

# Cost-Effective Early Childhood Development Programs from Preschool to Third Grade

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# Key Points

1. Close to half of the achievement gap is present at school entry.
2. Many states continue to underinvest in preschool.
3. High-quality preschool shows high cost-effectiveness.
4. Evidence is strong that state-funded prekindergarten programs improve school readiness.

# Key Points

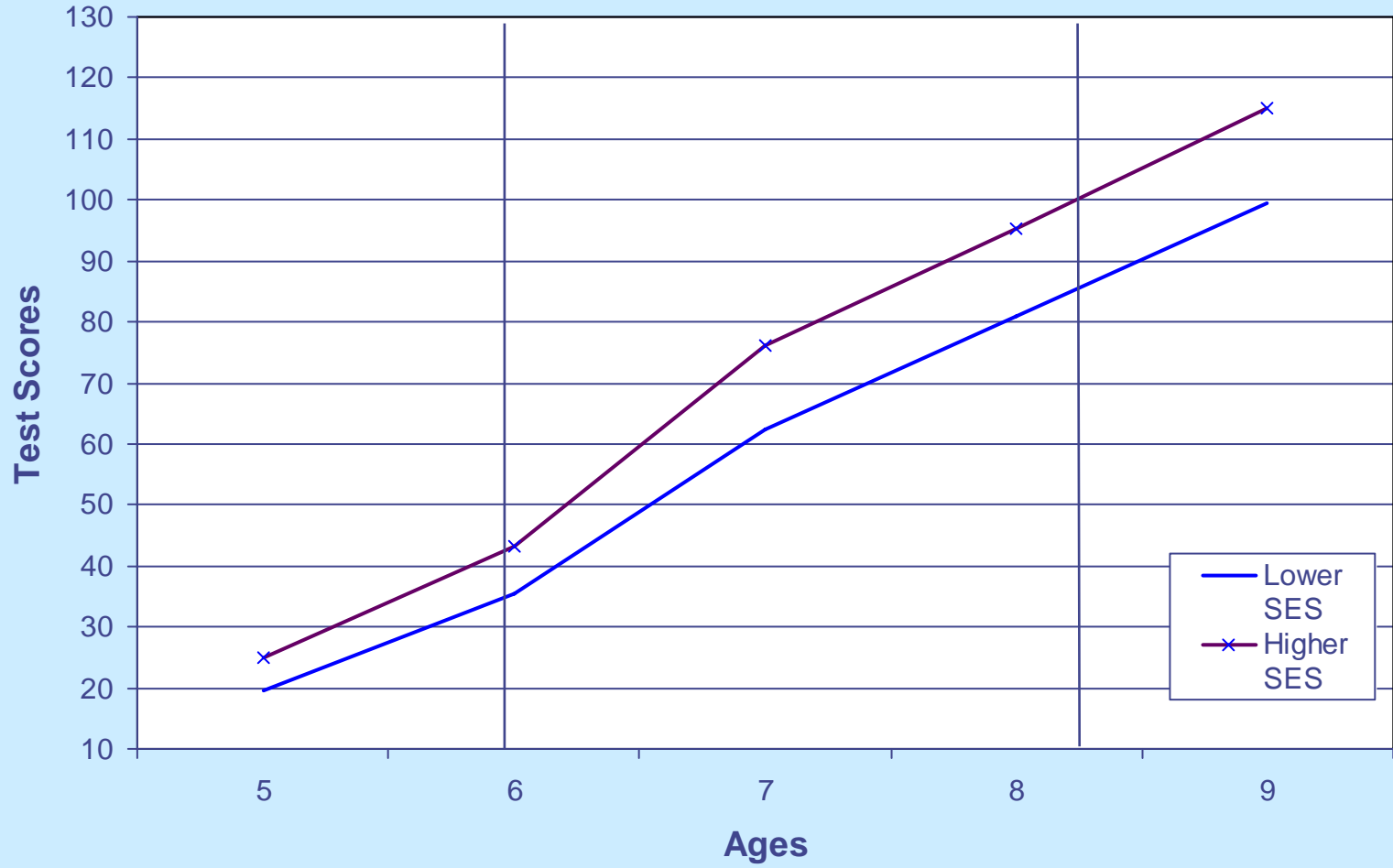
5. Full-day kindergarten has small effects that do not endure.
6. PK-3 Interventions strengthen learning gains and have long-term effects.
7. School-age programs can make a difference, including small classes, and social skills training.

