Preschool to Third Grade Programs for Sustainable Effects

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Policy-relevant Findings & Issues

1. Strong evidence that high-quality 0-5 programs have enduring effects.
2. 14% and 41% of 3- and 4-yr-olds enroll in public-financed preschool.
3. Up to half of children enter K not fully ready.
4. Half of achievement gap in 3rd gr. exists in K.
5. 34% 4th gr. NAEP proficient in reading.
6. 73% 4-yr HS grad rate; 50% (low SES).
7. Breakdown in early school continuity.
8. Resource, organize and align services.

Overview

I. Background and significance

II. History of Pk-3

III. CPC program and approach

IV. Findings and implications

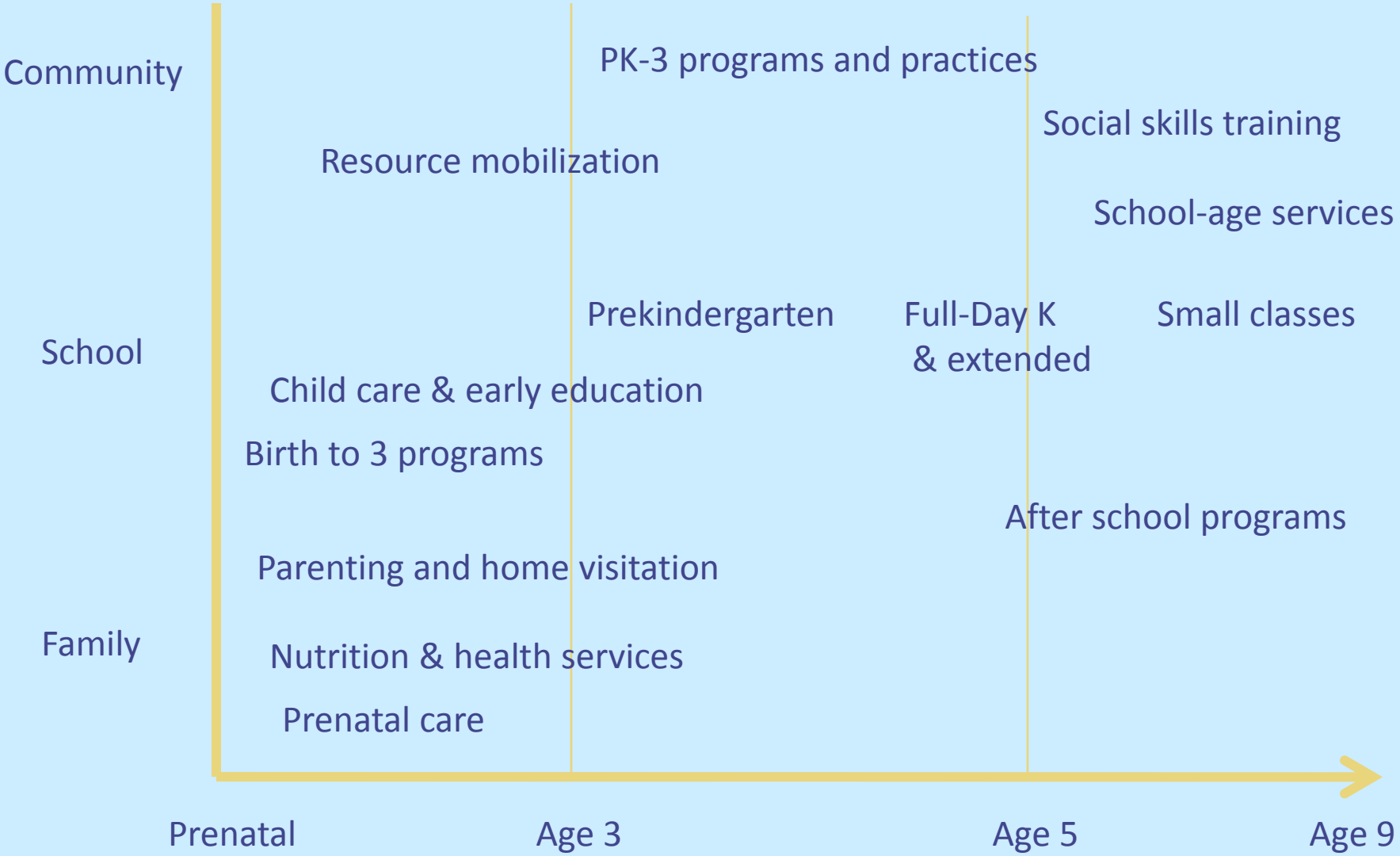
V. Midwest expansion

I. Background & Significance

Why Preschool to Third Grade?

1. Encourage continuity in learning.
2. Promote excellence in school performance.
3. Help prevent drop-off in effects of preschool.
4. Comparatively realistic and manageable.
5. Positive evidence of effectiveness.

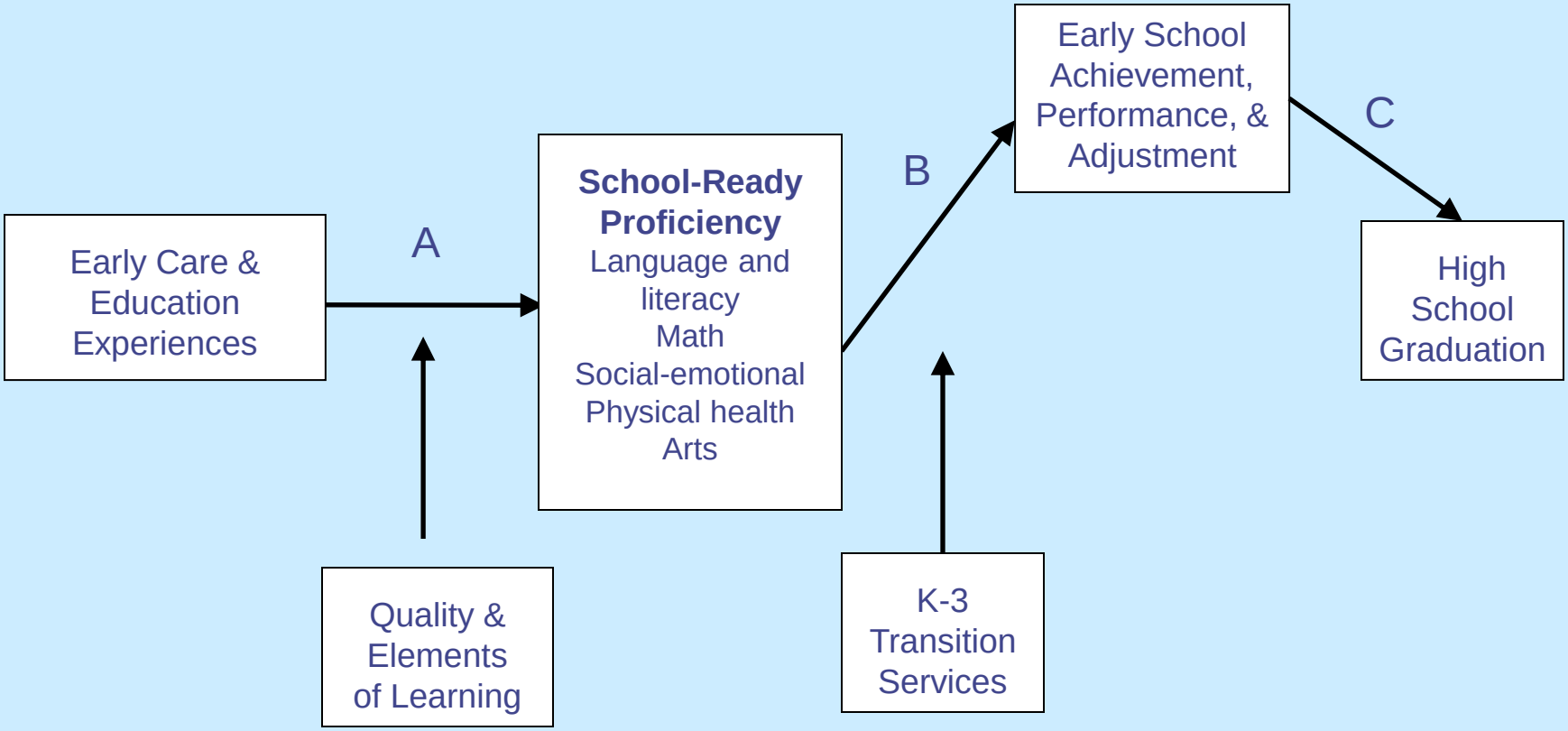
First Decade Programs and Services to Organize and Align

