

Selected Longitudinal Studies that Inform PK-3

By Kimber Bogard

Program/study (sample year)	Duration	Ages Served	Curriculum	Domains targeted and/or assessed	Sample size and characteristics	Teacher and classroom variables	Cost-Benefit	Program Funding
Perry Preschool (1962-1967)	Part-day preschool 5 days/week w/home visits	3-4 year olds	High quality child-centered, comprehensive and integrated curriculum (High/Scope)	Intellectual, social, emotional	123 African American children with low IQ, low income, low parent education in small town	Child centered teaching style with low child - teacher ratio	\$7 savings for every \$1 investment	Private
Abecedarian (1972-1977)	Full-day, 8 hours/day, 5 days/week for 50 weeks/year	Infants averaged 4.4 months – kindergarten; 25 kids had a follow-on program through third grade	Cognitively stimulating developmental curriculum for infants; preschool focusing on language and pre-literacy; follow-on program focused on parent participation in school	Cognitive, healthcare and family supports; follow-on program emphasized home school connection	111 African American children with low maternal IQ, low SES, single parents in rural NC	Teacher:child ratios (ranged from 1:3 for infants to 1:6 for 5 year olds); extensive in-service training; low turnover		Private
FACES-Head Start (2000)	Full-day vs. half day	3-4 year olds	91% of HS teachers used either a single curriculum or a combination of curricula – 59% used either High/Scope or Creative Curriculum, and 41% used another curriculum	Emotional, social, cognitive, health, nutrition, psychological, family supports, parent involvement	2,800 low income children from 43 sites representative of all HS children nationwide, their parents, teachers, and classrooms	39% of teachers in the study have at least a BA and 74% have a CDA certificate; an average of 5.4 children per 1 adult in the classroom (HS req. 10:1 ratio w/class size=20)		Federal
Georgia (GA) UPK (1996-2001)^a (2001-2002)^b	Full-day UPK, at least 6.5 hours	4-year olds	Journey, Once Upon a Time, High/Scope, and other approved curricula were chosen by teachers	Cognitive, language, social, emotional, communication skills, classroom quality	^a 3,639 preschoolers attending GA UPK; ^b 630 preschoolers from GA UPK, Head Start, and private programs	GA UPK teachers must have at least a HS diploma and specialized training in ECE; 88% have BA vs. 13% in HS & 25% private		State lottery funds
Tulsa, OK UPK (2000-2001)	Full-day vs. half day	4-year olds	No mandated curriculum or pedagogical principles-required to use state report card to keep track of cog., lang., beh., and soc. skills	Motor, language, cognitive/general knowledge, social/emotional	3,558 children from diverse socioeconomic and racial/ethnic backgrounds	Teachers have at least a BA+ECE cert.; pay = K-3 teachers; 1:10 teacher-child ratio and class size = 20		State
Child-Parent Centers (1986)	Full-day	3-8-year olds (pre-k – 3 rd graders)	Child-centered individualized attention; enriched learning environment focusing on basic skill attainment in language and math	Social, cognitive, and academic skills including special ed. placement, grade retention, reading and math achievement, and dropout; parent involvement, delinquency, arrests	1,106 Black & 115 Hispanic CPC K graduates (Hispanics dropped from analyses because only 5% of sample) and matched controls-all living in low income neighborhoods in Chicago	Teacher aides in every classroom; smaller class sizes (17 pre-k; 25 K-3) than in the regular public schools (~35 K-3)	\$7 savings for every \$1 investment	Federal, State, Local
NICHD Study of Early Child Care (1990's)	>= 10 hrs. participation in care/week for >=6 mos.	4.5 year olds	Quality of care varied across settings	Child cognitive, social, and emotional outcomes; caregiver training, quality of caregiving environment	813 non-poor children; 11% African American, 13% Hispanic from select sites; average maternal education 14.4 yrs	Caregiver quality varied across settings		Mixed settings
Cost, Quality, and Outcomes (1990's)	Enrolled in full-time care or education	Pre-K through 2 nd graders	Quality of classrooms varied	Teacher sensitivity and interactive style; child reading, math, language tests, social outcomes; maternal education	733 in year 1 pre-k; 499 year 2 pre-k; 399 kinder.; 345 2 nd grade; English speaking; 30% non-white; from 4 states	Teacher quality varied across classrooms		Mixed settings