# Key Points

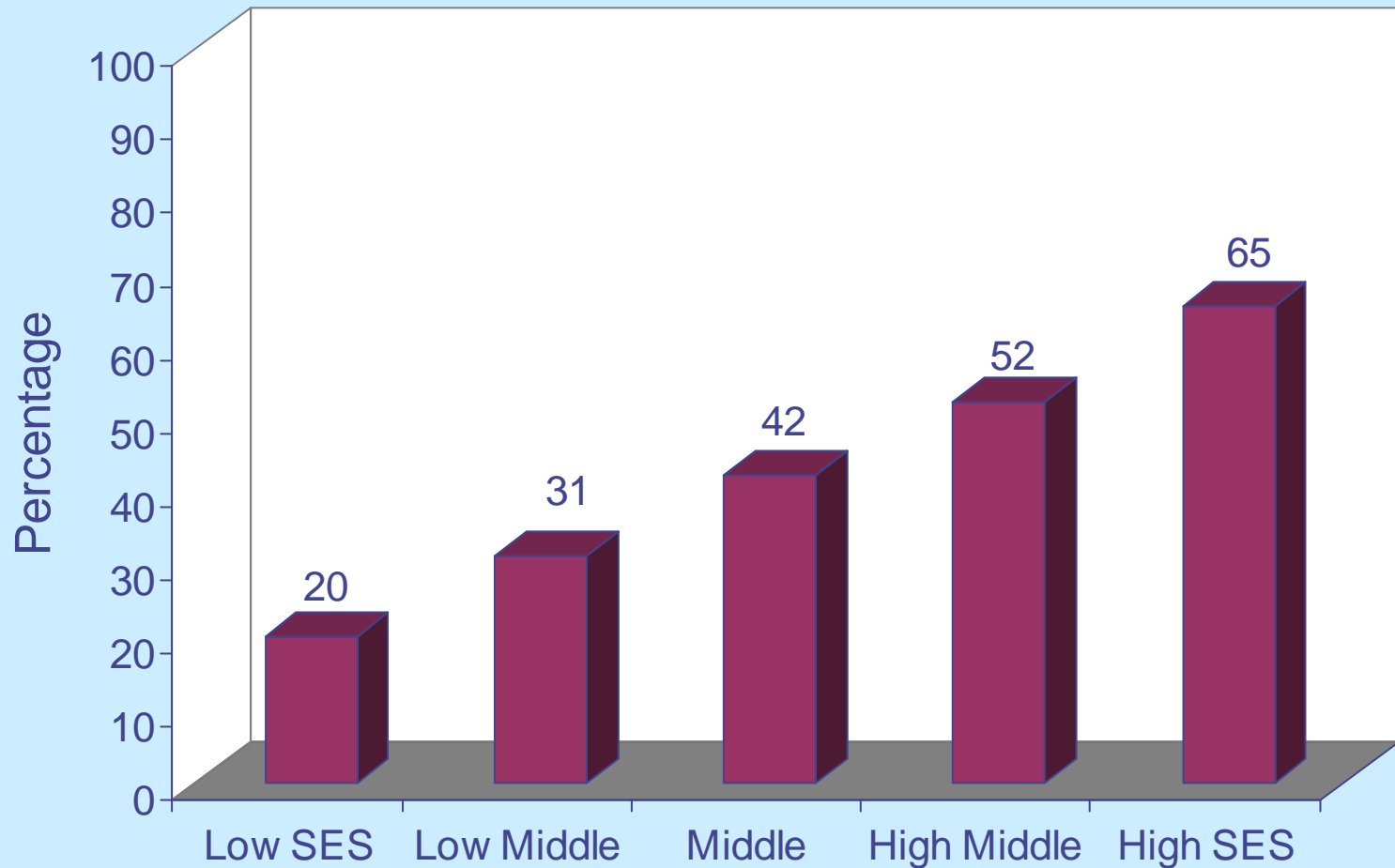
8. Cost-effectiveness will occur only for high quality programs following key principles of effectiveness.
9. Strengthen programs for 4-year-olds.

1. Close to half the achievement gap is present at school entry.

ECLS-K Reading Learning by SES: K to 3rd Grade



# Kindergartners who Attended Center-Based Preschool: ECLS-K Study



2. Many states continue to underinvest in preschool.

# Leading States in State PreK Access, 2006

State	% in State Pre-K, HS, or EI	Rank (1-38)
Oklahoma	70	1
Georgia	52	2
Vermont	47	3
Florida	47	4
Texas	44	5
West Virginia	40	6
Wisconsin	32	7

# Lagging States in State PreK Access, 2006

<b>State</b>	<b>% in State Pre-K</b>	<b>Rank (1-38)</b>
Alabama	1.7	38
Minnesota	1.8	37
Nevada	2.1	36
Nebraska	3.6	35
Missouri	4.0	34
Ohio	4.4	33
Iowa	4.5	32

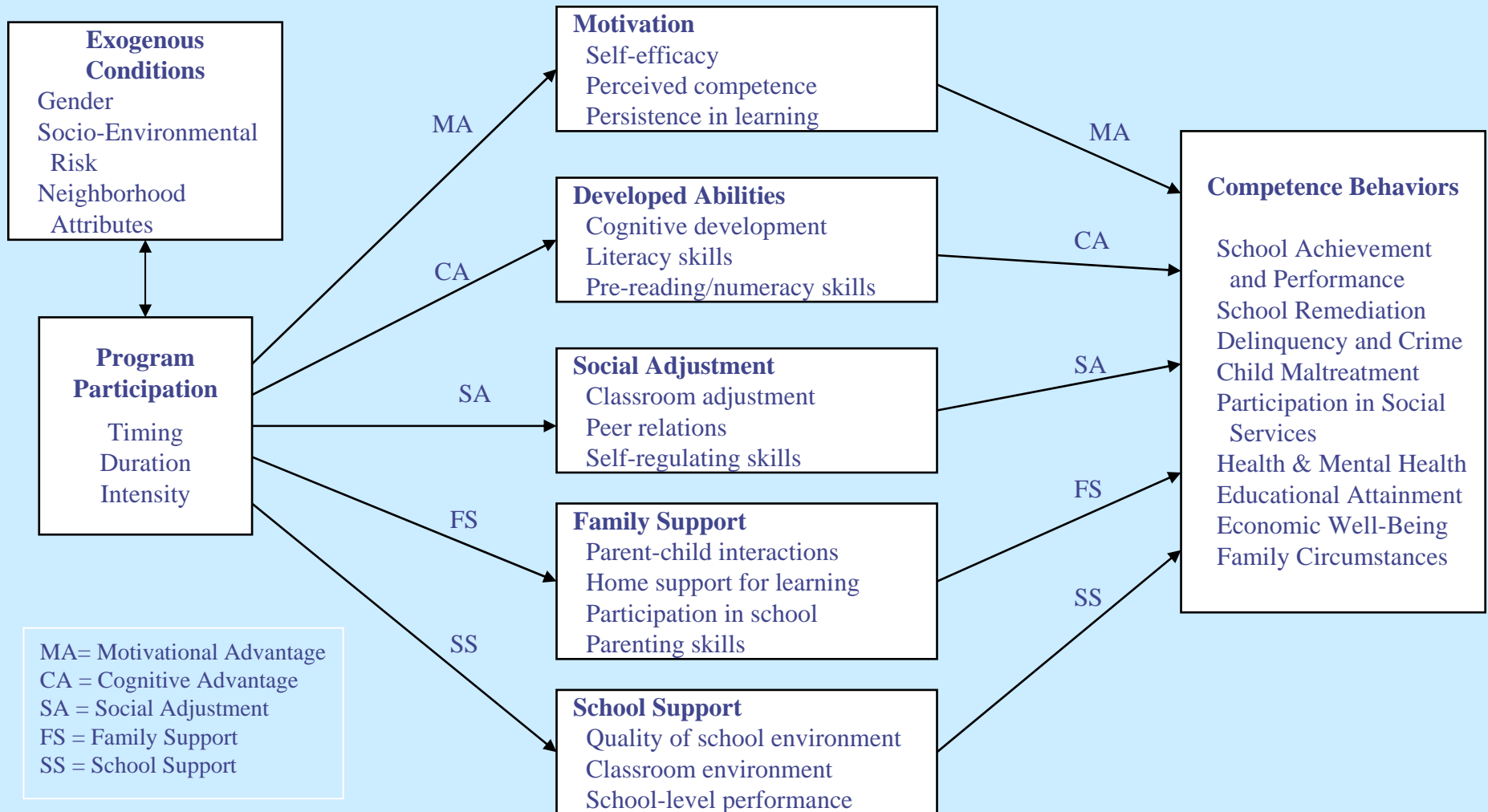
3. High quality preschool programs show high cost-effectiveness