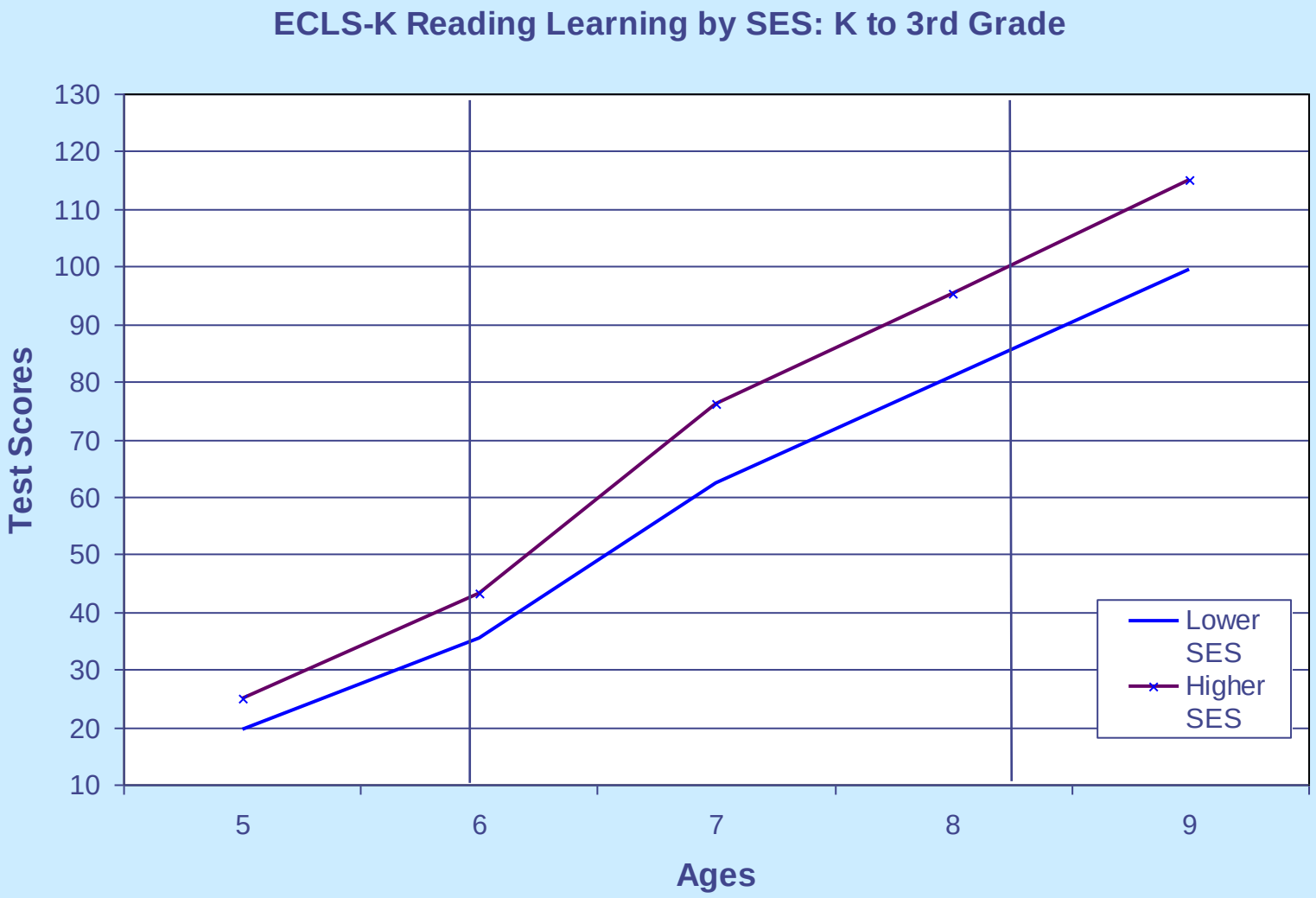


Prevalence of Pk-3 Elements, U.S.

	Percent
Public preschool	41
Begin at age 3	14
Comprehensive	11
Pk-3 services	<10

Paths from Early Education to School Success

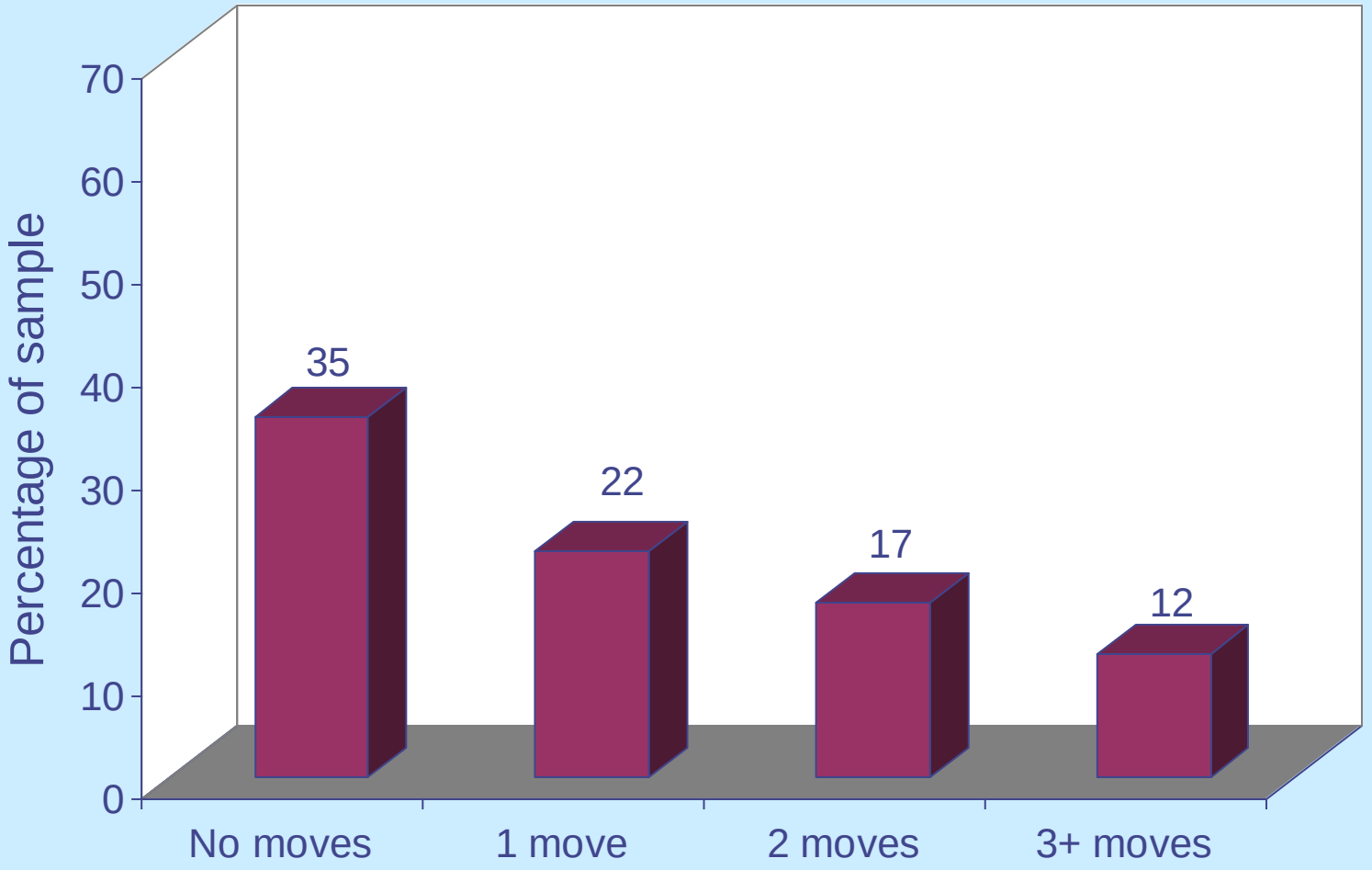



ECLS-K Reading Learning by SES: K to 3rd Grade
Test Scores
130
120
110
100
90
80
70
60
50
40
30
20
10
5
6
7
8
9
Ages
Lower SES
Higher SES

Meta-Analysis Findings for Behaviors & Experiences Relevant for Pk-3

	Effect size	Duration
Prekindergarten	.26	Variable
Full-day K	.17	Short
Small classes, K-3	.19	Short
Parent involvement	.20-.40	Variable
Parent expectations	.40-.50	Variable
Frequent school moves	.30	> 2 yrs

Percent of 4th Graders at/above Proficient on NAEP Reading by School Moves, 2000



4th Grade NAEP Proficiency, 2011

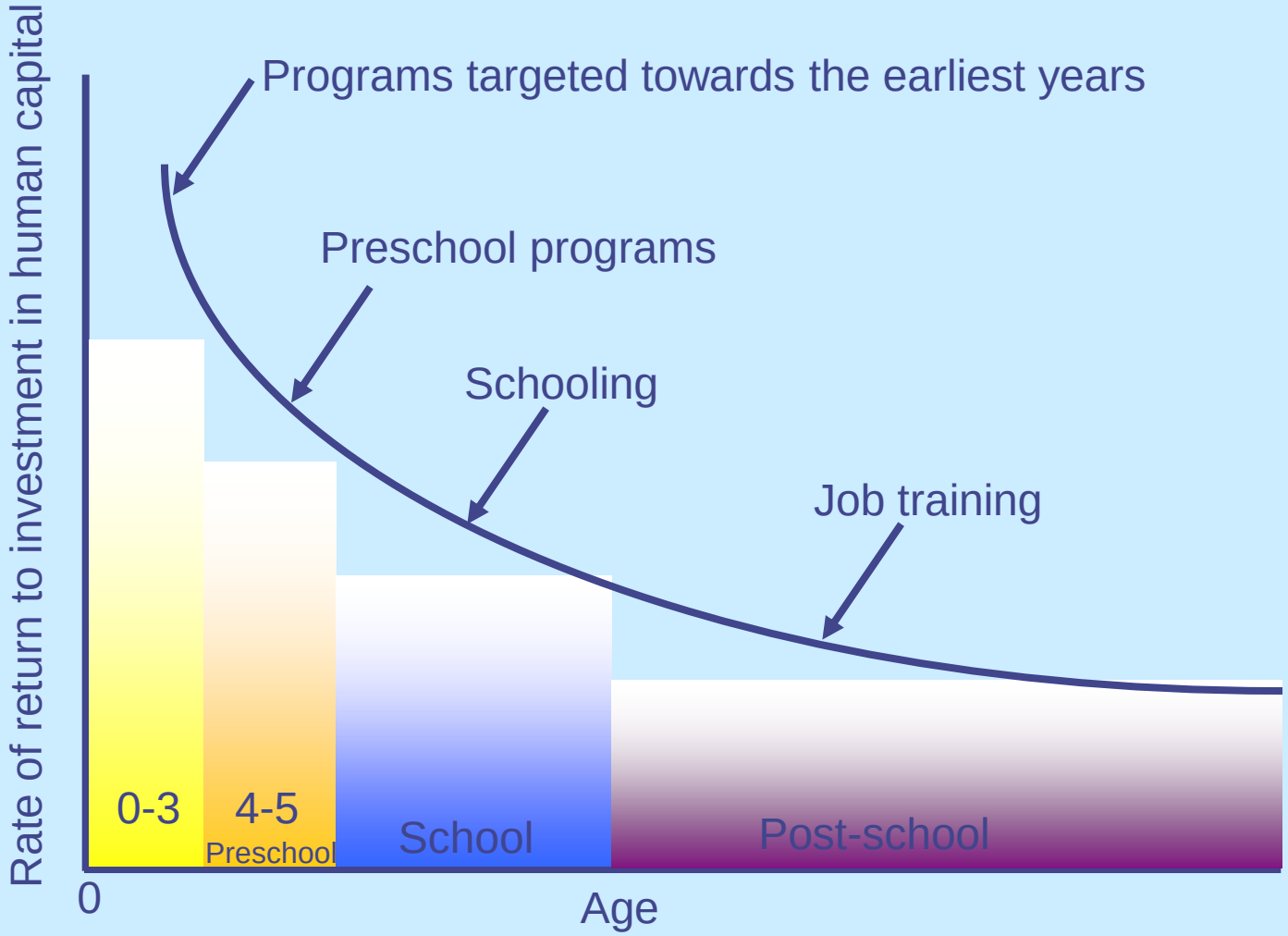
Category	Reading	Math
All Students	34%	40%
> 185% Poverty	48%	57%
< 130% Poverty	17%	23%
Parent, HS Dropout	13%	15%
Parent, some Coll	33%	33%
Parent, Coll Grad	45%	47%

