



Early Childhood Education The Research Evidence



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December 11, 2003

Citation

Vandell, D. L. (2003, December). *Early childhood education: The research evidence*. A presentation to the Governor's Task Force on Improving K-12 Education, Madison, WI.

The Challenge

- Carnegie Report (1991)
 - 35% of kindergarten children come to school “not ready to learn”
- Rimm-Kaufman (2003)
 - Kindergarten teachers reports 15% have “serious problems”
 - 30% have “some problems”
 - 50% lack requisite pre-academic, cognitive, language, and social competencies

Components of School Readiness

- Cognitive skills – memory, attention
- Language skills – comprehension, expression
- Pre-academic skills – letters, numbers
- Social competence – work & play well with peers, work well with adults
- Emotional well-being

Can Early Education Programs Help to Prepare Children to Succeed at School?



A Second Challenge: Increases in Maternal Employment

Year	1970	1990	2001
% of mothers of young children who are employed	28%	54%	59%
Average hrs/wk	31	34	35

Substantial Numbers of Children are in Child Care and Early Education Programs

- K class of 98-99 – 81% had child care experience (NCES – national survey)
- 84% of the children of employed mothers and 43% of children of non-employed mothers are in child care and education
- WI – 83% of children (ages 0-5 years) of employed mothers were in child care; 34% for 35 hrs or more; 26% for 15-34 hrs
- WI – 25% programs; 46% relatives; 20% family day care; 5% in-home

Child Care Quality Varies Widely

	observed	extrapolated
Highly supportive	9.5%	9.0%
Somewhat supportive	30.6%	29.6%
Somewhat unsupportive	52.7%	53.2%
Very unsupportive	7.2%	8.1%

Inequities in Child Care Quality

	Poor Quality Child Care	High Quality Child Care
Low-income children	11%	8%
High-income children	4%	15%

Research Questions

- What are the effects of high quality early education programs on cognitive and social development?
- What are the effects of early child care of varying quality and types on child developmental outcomes?

Studying Effects of Early Education and Care on Child Developmental Outcomes

- Experimental studies – random assignment; model programs
- Quasi-experimental studies – treatment & comparison groups; large-scale publicly funded interventions
- Correlational studies – naturally occurring variations

Evidence from Experimental Studies

- Carolina Abecedarian Project
 - 57 treatment; 54 control children
 - 8 hrs/day, 5 days/wk, 50 wk/yr, 1st 5 yrs
 - Center-based, language focus, high-quality model program
 - Early intervention & school intervention

Abecedarian Findings

- IQ: $T > C$ at ages 8, 12
- Achievement tests: $T > C$ at ages 8, 15, 21
- Special education: $T < C$ at age 15
- Grade retention: $T < C$ at age 15
- School drop out: $T < C$ at age 21
- College attendance: $T > C$ at age 21
- Average age 1st child born: $T > C$ at age 21
- Cost-Benefit Analysis: \$35,864 cost; \$136,000 benefit to society

Perry Preschool Project

- 58 treatment (T), 65 control (C) children
- ½ day preschool on week days, plus a weekly 90-min. home visit
- 8 months/yr for 2 years (entered age 3 or 4)
- High quality program - Child:teacher ratio = 6:1; teachers with master's degrees & early childhood training; early childhood curriculum

Perry Preschool Project Findings

- IQ: $T > C$ at ages 5, 7; $T = C$ at ages 9, 14
- Achievement tests: $T > C$ at ages 9, 14
- High school GPA: $T > C$
- Arrests: $T < C$ at age 27
- Employment: $T > C$ at age 19; $T = C$ at age 27
- Monthly earnings: $T > C$ at age 27
- Public assistance: $T < C$ at age 27
- Cost-benefit analysis: \$12,000 costs; \$108,000 benefit to society by reducing grade retention, special education placement, and increased high school graduation rates

Evidence from Quasi-Experimental Studies

- Chicago Child-Parent Centers (large scale publicly funded)

989 treatment & 550 comparison students

Title I early education program in 1985-86; emphasized skills in language & math through fairly structured activities

Degreed teachers; high parent involvement

Chicago Child-Parent Center Findings

- Reading achievement: $T > C$ at ages 5, 8, & 14
- Math achievement: $T > C$ at ages 5, 8, & 14
- Grade retention: $T < C$ at age 15
- Proficiency skills tests: $T > C$ at age 14/15
- Special education: $T < C$ at age 18
- Delinquency & crime: $T < C$ at age 17
- School dropout: $T < C$ at age 20
- High school completion: $T > C$ at age 20
- Cost-benefit analysis: \$7000 costs, \$48,000 benefit to society

Evidence from Correlational Studies: The NICHD Study of Early Child Care

- Large sample (n = 1364) from 10 sites
- Quality, amount, and type of child care measured from birth to kindergarten
- Mothers and fathers observed and interviewed
- Home observations
- Cognitive, language, and social development assessed
- Children studied from birth to age 12 years

Assessments of Child Care Quality

- Observational Record of the Caregiving Environment (ORCE) – assesses children’s experiences with caregivers, peers, and materials
- Early Childhood Environment Rating Scale (ECERS) – assesses the social, cognitive, and physical environment
- Structural & caregiver characteristics

Higher child care quality predicted

- Higher cognitive skills at 15, 24, 36, and 54 months and in first grade
- Higher academic skills at 36 and 54 months
- Higher language skills at 36 & 54 months
- Higher social skills at 15, 24, and 36 months
- Reduced behavior problems
- Effects of child care quality were larger for children of low-income families.

Caregiver Education

	Met Standard	Did Not Meet Standard	<i>p</i>
36 months			
% arrangements	80%	20%	
School readiness	51.06	38.52	***
Language comprehension	103.50	98.81	*
Behavior problems	-0.51	1.49	***

Child:Staff Ratio

	Met Standard	Did Not Meet Standard	<i>p</i>
24 months			
% arrangements	26%	74%	
Behavior problems	-1.54	0.07	**
Positive social behavior	0.79	0.13	*
36 months			
% arrangements	56%	44%	
Behavior problems	-0.66	0.57	**
Positive social behavior	0.31	-0.16	*

Other Correlational Child Care Studies

- National Academy of Science Committee (2003)
 - Cited 23 studies as finding relations between process quality and child outcomes
 - Cited 14 studies as finding relations between structural quality and child outcomes

What determines the cost of early education?

- Design of the program – hours, services, quality
- Who is eligible – targeted or universal
- Take up rates
- System costs – start-up and infrastructure

Estimated Costs-Per-Child for Quality Preschool

- NIEER estimates an annual cost-per-child for an academic year program (180 days & 6 hr. day) at \$8800.
- Full time child care throughout the year adds 1370 hours at \$8/hr, which yields would add \$10,960 to the cost for full day year round preschool
- Current participation rates for 4-yr-old – 1/3 half-day academic yr; 1/3 full-day academic year; 1/3 full-day year round.

Conclusions

- Strong evidence from research that high quality early education and child care has positive effects on children's cognitive, academic, and social outcomes and that poor quality care has negative effects.
- Research and practice have identified the components of high quality early education programs and strategies to implement these components.
- Now time for decisions about what early education policies to adopt