# Common Paths from Early Childhood to Adult Well-Being

**Early Childhood**  
Ages 3-9

**Ages 5-12**

**Adolescence to Adulthood**



# Age at Follow-up for Early Childhood Interventions

Program	Type	Age at Last Follow-Up
High/Scope Perry Preschool Program	Model	40
Carolina Abecedarian Project	Model	21
Houston Parent-Child Development Center	Model	18
Yale Child Welfare Research Program	Model	15
Chicago Child-Parent Centers	Large Scale	24
Milwaukee Project	Model	14
Syracuse Family Development Program	Model	15
Consortium for Longitudinal Studies	Model	22
Infant and Health Development Program	Model	18
Elmira Prenatal/Early Infancy Project	Model	15
PSID Head Start Longitudinal Study	Large Scale	25

# Johnson Child-Parent Center

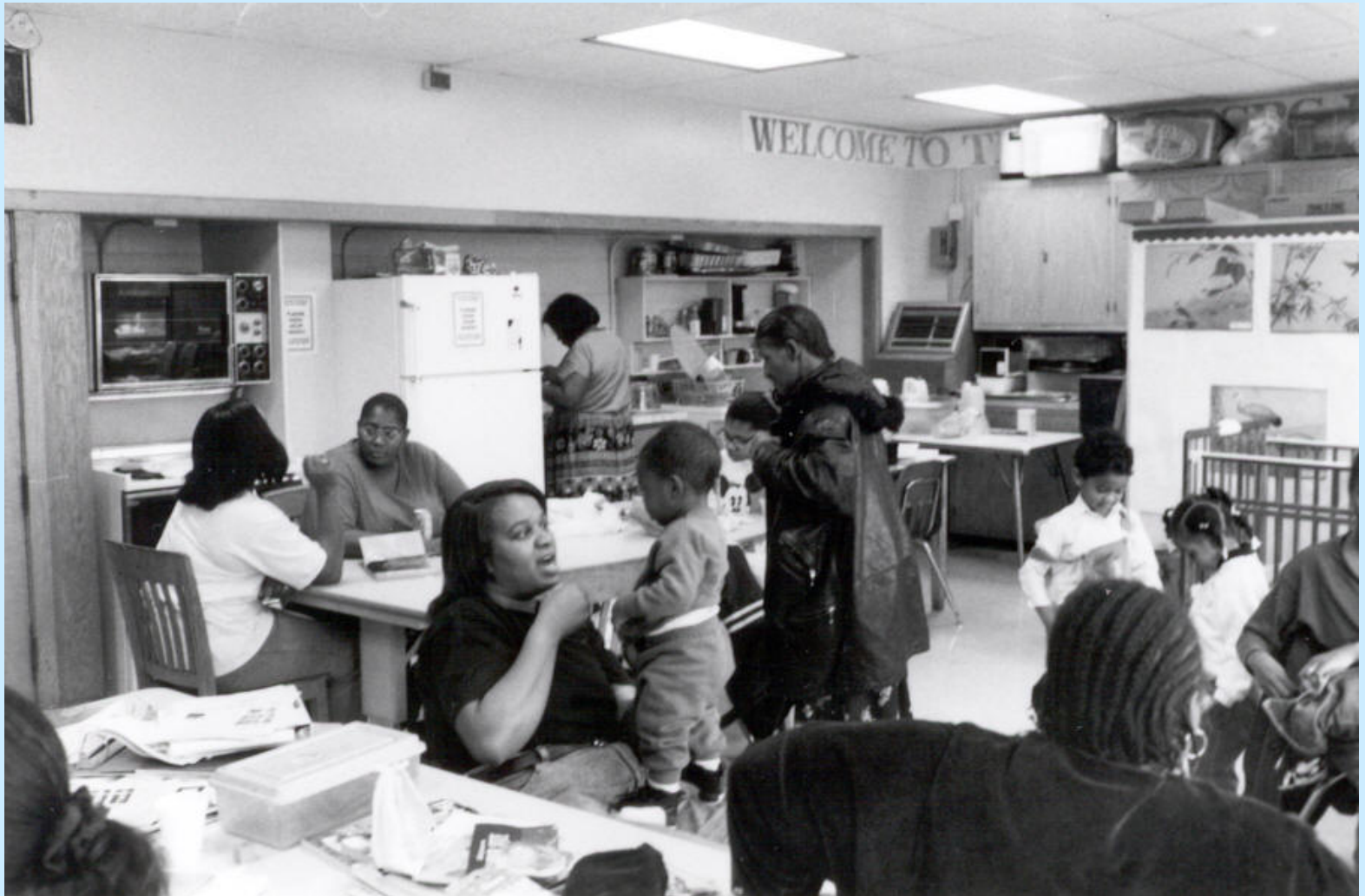


# CPC Staffing

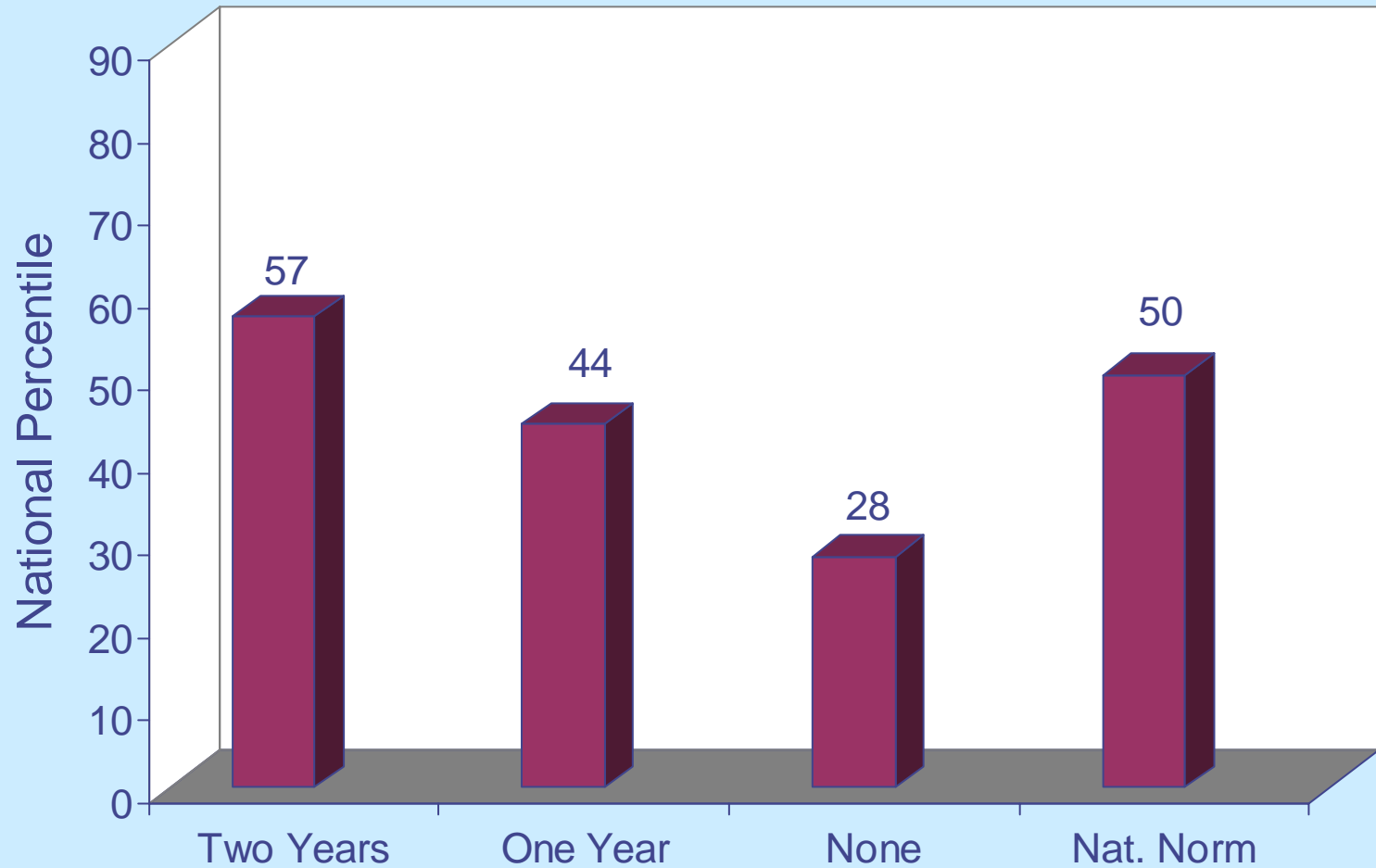
- ◆ Head Teacher
- ◆ Parent Resource Teacher
- ◆ School-Community Representative
- ◆ Teachers and aides
- ◆ School nurse, psychologist, social worker
- ◆ Preschool class size was 17 to 2
- ◆ Kindergarten, school age was 25 to 2
- ◆ School-age program had coordinator called curriculum-parent resource teacher