Note. Parent education is based on 8th grade results. (Not asked in 4th grade)

Addressing Myths in Prevention and Human Capital Programs

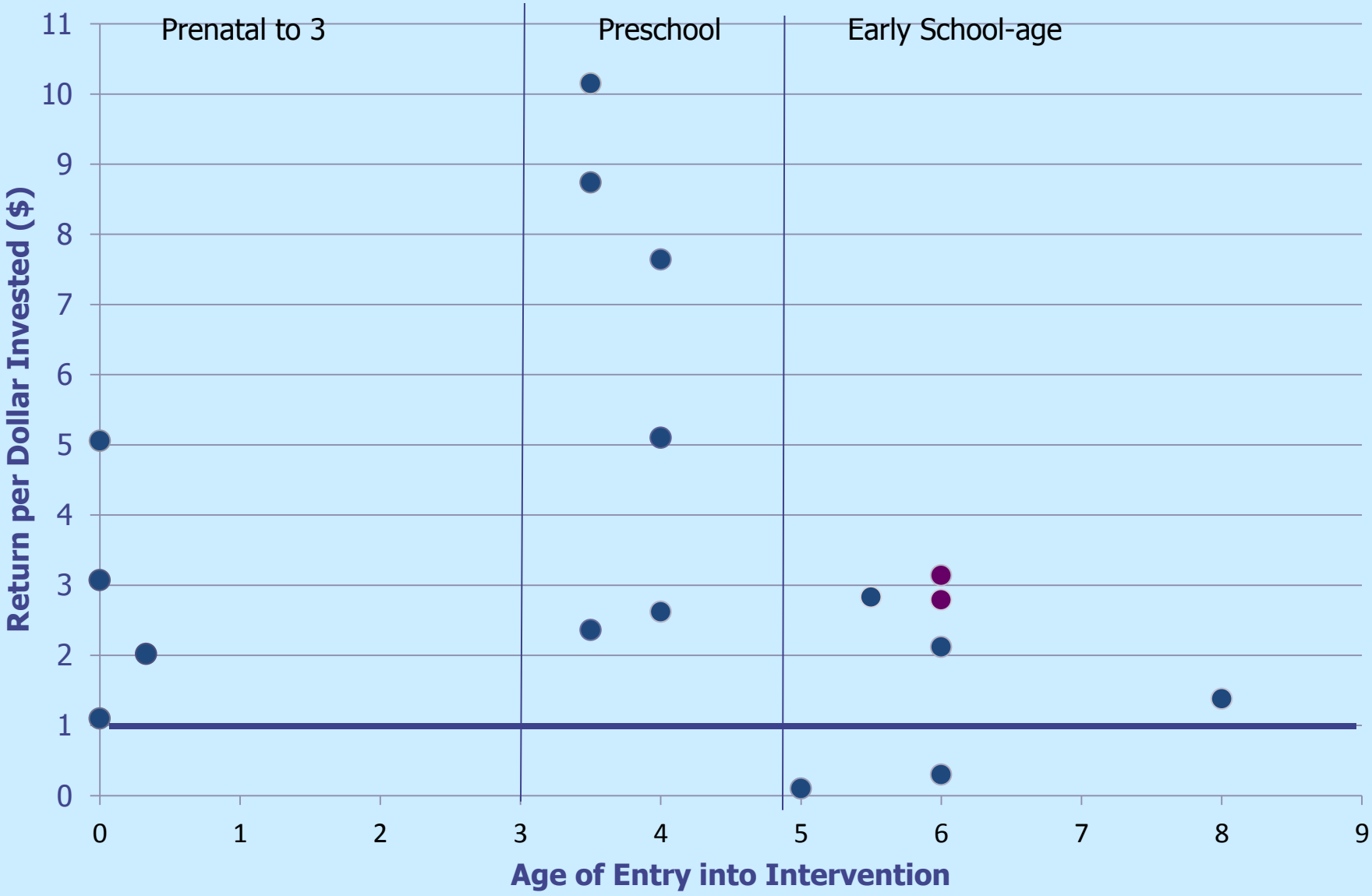
1. The earlier that interventions begin, the more effective they will be.
2. The later that interventions begin, the more cost-ineffective they will be.
3. The source of long-term effects of preschool is "non-cognitive" or socio-emotional skills.
4. Investment equals impact.
5. Pk-3 approaches are interchangeable.

Figure 9: Rates of Return to Human Capital Investment at Different Ages: Return to an Extra Dollar at Various Ages



Source: Heckman (2007), Investing in Disadvantaged Young Children Is Good Economics and Good Public Policy.

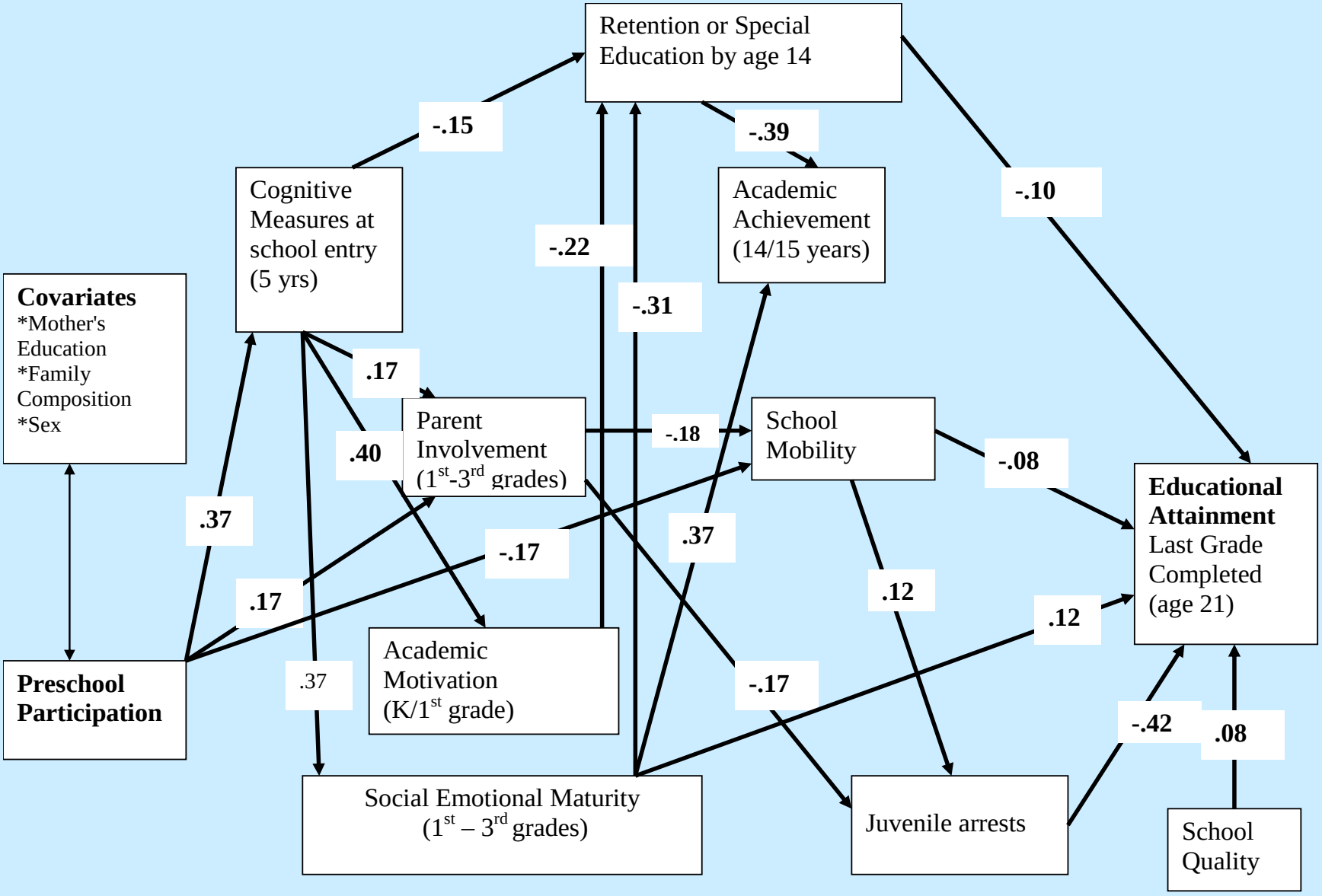
Return per Dollar Invested by Age of Entry into Intervention



