the *School Archival Records Search* (Walker, Block-Pedego, Todis, & Severson, 1991). These included any written statements in the school records indicating incompetent or maladaptive performance.

Preschool child care predictors included:

- An index of the observed quality of child care practices using the *Early Childhood Environment Rating Scale* (Harms & Clifford, 1980), the *Caregiver Interaction Scale* (Arnett, 1989), the *UCLA Early Childhood Observation Form* (Stipek, Daniels, Galuzzo, & Milburn, 1992), and the *Adult Involvement Scale* (Howes & Stewart, 1987).

- Teacher ratings of the closeness of the teacher-child relationship using the *Student-Teacher Relationship Scale* (Pianta, 1992).

Child/family characteristics included:

- Child gender
- Child ethnicity
- Age of entry into child care
- Level of maternal education
- Proportion of days absent

Selected Findings from Previous Phases

- Child care quality was typically below the developmentally appropriate range, with 24% of preschool classrooms of good quality, 65% medium, and 11% poor.

- Children from classrooms with higher quality practices had better language and math skills in preschool and into elementary school.

- Children who had better quality relationships with their child care teachers had better cognitive/attention and social skills, showed fewer problem behaviors, and, to a lesser extent, had better language and math skills in preschool and into elementary school.

- For children whose mothers had fewer years of education, child care quality was even more strongly related to better math skills and fewer problem behaviors from preschool through second grade.

- Preschool child care quality was related to more positive parental reports of children's current overall direction and school adjustment in sixth grade for children whose mothers had less education.

Study Design

Research Questions

- How important is the level of child care quality to children's school success and academic achievement throughout elementary school?

- Are there differential influences of variations in child care environments on the basis of family background characteristics?

Sample

- We collected kindergarten through sixth-grade school records data on 312 children from the original CQO sample (89 from NC, 75 from CA, 79 from CO, and 69 from CT). These results are based on analyses of the NC data only.

- The sample was approximately evenly divided by gender (54% female), approximately 22% were children of color, maternal education averaged 14.1 years, age of entry into child care averaged 4 months old, and proportion of days absent from school averaged 3%.

Analytic Approach

- Descriptive analyses were performed to examine means and frequencies of key outcome variables.

- Inferential analyses were conducted to examine the relations between preschool child care quality (observed classroom practices and teacher-child closeness) and children's elementary school outcomes, controlling for child and family background characteristics.

- Child and family background characteristics were also examined as potential moderators of the influence of child care quality on children's later outcomes.

- Longitudinal analyses using hierarchical linear models were conducted to predict children's school performance for the four continuous outcomes and using generalized linear models for repeated measures for the dichotomous outcome (IEP presence).

Results

Table 1
Descriptive Data for Child Outcome Variables

	Year 1			Year 2			Year 3			Year 4			Year 5		
	N	Mean (SD)	Range	N	Mean (SD)	Range	N	Mean (SD)	Range	N	Mean (SD)	Range	N	Mean (SD)	Range
Number of Negative Comments	56	0.71 (1.17)	0-5	61	1.56 (2.69)	0-16	63	1.32 (1.70)	0-8	66	1.42 (2.05)	0-8	62	1.84 (2.89)	0-14
Number of Referrals	88	0.08 (0.31)	0-2	89	0.09 (0.42)	0-3	89	0.17 (0.48)	0-2	89	0.20 (0.66)	0-4	89	0.13 (0.46)	0-2
Reading Test Scores	---	---	---	3	65.00	20-96	11	65.09	11-99	78	68.37	5.50-97.50	86	69.45	4-99
Math Test Scores	---	---	---	2	46.50	5-88	13	71.38	9-99	78	67.23	15-99	87	75.52	4-99
	N	Freq.	%	N	Freq.	%	N	Freq.	%	N	Freq.	%			
Presence of IEP	72	4.00	5.56	78	3.00	3.85	81	9.00	11.11	83	8.00	9.64	83	9.00	10.84

	Year 6			Year 7		
	N	Mean (SD)	Range	N	Mean (SD)	Range
Number of Negative Comments	76	1.21 (1.86)	0-9	77	0.73 (1.63)	0-10
Number of Referrals	89	0.10 (0.34)	0-2	89	0.07 (0.29)	0-2
Reading Test Scores	85	65.11	1-99	85	64.40	1-99
Math Test Scores	86	65.62	1-99	85	65.44	1-99
	N	Freq.	%	N	Freq.	%
Presence of IEP	87	9.00	10.34	85	8.00	9.41

Table 2
Regression Results of Relation between Preschool Child Care Quality and Total Negative Narrative Comments