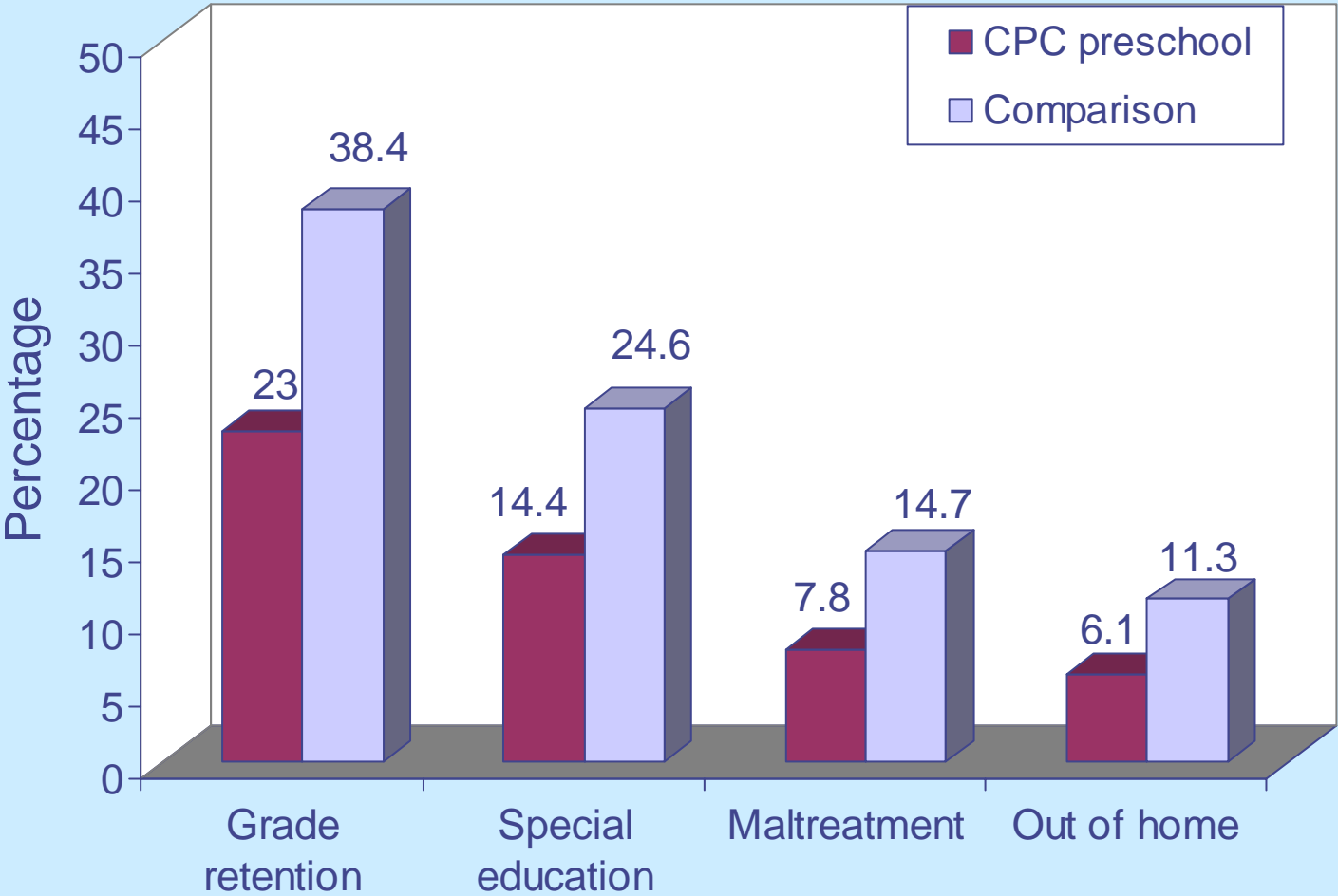
# Parent Resource Room



# CPC Preschool and Readiness



# Selected CPC Preventive Effects



# Economic Returns for 3 Programs

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
CPC	67,595	7,384	10.15
Perry	138,486	15,844	8.74
Abecedarian	135,546	67,225	2.02

# Adult Well-Being-Age 24

	Prog	Comp	Diff
HS completion	79.4%	70.7%	8.7%*
Incarceration or jail	20.4%	26.1%	-5.7%*
Occupational prestige (>3)	28.2%	21.5%	6.7%*

# Health Status/Behavior

	Prog	Comp	Diff
Depressive symptoms	12.8%	17.4%	-4.6%*
Any health ins.	71.9%	61.0%	10.9%*

# Age 25 CPC Preschool Benefits Per Participant (\$2007)

	<b>Benefit (\$)</b>	<b>% of total benefit</b>
School remediation	6,197	7.3
Child welfare	8,900	10.5
Juvenile treatment	5,747	6.8
Victim savings	18,494	21.9
Adult corrections	3,171	3.8
Victim savings	14,269	16.9

# Age 25 CPC Preschool Benefits Per Participant (\$2007)

	<b>Benefit (\$)</b>	<b>% of total benefit</b>
Lifetime earnings	17,615	20.8
Tax revenue	6,243	7.4
Substance/mental health treatment	2,113	2.5
Child care	2,108	2.5

# Common Elements of Programs Showing High Returns

1. Opportunity for More than 1 Year of Participation.
2. Well-trained and Compensated Teachers.
3. Class Sizes under 18 and Child to Staff Ratios less than 9 to 1.
4. Instruction that is Diverse & Literacy Rich.
5. Comprehensive Family Services.
6. Average Yearly Cost per Child no Less than \$5,000 (2004 dollars).

# Samples and Context

	Program	Control	Context
Abecedarian	57	54	Rural
CPC	989	550	Inner-city
Perry	58	65	Urban

# Program Elements

	Length	Ratios	Context
Abecedarian	5 years	12 to 2	Health services
CPC	1-2 years	17 to 2	Parent program
Perry	1-2 years	23 to 4	Home visits