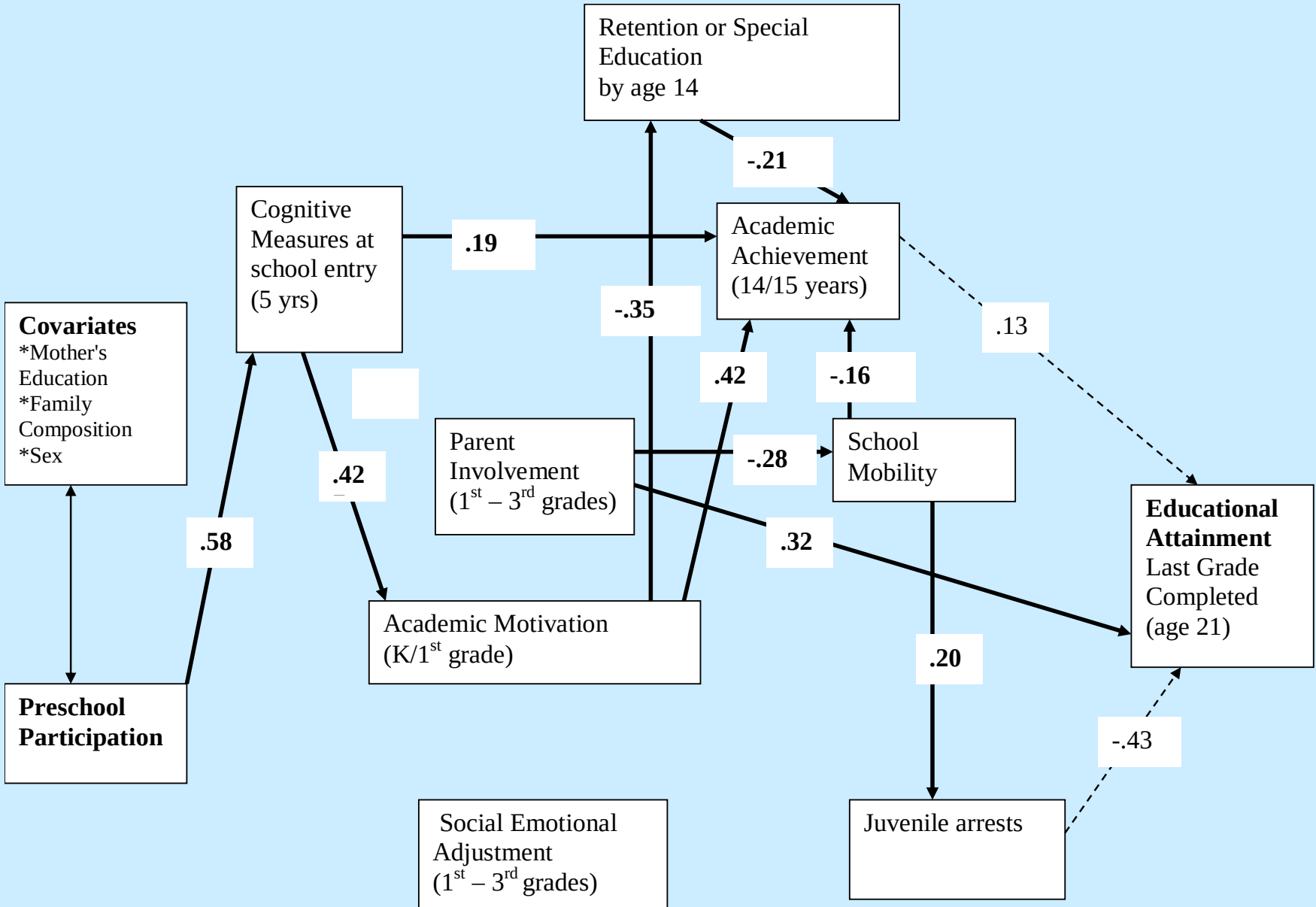
Birth-5 Maltreatment Findings

Program	Prog	Comp	Age
HF-New York	5.1%	4.8%	Prenatal
HF-Alaska	16%	17%	Prenatal
Hawaii HS	1.1%	1.5%	Birth
NFP	24.0%	32.0%*	Prenatal
Teen PAT	0.0%	2.4%*	Birth
Prenatal & PHS	9.2%	6.6%	Prenatal
CPC	7.8%	14.7%*	3 years

Child Parent Centers



Perry Preschool Study



II. The PK-3 Field

What is PK-3 Education?

Programs

Planned interventions and services beginning during any of the first 5 years of life and continue up to third grade

Practices

Elements of PK-3 programs such as preschool, full-day kindergarten, class sizes, curriculum alignment, parent involvement.

Key Principles of PK-3 Programs

- Continuity
  - Consistency in learning environments
- Organization
  - Staffing, leadership, services
- Instruction
  - Aligning curriculum, encouraging communication
- Family support services

PK-3 Program Goals

- Promote continuity in learning
- Improve school transition
- Enable synergy of preschool, kindergarten, and early school experiences
- Help prevent fade in effect of preschool

Rationale

"The foundation for school success is facilitated by the presence of a stable and enriched learning environment during the entire early childhood period (ages 3 to 9) and when parents are active participants in their children's education."

Head Start Planning Committee, 1965

Program vision:

"It is clear than successful programs of this type must be comprehensive, involving activities associated with the fields of health, social services, and education. Similarly, it is clear that the program must focus on the problems of the child and parent and that these activities need to be carefully integrated with programs for the school years" (from Richmond, 1997, p. 122).

History of PK-3 programs and studies

Follow Through, 1968

Chicago Child-Parent Centers, 1968

Project Developmental Continuity, 1974

Carolina Abecedarian Project, 1977

Head Start-Public School Transition Project, 1991

Classifications of PK-3 Approaches

Classification	**Example**
Case Management	Head Start & Transition P; Abecedarian Project
School Organizational	Small classes; PK-3 schools
Comprehensive Services	Child-Parent Centers; Proj. Devel. Continuity
Instructional Reforms	Follow-Through
Single Practices	Full- Day K; Parent Involvement

Follow Through Estimates

	Age 8-9	Age 12-13
Direct Instruction (n = 2,004)	.50	.22
High/Scope (n = 807)	.29	--
Bank Street (n = 61)	.26	.07

Abecedarian Project Estimates (N = 49)

	Effect size
Age 8 reading/math	.25
Age 15 math	.10
Special education	.24
High school completion	.03

Fuerst & Fuerst, 1993

Examined 684 children of the original 6 CPCs with 4 or more years vs. 2 different control schools

	ES
Grade 8 reading/math achievement	.33
High school graduation (62% vs 49%)	.33

Limitations of Evidence

1. Inconsistent control group definitions
2. Insufficient assessment of added value
3. Attrition and group comparability not fully assessed
4. Limited longitudinal follow up to high school
5. Tested programs had low comprehensiveness and dosage

Summary of State PreK/Early Ed Evaluation Evidence

	Overall effect in SD	Minimum increase in proficiency
5-State Study (NIEER)	.22	9 pts.
7- State Study (Gilliam)	.36	14 pts.
Oklahoma, Tulsa (Gormley)	.58	22 pts.
New Mexico (NIEER)	.37	15 pts.
Arkansas (NIEER)	.30	13 pts.
New Jersey (NIEER)	.32	14 pts.
Oklahoma (NIEER)	.26	11 pts
National Head Start	.24	10 pts
Model Programs	.66	25 pts

III. CPC Program and Approach

Goal of Title I Act of 1965:

"Employ imaginative thinking and new approaches to meet the educational needs of poor children."

Title I History

Chicago first district to use Title I for preschool (1967)

District 8 Superintendent Lorraine Sullivan developed program with much local collaboration

Today 3% of Title I goes to preschool (400 million of 14 billion dollars)

4 Child-Parent Education Centers

Cole (4346 W. Fifth on May 12, 1967)

Dickens (605 S. Campbell)

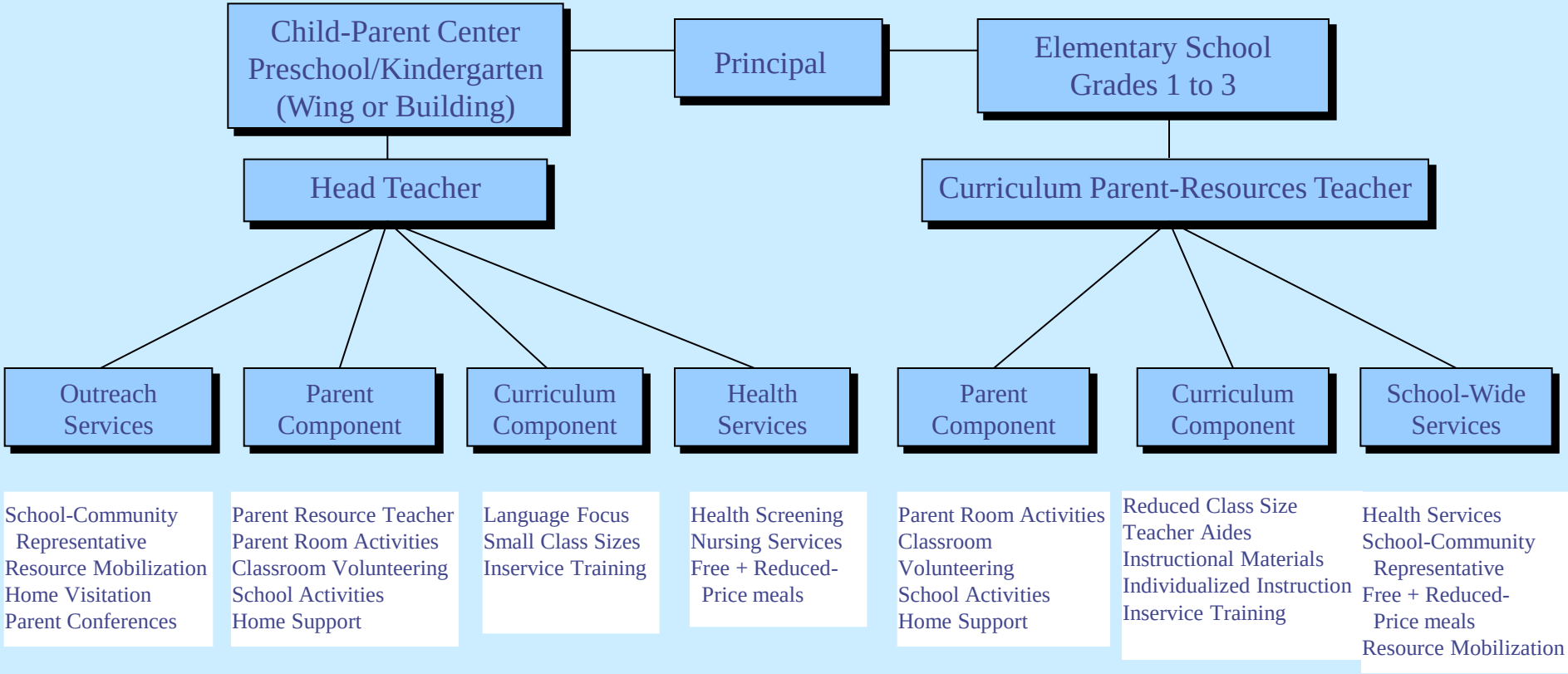
Hansberry (4059 W. Grenshaw)