	β	SE
Background characteristics		
Gender (male)	0.73*	0.31
Race/ethnicity (White)	-0.70	0.48
Age of entry into child care	0.57	0.33
Days absent	5.96	4.77
Maternal education	-0.03	0.07
Year	0.13	0.48
Classroom quality		
Classroom practices index	-0.33*	0.17
Practices x Year	0.04	0.03
Teacher-child closeness	-0.02	0.59
Closeness x Year	-0.03	0.11

Note: * p < .05 ** p < .01 *** p < .001

Table 3
Regression Results of Relation between Preschool Child Care Quality and Total Referrals for Special Services

	β	SE
Background characteristics		
Gender (male)	0.13	0.07
Race/ethnicity (White)	-0.03	0.11
Age of entry into child care	0.08	0.08
Days absent	0.62	0.99
Maternal education	-0.35*	0.14
Year	0.17*	0.08
Classroom quality		
Classroom practices index	0.03	0.03
Practices x Year	-0.01	0.00
Teacher-child closeness	-0.98*	0.46
Closeness x Year	-0.04*	0.02
Closeness x Maternal education	0.08*	0.03

Note: * p < .05 ** p < .01 *** p < .001

Table 4
Regression Results of Relation between Preschool Child Care Quality and Reading Achievement Test Scores

	β	SE
Background characteristics		
Gender (male)	-2.37	5.15
Race/ethnicity (White)	12.75	7.82
Age of entry into child care	-6.77	5.89
Days absent	-45.83	45.29
Maternal education	2.10	1.17
Year	10.38*	5.06
Classroom quality		
Classroom practices index	0.69	2.34
Practices x Year	0.50	0.32
Teacher-child closeness	16.28	8.28
Closeness x Year	-2.53*	1.14

Note: * p < .05 ** p < .01 *** p < .001

Table 5
Regression Results of Relation between Preschool Child Care Quality and Math Achievement Test Scores

	β	SE
Background characteristics		
Gender (male)	-0.42	5.08
Race/ethnicity (White)	19.56*	7.64
Age of entry into child care	1.48	5.84
Days absent	-125.04**	45.67
Maternal education	1.50	1.16
Year	8.13	4.55
Classroom quality		
Classroom practices index	4.31*	1.89
Practices x Year	-0.28	0.29
Teacher-child closeness	15.32*	6.55
Closeness x Year	-1.98	1.03

Note: * p < .05 ** p < .01 *** p < .001

Table 6
Regression Results of Relation between Preschool Child Care Quality and IEP Status

	β	SE
Background characteristics		
Gender (male)	1.57*	0.45
Race/ethnicity (White)	-0.03	0.63
Age of entry into child care	-0.22	0.56
Days absent	8.47	8.45
Maternal education	-6.27**	1.83
Year	1.48*	0.94
Classroom quality		
Classroom practices index	0.03	0.26
Practices x Year	0.01	0.05
Teacher-child closeness	-16.61**	5.00
Closeness x Year	-0.31*	0.21
Closeness x Maternal education	1.33**	0.38

Note: * p < .05 ** p < .01 *** p < .001

Conclusions

Because so many children are experiencing center-based child care before they enter school, it is important to examine the longer term effects of variations in the quality of these preschool experiences on children's development and subsequent success in school. The findings reported here offer some evidence that child care quality continues to predict children's development and school success throughout the elementary school years.

In particular, we found long-term effects indicating that better quality care in preschool is related to better outcomes in elementary school as measured by:

- fewer negative narrative comments in school records
- better math achievement test scores
- fewer total referrals for special services for children whose mothers have less education
- reduced likelihood of having an IEP for children whose mothers have less education

These findings provide support for the importance of high-quality preschool experiences not only for promoting school readiness but also for ensuring positive developmental trajectories throughout elementary school, especially for children at greater risk.

One limitation of these findings is that the data were based on only one state. In the next phase of the study, we will be analyzing data from all four states to better address the issue of the extent to which children's real-world school outcomes are related to the quality of earlier experiences in child care.

Key References

Arnett, J. (1989). Caregivers in day-care centers: Does training matter? Journal of Applied Developmental Psychology, 10, 541-552.

CQO Study Team. (1995). Cost, quality, and child outcomes in child care centers, technical report. Denver, CO: University of Colorado at Denver.

Harms, T., & Clifford, R. M. (1980). The Early Childhood Environment Rating Scale. New York: Teachers College Press.

Howes, C., & Stewart, P. (1987). Child's play with adults, toys, and peers: An examination of family and child care influences. Developmental Psychology, 23, 423-430.

Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., & Yazejian, N. (2001). The relation of preschool quality to children's cognitive and social developmental trajectories through second grade. Child Development, 72(5), 1534-1553.

Pianta, R. C. (1992). The Student-Teacher Relationship Scale. Unpublished manuscript, University of Virginia, Charlottesville.

Walker, H. M., Block-Pedego, A., Todis, B., & Severson, H. H. (1991). School archival records search (SARS). Longmont, CO: Sopris West Educational Services.