# Validity Analysis: 3 Studies

Internal validity

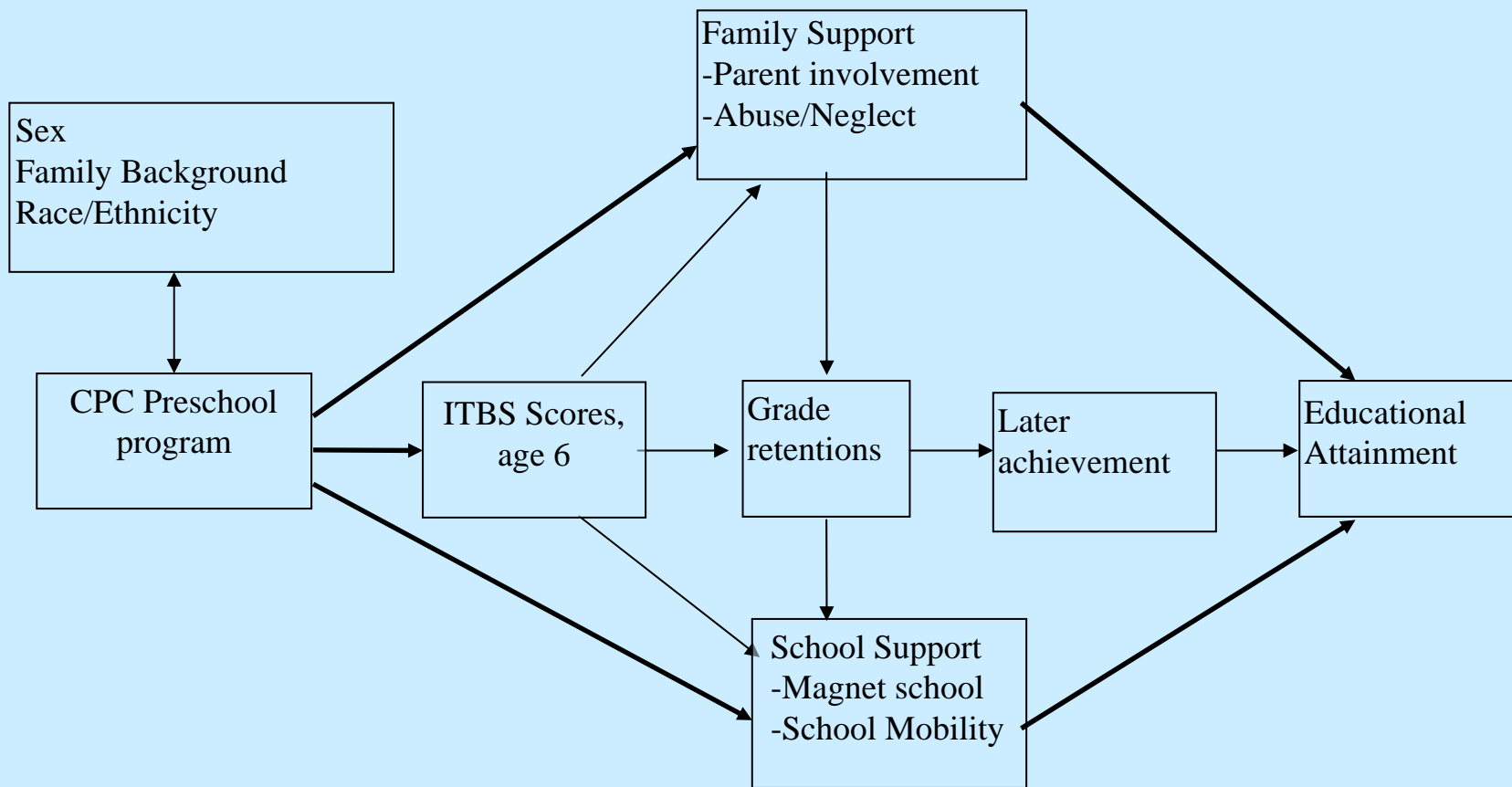
External validity

Policy relevance

Generative mechanisms

## Amount of Evidence: Preschool

	IV	EV	PR	GM
CPC	H	M	H	H
Perry	H	L	L	M
ABC	H	L	L	L



Sources of Long-term Effects from the CPC Program

# Economic Returns from 3 Policy Simulations

	<b>Focus</b>	<b>Benefit- Cost Ratio</b>
RAND, 2005	Universal	2.62
Aos, 2004	58 studies Targeted	2.36
Lynch, 2007	Targeted Universal	12.10 8.20

4. Evidence is strong that state-funded prekindergarten improves school readiness.

# Evidence for State PreK Programs

	<b>Effect size</b>	<b>In Months</b>
New Mexico	.37	3-4
Arkansas	.30	3
New Jersey	.32	3-4
Oklahoma	.26	3
Tulsa, OK	.58	6
Synthesis of 7 states/cities	.36	3-4

5. Full-Day Kindergarten has small effects that do not endure.

# Full-Day Kindergarten Effects

Synthesis of 23 studies

	<b>Effect size</b>	<b>Months</b>
Kindergarten	.18	2
<i>Grades 1-4</i>	<i>.01</i>	<i>0</i>
<i>Grades 2-3</i>	<i>.05</i>	<i>0</i>
<i>Grade 4</i>	<i>.00</i>	<i>0</i>

6. PK-3 Interventions strengthen learning gains and have long-term effects.

# Rationale for PK-3

- ◆ Help sustain learning gains from preschool education
- ◆ Promote better early transitions
- ◆ Greater “dosage” will help children at risk