Olive (1335 S. Pulaski)

Goal

"The Child-Parent Education Centers are designed to reach the child and parent early, develop language skills and self-confidence, and to demonstrate that these children, if given a chance, can meet successfully all the demands of today's technological, urban society." (Sullivan, 1968)

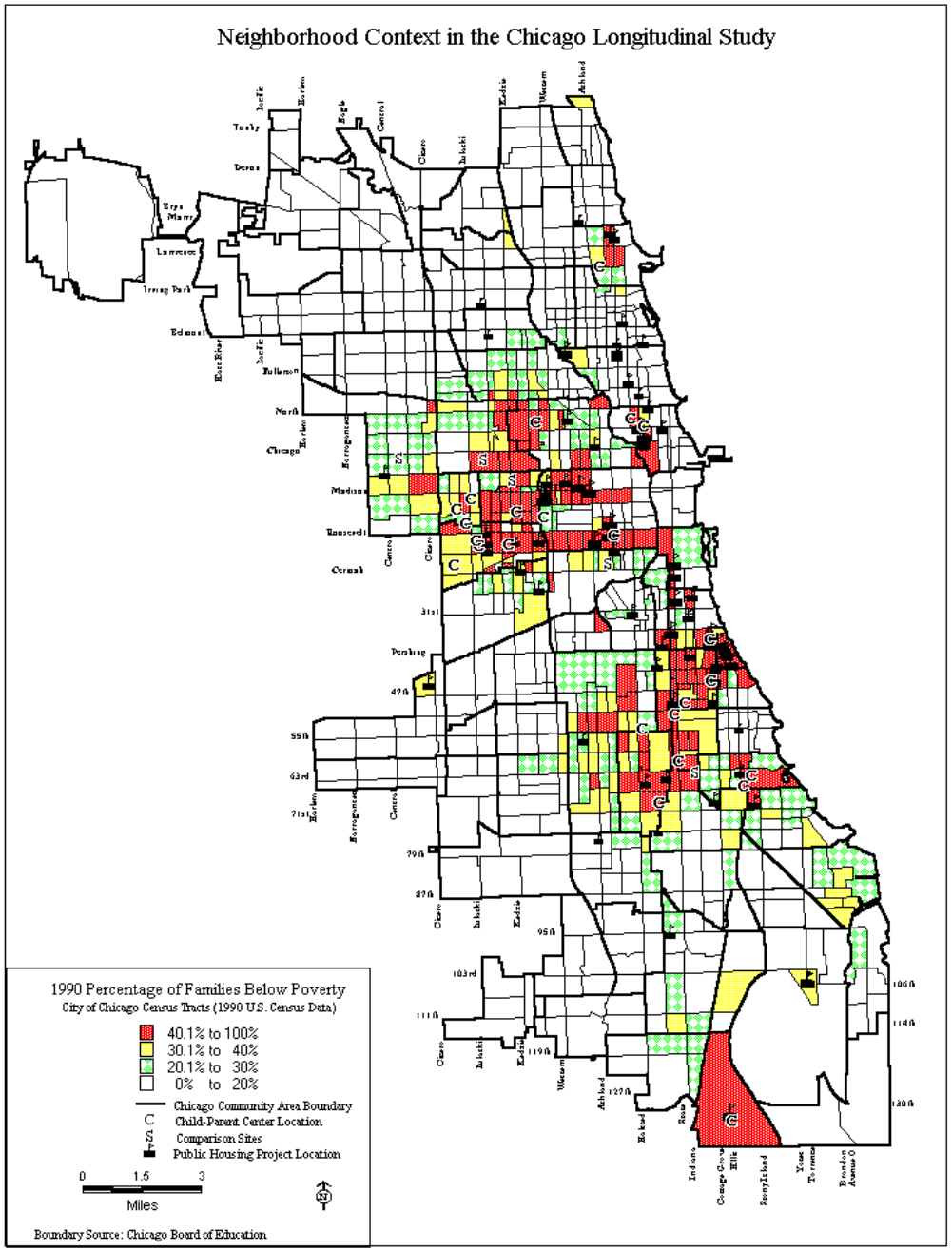
Child-Parent Centers



Eligibility for CPC

In order to enroll in a CPC, students must:

- Reside in school neighborhoods that receive Title I funding
- Not be enrolled in another preschool program
- Parents agree to participate in the program.


Neighborhood Context in the Chicago Longitudinal Study
1990 Percentage of Families Below Poverty
City of Chicago Census Tracts (1990 U.S. Census Data)
40.1% to 100%
30.1% to 40%
20.1% to 30%
0% to 20%
Chicago Community Area Boundary
Child-Parent Center Location
Comparison Sites
Public Housing Project Location
0
1.5
3
Miles
Boundary Source: Chicago Board of Education

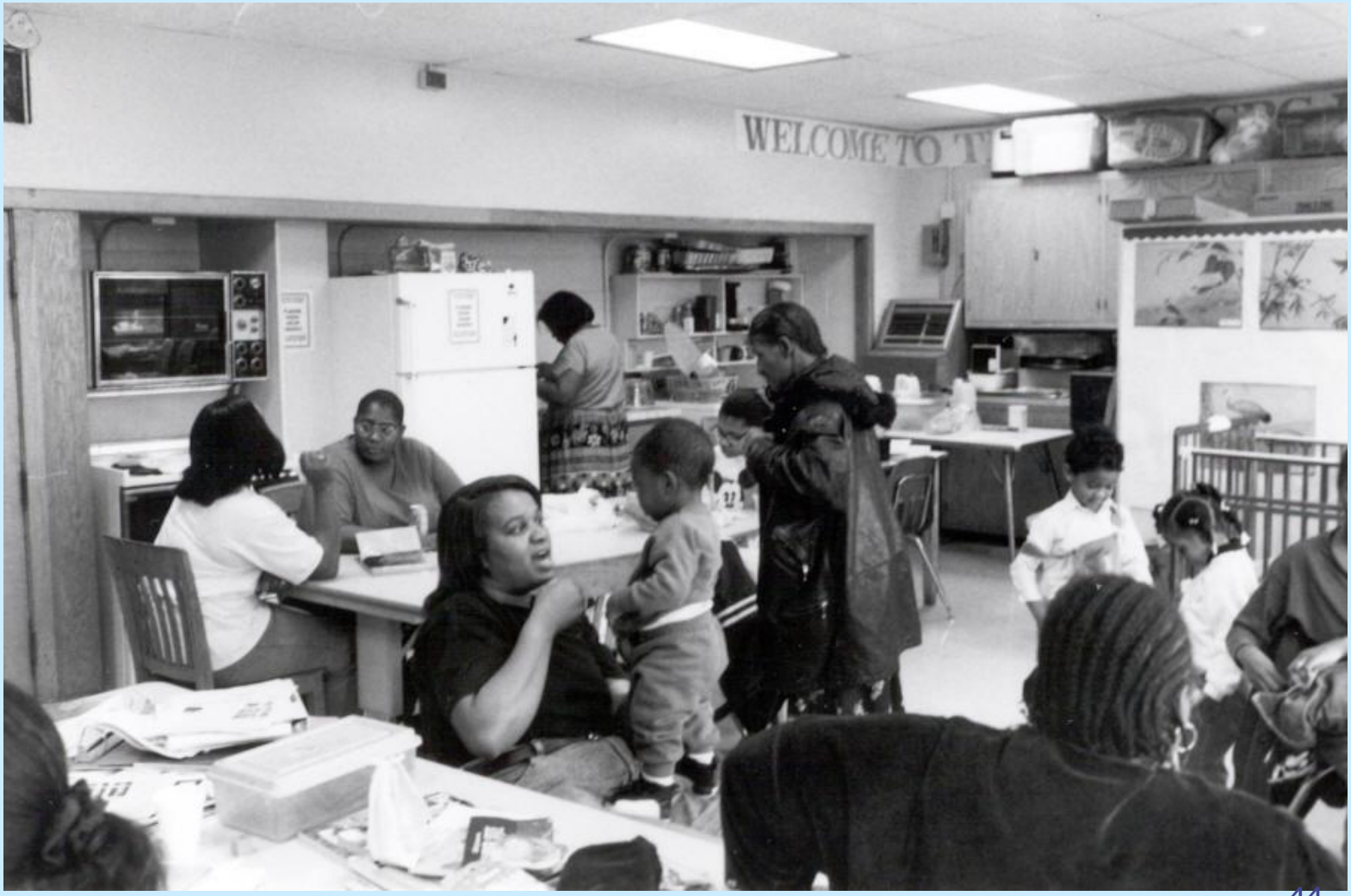
Timeline

- **1966:** General Superintendent of the Chicago Public Schools asked Dr. Lorraine Sullivan to report on ways to improve attendance and achievement in her district
- **1967:** CPC centers were implemented in four sites.
- **1975-:** 24-25 CPCs were in operation.
- **1977:** Funding of school-age component through State of IL
- **1985:** Start of Chicago Longitudinal Study
- **2005:** 8 CPCs are closed.
- **2011:** 11 CPCs in operation.