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Program/study	Findings
Perry Preschool	Preschool participants scored significantly higher on IQ for 2 years following participation. During elementary school, preschool participants had a stronger commitment to school, and higher achievement and literacy scores. The 19-year results indicated that participants had higher educational attainment--higher GPA, lower special education placement, higher achievement test scores, less likely to drop out, and more likely to enroll in college; participants showed decreased delinquency and crime rates; and a lower incidence of welfare assistance and teen pregnancy. At 27 yrs old, program participants had more years of schooling, higher earnings, were more likely to own homes, and less likely to have been arrested. The 40-year follow-up findings show 60% of preschool participants earned > \$20,000 vs. 40% of control group participants, and 55% of control group participants vs. 36% of preschool participants were arrested > 5 times by age 40.
Abecedarian	Children with full intervention (0-8) were less likely to fail a grade, had better reading scores at 8, 12, and 15 years old than children with any individual component of intervention (pre-k, k, or elementary). At 21 years old, the pre-k-only group attained higher levels of education, higher scores on cognitive measures, and lower rates of teen pregnancy than all other groups. Children who benefited most had mothers with the lowest IQ scores. When participants were 21 years old, the effects of the follow-on program compared to the preschool only group no longer showed significant effects.
FACES-Head Start	Head Start reduces the achievement gap in math and literacy. After 1 year of Head Start, children with lower skills upon Head Start entry gained the most. Spanish speaking children showed significant gains in English vocabulary skills. At Kindergarten follow-up Head Start children continued to make gains, but did not reach parity with national counterparts. Head Start children showed growth in social skills and reduced problem behavior. High levels of teacher education (at least some graduate experience) were related to classroom quality. Positive teacher attitudes mediated the relationship between teacher education (BA or AA) and overall years of teaching experience and child outcomes. Full-day participation led to greater gains than half-day participation. Classrooms using either the Creative Curriculum or High/Scope curriculum scored higher on quality (structural environment and language environment) than classrooms using other curricula. Children exposed to High/Scope showed larger cognitive gains and social-emotional improvement than other children.
Georgia (GA) UPK ^a Henry, Gordon, Henderson, & Ponder, 2001 ^b Henry, Henderson, Ponder, Gordon, Mashburn, & Rickman, 2003	^a Low SES and parent education, and being Black were consistent risk factors for low academic success assessed in 3 rd grade by standardized assessments. Controlling for demographic factors, lack of consistent curriculum and teacher effects on test scores (probably due to the high consistency in program quality and regulations); from K-3 19% of the sample had been retained at least once. Again, demographic risk, but not curriculum and teacher variables, were related to retention. Pre-k teacher ratings of children's social skills increased from poor to good by the end of pre-k. This trend continued through 1 st grade and then steadily declined. This pattern was also found for language arts, math, and science outcomes. There was inconsistency in structural, classroom variables across the early grades from pre-k through third grade. ^b Head Start children experienced the highest number of risk factors, followed by GA UPK children. At the beginning of preschool, all groups scored similarly in health and behavioral domains. Head Start children scored significantly lower on cognition and general knowledge assessments than GA UPK and private preschool children. Private preschool children scored significantly higher on an overall academic rating than GA UPK and Head Start children. GA UPK and Head start program quality were significantly higher than private preschool quality, and GA UPK quality was more consistent than Head Start quality. Whereas Head Start children were rated lowest for readiness at kindergarten entry, GA UPK children were similar to private preschoolers once family characteristics were controlled. Maternal education and parent involvement with the preschool were significantly associated with child cognitive and language outcomes. Classroom quality was related to 4 out of 5 cognitive and language outcome scores across program type, and remained after controlling for child and family characteristics.
Tulsa, OK UPK ^a Gormley, Phillips 2003; ^b Gormley, Gayer, Phillips & Dawson, 2004	^a Using a locally-designed, testing instrument, Tulsa UPK showed the largest effects for children who were eligible for free or reduced lunch and Hispanic children in areas of school readiness. Strong effects were also found for Black children. Full-day programs had strong effects for Hispanic and Black children who qualified for free or reduced lunch. White children who participated in the full-day program did not significantly differ from the control group of White children. On the other hand, part-day participation led to language gains for White children. It must be noted that the control group could have participated in another early childhood program when they did not meet the strict birthday cutoff for UPK participation. ^b Using Woodcock Johnson Achievement test scores, UPK showed significant benefits for all children, regardless of ethnicity and income levels, although the strongest effects were found for reduced price lunch children. This finding may have to do with differential early childhood education experiences of the control groups.
Child-Parent Centers	There is 'added value' to follow-on educational programming for children beyond preschool. Children who attended the preschool & kindergarten components (3 years) were less likely to drop out, be retained in a grade, be placed in special education, or be arrested by 18-years old. Full intervention children (6 years) were more likely to show higher reading and math achievement and lower grade retention by 8 th grade. At 18-years old, more years of participation were associated with lower rates of special education placement and grade retention. Participation through third grade was more beneficial than participation through 2 nd grade. The most recent report found that entry into good elementary schools accounted for the largest effect of the sustainability of the impact of high quality pre-k.
NICHD Study of Early Child Care	Quality of non-maternal care was associated with cognitive outcomes. Specifically, cognitive stimulation in the caregiving environment was related to cognitive outcomes but not social outcomes. Maternal caregiving had the strongest relationship to child cognitive competence. Caregiver quality was significantly related to child cognitive and social outcomes above and beyond maternal caregiving variables. Amount of caregiver training and child-staff ratio were significantly related to caregiver quality.
Cost, Quality, and Outcomes	Classroom quality was not consistent over time for children, as indicated by low correlations of quality between grade levels. High quality classroom practices are significantly related to higher math and language outcomes in pre-k, kindergarten, and 2 nd grade. Classroom quality is more strongly related to child outcomes for children whose mothers have less education. Pre-k classroom practices predicted math scores but not reading or language scores in 2 nd grade. Positive pre-k teacher-child interaction was negatively related to behavior problems in 2 nd grade. Teacher-child closeness in kindergarten predicted sociability in 2 nd grade. Maternal education is the strongest predictor of cognitive outcomes.