# Key Principles of PK-3 Programs

## ◆ Continuity:

Promoting consistency

## ◆ Organization:

Staffing, leadership, services

## ◆ Instruction:

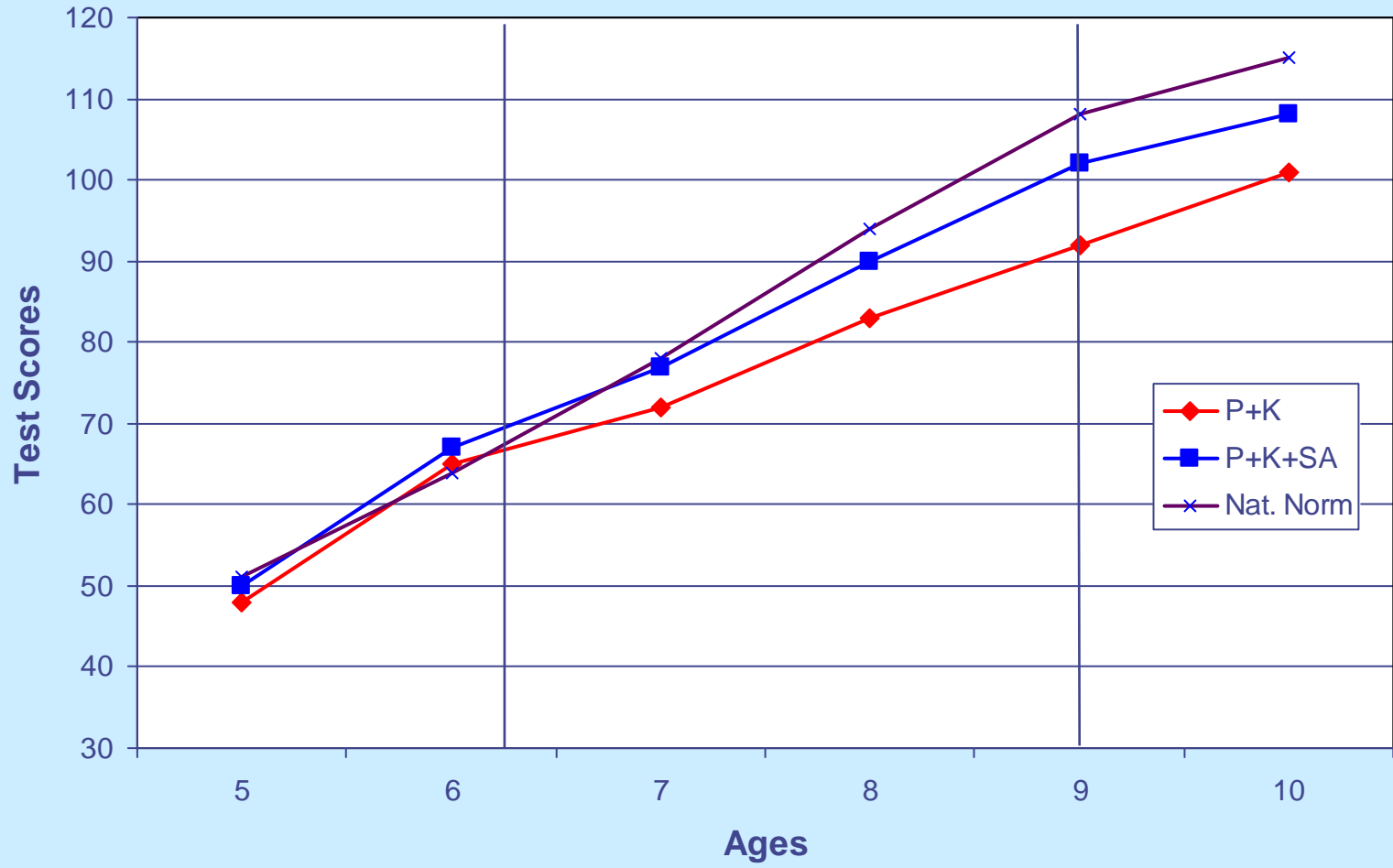
Aligning curriculum, encouraging communication

## ◆ Family support services

# Johnson Child-Parent Center



### Reading Achievement over Time by Extended Program Groups



# CPC PK-3 Cost-Effectiveness

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
Original	27,154	4,447	6.11
Add intangible crime savings	40,245	4,447	9.05

7. Early school-age programs can make a difference.

# Class Size Reductions in Early Schooling

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
Tenn. STAR	23,913	8,454	2.83
CPC school-age	6,928	3,268	2.12

# STAR High School Graduation

- ◆ No link between small classes and graduation in total sample
- ◆ Link was found among low-income students with 3 and 4 years in small classes

# Social Skills Training, Grades 1-6

	<b>Benefits</b>	<b>Costs</b>	<b>Ratio</b>
Skills, Opport. and Recognition	14,810	4,712	3.14

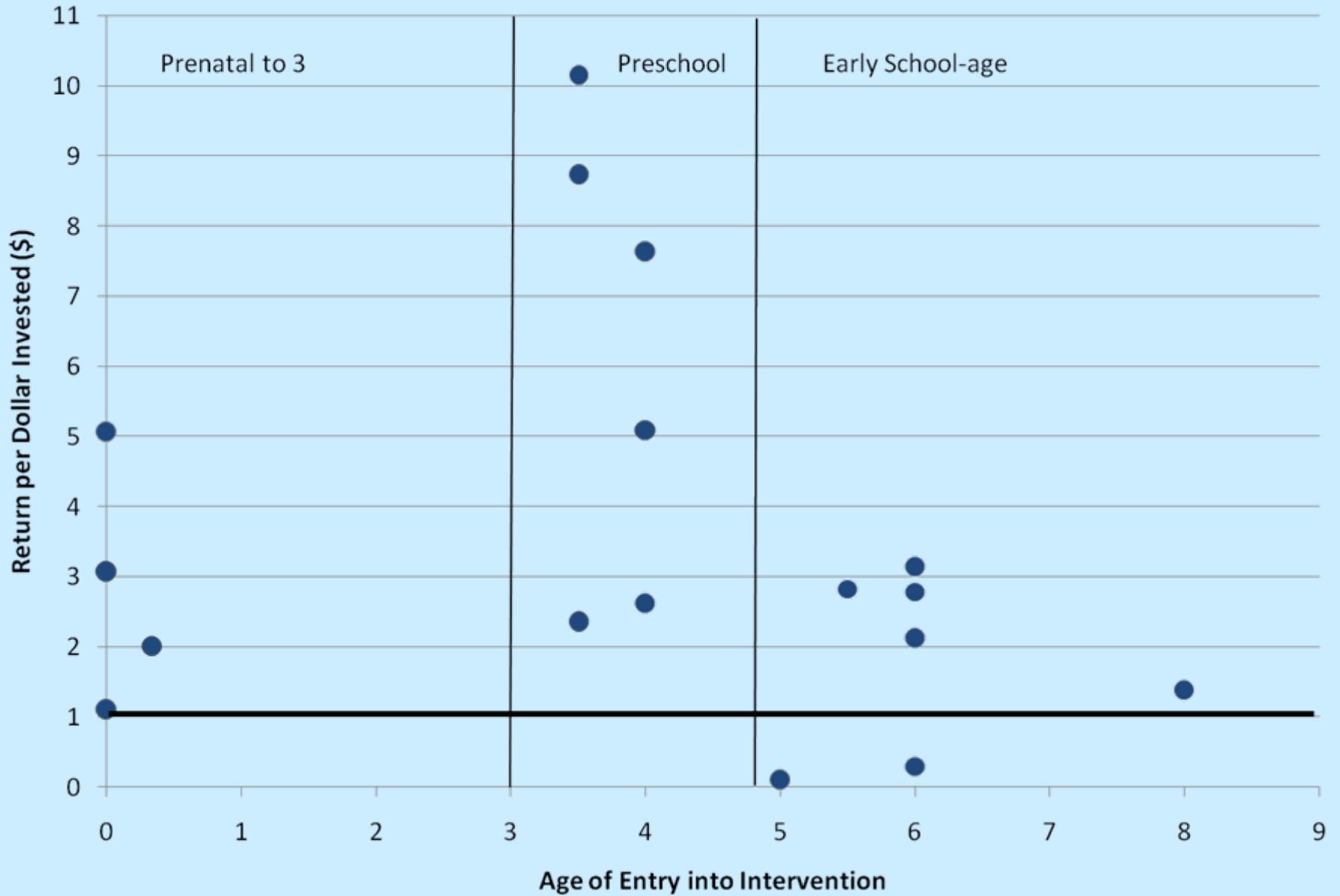
# Reading Recovery

Relatively large short-term effects on reading achievement.