Wheatley CPC

Johnson Child-Parent Center

Parent Resource Room



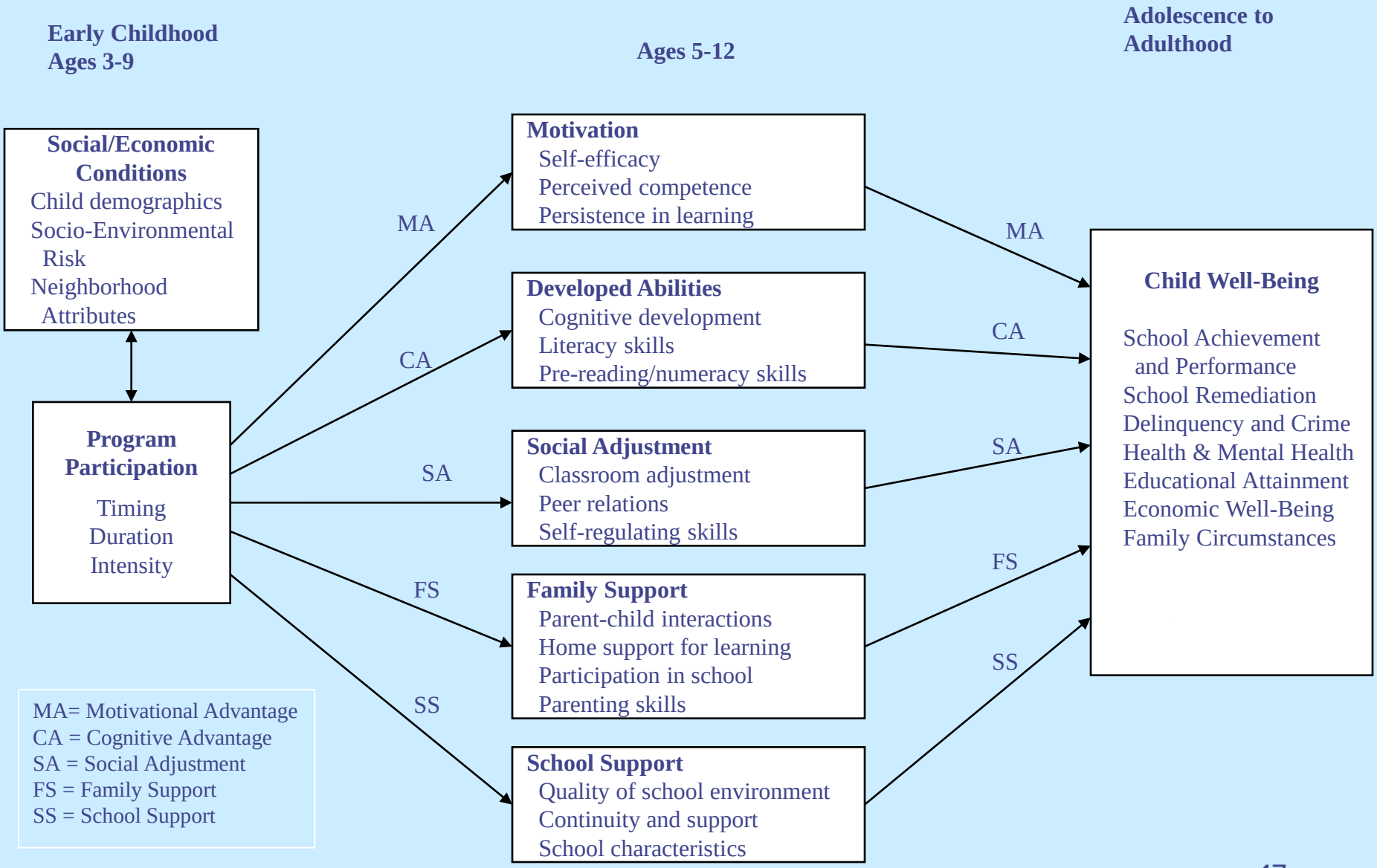
CPC Staffing

- 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

CPC Core Features

1. Head teacher & instructional leader
2. Within/close proximity to school.
3. Small classes throughout.
4. Emphasis on language/math skills.
5. PRT in each site; Parent resource room.
6. SCRs and health services.
7. Curriculum PRT for school-age.
8. Instructional coordination & professional development

Paths to Well-Being Affected by Early Childhood Experiences



IV. CLS Findings & Implications

Chicago Longitudinal Study

1. Effects of CPC program for a cohort of 1,539 born in 1979-80

2. Test timing and duration of impacts at ages 3 to 9

3. Influences on life-course development

4. Identify generative mechanisms from the early years to midlife

CLS Sample Description

- Cohort of 1,539 Kindergartners born in 1979-1980 who attended publicly funded early childhood programs for children at risk in Chicago public schools.

- Data collected annually from many sources with 90% or higher recovery into adulthood. Mobility measured starting in K from school records and supplemented with parent/student reports.

Program Groups

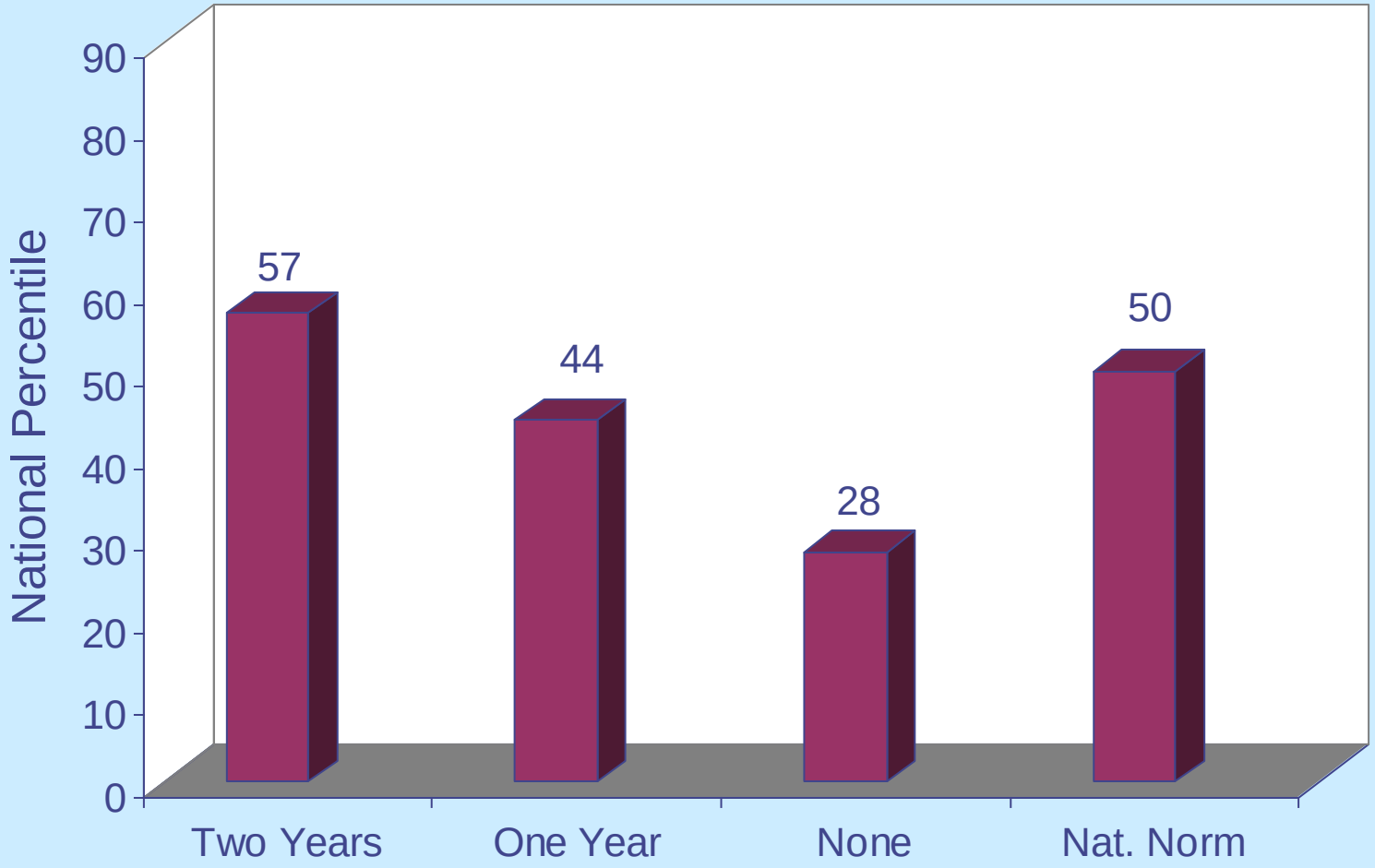
- 989 complete cohort of children graduating from Child-Parent Centers in kindergarten; they participated from 2 to 6 years. Centers are located in the highest poverty areas of Chicago.

- 550 children enrolled in an alternative early childhood program in kindergarten in five randomly selected schools serving low-income families and in six CPC sites. They matched on socioeconomic status.