Study Design and Data Collection Timeframe	
Perry Preschool	Longitudinal random assignment design. Data were collected periodically up to age 27. Parents were interviewed when study participants were 3- and 15-years old, and subjects were assessed annually between ages 3-10-years old, again at 14-15-years old, and at 19- & 27-years old.
Abecedarian	Longitudinal random assignment design. Data were collected through age 21. Children were assessed first at 18- months old, and then between 6-month to 1-year intervals until the children were 54-months old. Comparisons were made between the treatment and control groups until kindergarten. Then the preschool group was split into a K-2 intervention (N=25) and a preschool-only control group (N=24), and compared to the original control group, which was also split into a K-2-only treatment (N=24) and a no treatment (N=23) group. Children were assessed at 3-5-, 6.5-, 8-, 12-, 15-, and 21-years-old.
FACES-Head Start	Within group longitudinal study. Children were assessed through 1 or 2 yrs of Head Start participation and in the spring of their kindergarten entry. Children's assessment scores were compared to national norms. The study also assessed classroom quality, teacher qualification and attitudes.
Georgia UPK ^a Henry, Gordon, Henderson, & Ponder, 2001; ^b Henry, Henderson, Ponder, Gordon, Mashburn, & Rickman, 2003	^a Within group longitudinal study. Children were assessed upon pre-k entry, at the end of pre-k, and in each year subsequent to pre-k, through third grade. ^b Quasi-experimental study comparing 3 groups of preschoolers through kindergarten entry. Assessments were made at preschool entry, end of the preschool year, and at the beginning of the kindergarten year.
Tulsa, OK UPK ^a Gormley, Phillips 2003; ^b Gormley, Gayer, Phillips & Dawson, 2004	^a Children who were 4-years -old prior to the September 1, 2000 birthday cutoff date attended Tulsa's UPK program for one year and were assessed upon kindergarten entry for school readiness skills. Children who just missed the cutoff date and were not 4 years old by 9/1/00 were assessed upon prekindergarten entry the following year. Both groups were compared, controlling for age, to determine the effectiveness of Tulsa's UPK program on school readiness using a school-wide assessment. Although this study did not use random assignment, the design does control for selection bias. ^b Woodcock Johnson measure used to assess child outcomes.
Child-Parent Centers	Quasi-experimental. The treatment group was compared to a matched control group and followed through age 21. Comparisons were made between children who attended: 1) preschool & K (2-3 yrs); 2) 2 nd or 3 rd grade only (primary intervention only); 3) full 6 yrs of intervention (pre-k through primary); and matched control group. Children were assessed in grades kindergarten, 2 nd , 3 rd , 4 th , 5 th , & 8 th , and at 18- and 21-years-old.
NICHD Study of Early Child Care	Within-group, longitudinal. Researchers followed children in their naturally occurring child care environments at 6-, 15-, 24-, 36-, and 54- months old.
Cost, Quality, and Outcomes	Within-group, longitudinal. Researchers assessed children each of two years they were enrolled in preschool prior to kindergarten entry, kindergarten, and in 2 nd grade.