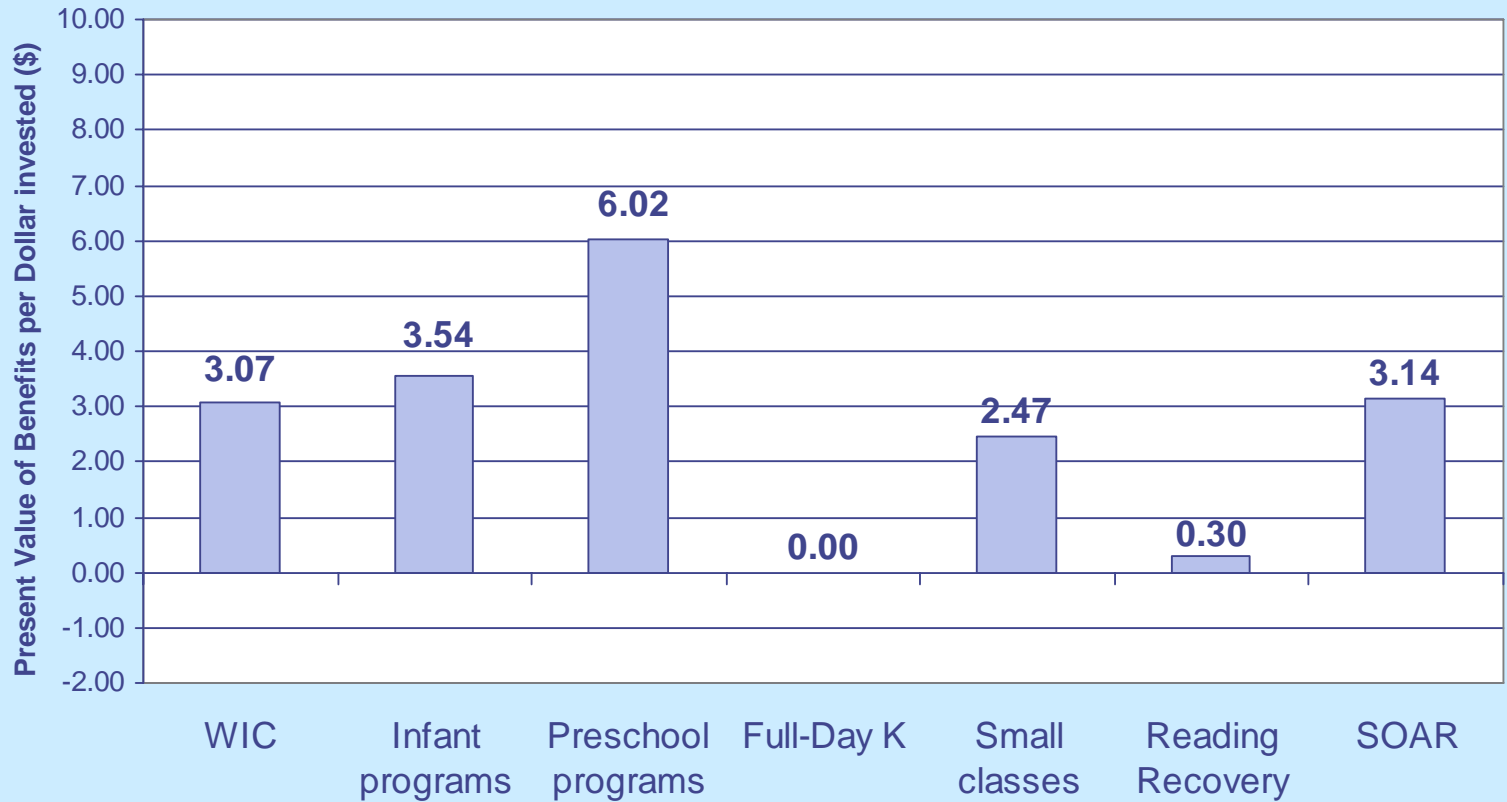
Small effects by third or fourth grade

Impacts may return about a third of program costs

# Return per Dollar Invested by Age of Entry into Intervention



# Benefit-Cost Ratios for Child Programs



8. Cost-effectiveness will occur only for high-quality programs.

# Key Elements of Effectiveness

- ◆ Timing-Earlier is generally better
- ◆ Duration-More is better
- ◆ Comprehensive family services
- ◆ Intensity of instruction, services
- ◆ Small class sizes

# Key Elements of Effectiveness

- ◆ Well-trained, compensated staff
- ◆ Transition-to-school services
- ◆ Compensatory focus
- ◆ Strong accountability system
- ◆ Primary focus on children at risk

# Recommendations

1. Increase investments in programs for 4-year-olds based on key principles of effectiveness.
2. Increase state investment in evidence-based school transition programs and services.
3. Use results of cost-benefit analysis to better prioritize funding.

# Recommendations

4. Develop funding mechanisms to support timely implementation.
5. Increase R & D investment for program assessment.

# Further Information

## Early Childhood Research Collaborative

[www.earlychildhoodrc.org](http://www.earlychildhoodrc.org)

## Chicago Longitudinal Study

[www.cehd.umn.edu/icd/cls/](http://www.cehd.umn.edu/icd/cls/)

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