Characteristics of CPC Groups

	CPC Intervention	Comparison
Sample	Complete cohort	Random sample of K sites + 6 CPC areas
Recovery, by age 27	893 of 989 (90%)	480 of 550 (87%)
Key attributes	Reside in highest poverty areas Over 80% of children enroll Mean no. of risks = 4.5; 73% with 4 or more risks Parent ed > than compar.	Reside in high poverty areas Had school-based enrichment Mean no. of risks = 4.5; 71% with 4 or more risks Area poverty > than prog.
Intervention levels		
Preschool	100% 1 or 2 years	15% in Head Start
Kindergarten	60% full day	100% full day
School age	69% 1 year 56% 2-3 years	7% 1 year 23% 2-3 years

CPC Preschool and Readiness

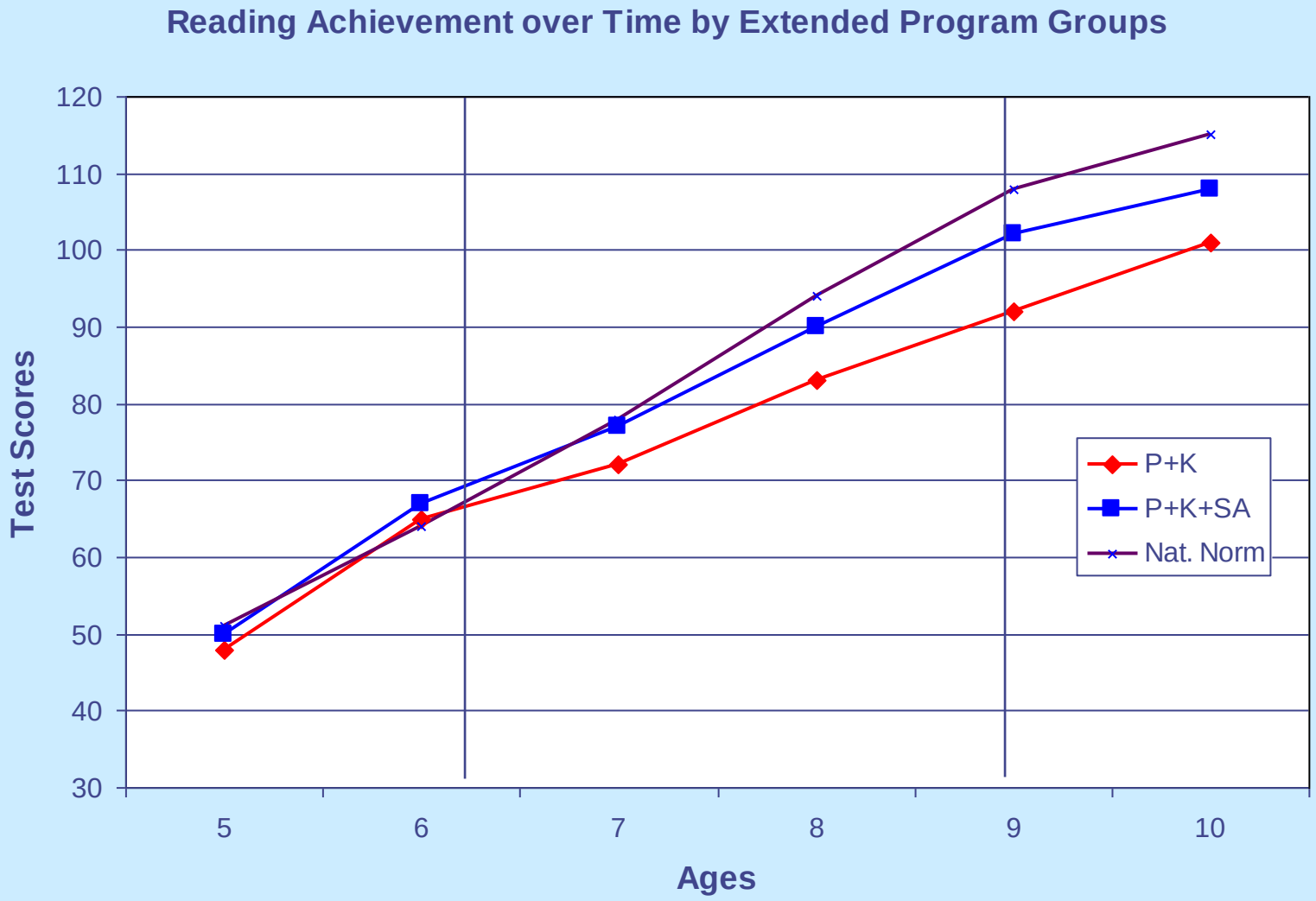


Effect Sizes, Preschool Relative to No Preschool

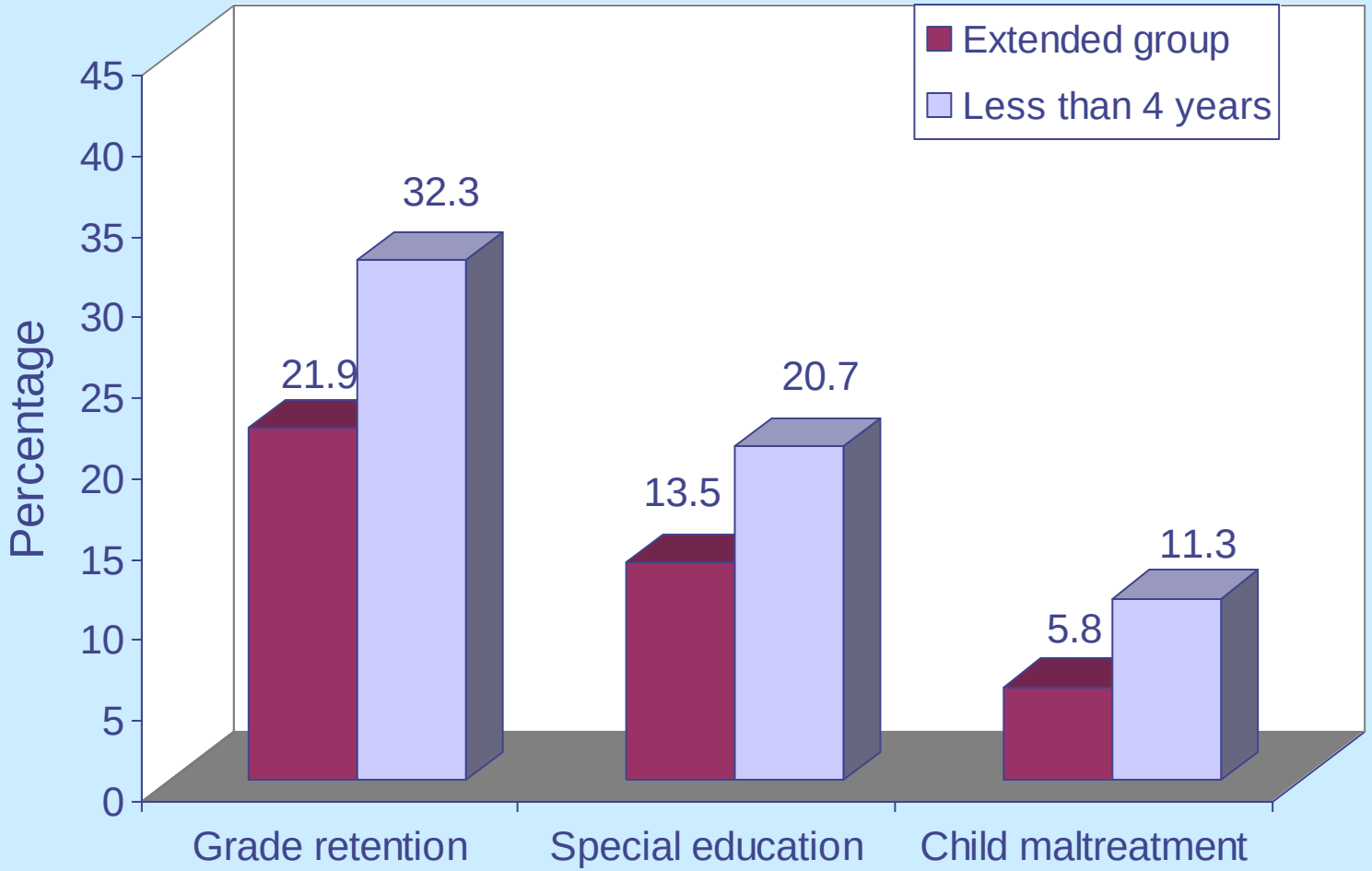
	ES
Cognitive composite, K	.63
Grade 3 achievement	.26
Grade 6-8 achievement	.29
Remediation by Grade 8	-.42
High school graduation	.28
High school completion	.18

Program Comparisons

- 4 to 6 years of CPC from ages 3 to 9
- 0 years of CPC (Comp 1)
- 1-3 years of any CPC (Comp 2)
- 0-3 years of CPC (Comp 3)
- P + K group only (Comp 4)
- P + K group and < 2 moves (Comp 5)


Reading Achievement over Time by Extended Program Groups
Test Scores
120
110
100
90
80
70
60
50
40
30
5
6
7
8
9
10
Ages
P+K
P+K+SA
Nat. Norm

Remedial Education & Child Welfare



Effect Sizes, Pk-3 Relative to 3 or Fewer Years of Service

	ES
Grade 3 achievement	.52
Grade 6-8 achievement	.38
Remediation by Grade 8	-.31
High school graduation	.35
High school completion	.14

CPC Impacts on School Moves

Prog. Group	2+ moves grade 4-8	3+ moves grade 4-12
Extended	-13.8%	-9.9%
School-age	-5.8%	-6.7%
Preschool	-9.3%	-3.9%

Note. Marginal effects from probit regression. See Table 9 and Appendix E for model information.

Key Impacts of PK-3 by Age 28

	Program	Comparison
SES > 3 (8 pt)	36%	30%
Private Health Ins.	52%	42%
HS completion	83%	77%
HS graduation	49%	32%
BA/AA degree	10%	8.8%

Extended-Program Length

Some evidence for Extended CPC:

	5/6 yr	4 yr
Arrest for violence	13%	21%
SES-27 (5+)	27%	23%
Priv. Insur	52%	43%

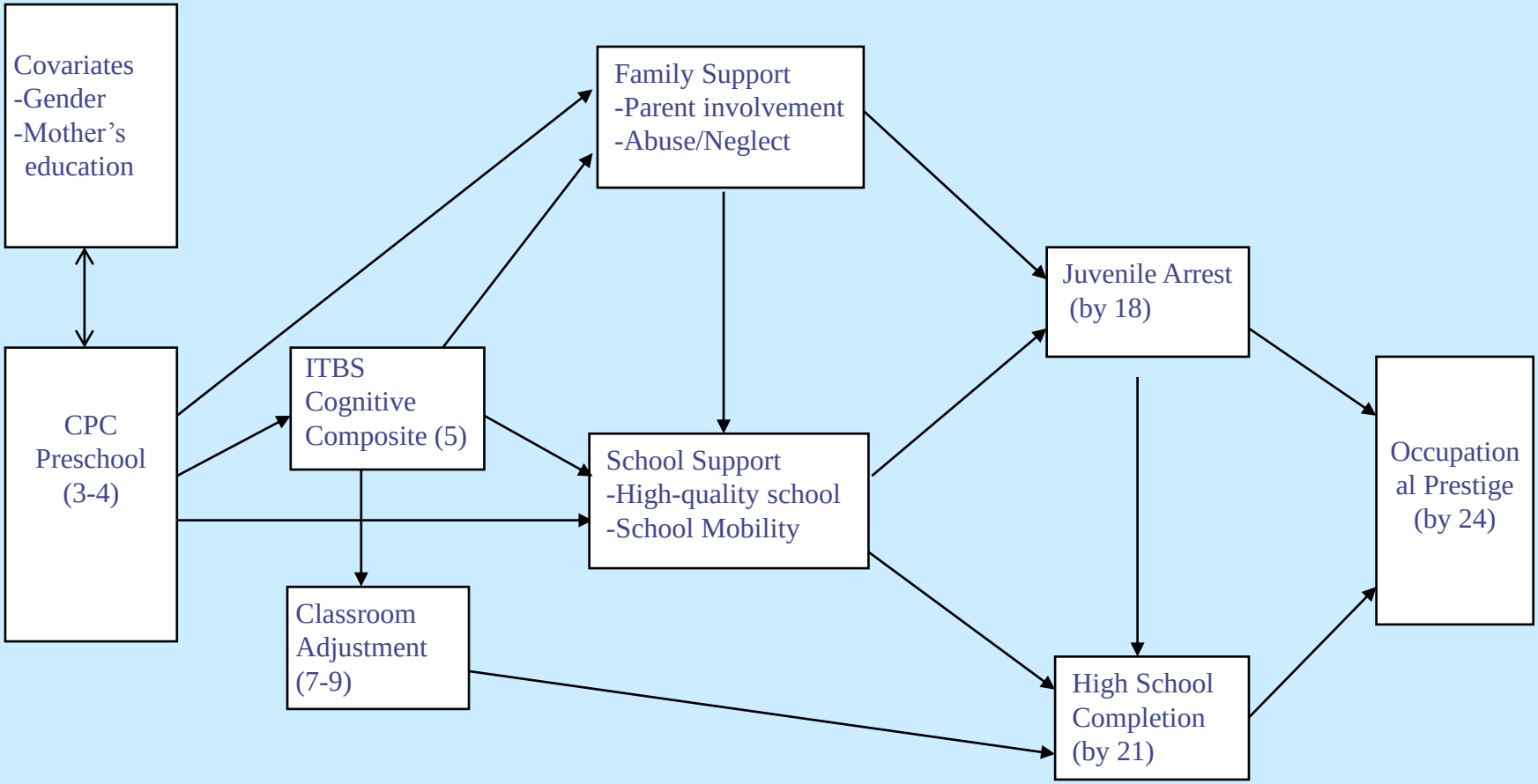
Preschool Program Length

No evidence that 2nd year of preschool impacts economic well-being or educational attainment.

Positive effects in the school-age years were found.

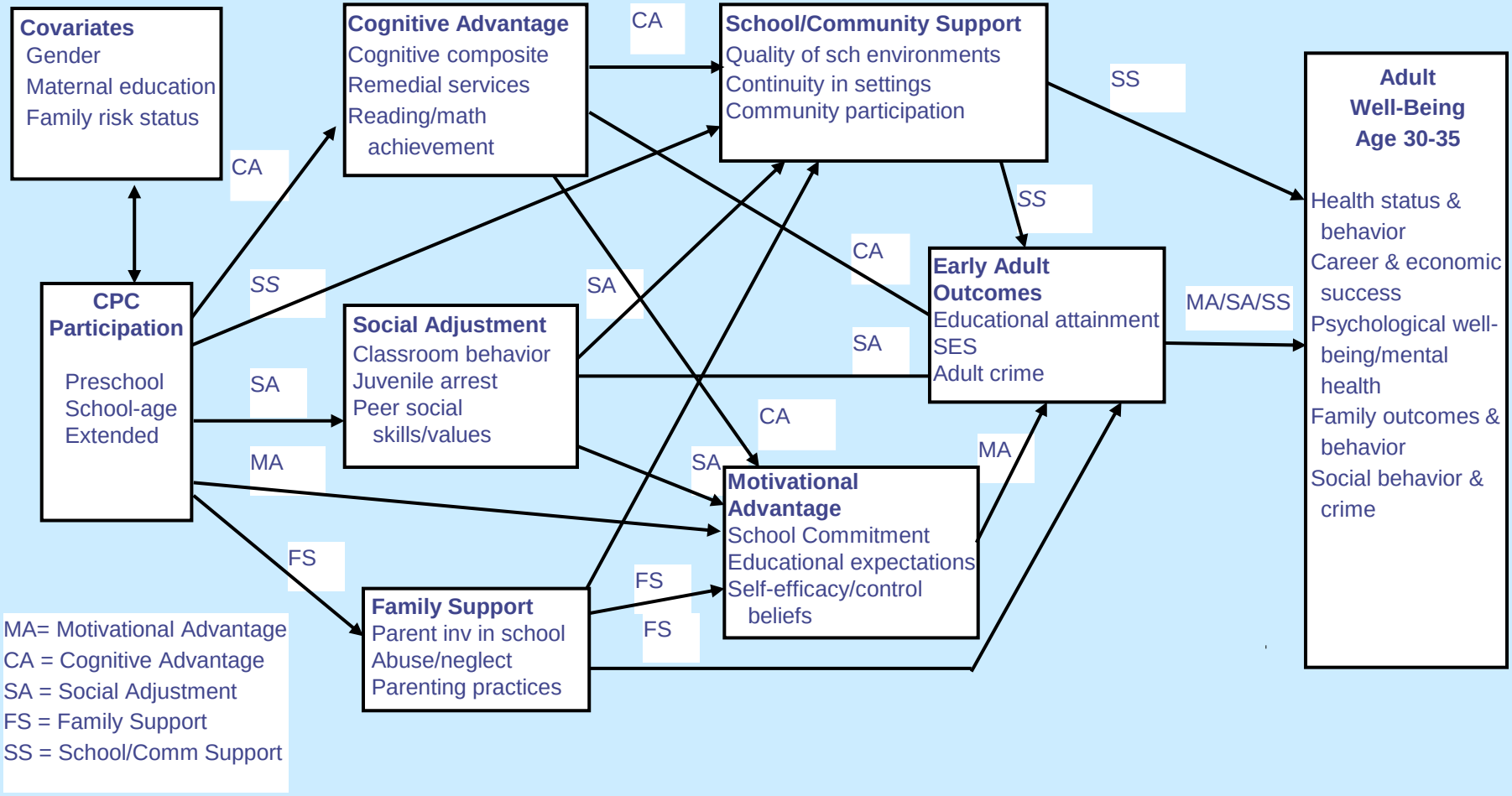
Estimates from ECLS-K, 3rd grade

	Disadv		All	
	Read	Ret.	Read	Ret.
No Pk-3 elements	44	22%	49	15%
Pk+FDK+stable	45	11%	50	7%
+ PI, instruc., & certified teach.	48	9%	52	4%



Summarized paths from CPC to Occupational Prestige

Conceptual Framework, Age-35 Project



Implications/Recommendations

1. Implement CPC PK-3 more widely as an evidence-based program.

2. Increase investments in PK-3 research and services (e.g., family support, and curriculum alignment.

3. Use cost-effectiveness research to better prioritize funding.

Implications/Recommendations

4. Develop funding mechanisms to support timely implementation of proven program and practices.
5. Establish key principles of effectiveness to guide program development and funding priority.
6. Link funding at different levels to registries of effectiveness (there are many).

Implications/Recommendations

7. States could consider issuing bonds to fund early education that follows principles of cost effectiveness.
8. Develop cross-agency funding plans for programs and approaches that impact broader well-being.
9. Require at least 5% of Title I dollars go to preschool programs.
10. Require a similar percentage go to K-3 services based on a coordinated plan.

V. Midwest Expansion

CPC Project Sites

Site	Type	Project schools		Children served		CPC attributes	
		N	Poverty	Preschool	K-3	Age 3	Structure
Chicago	Large urban	17	75%	1500	4100	50%	Co-located
Evanston	Metro	4	57%	103	309	60%	Separate
Normal	Urban	1	50%	65	195	50%	Separate
Milwaukee	Large urban	1	76%	100	300	30%	Co-located
Saint Paul	Mid urban	6	66%	310	930	20%	Co-located
Virginia, MN	Rural	1	45%	54	162	25%	Both

Goals

1. Implement CPC model with high levels of quality using established principles.

2. Assess the quality of implementation.

3. Evaluate the impact of the model using a rigorous and multi-faceted design.

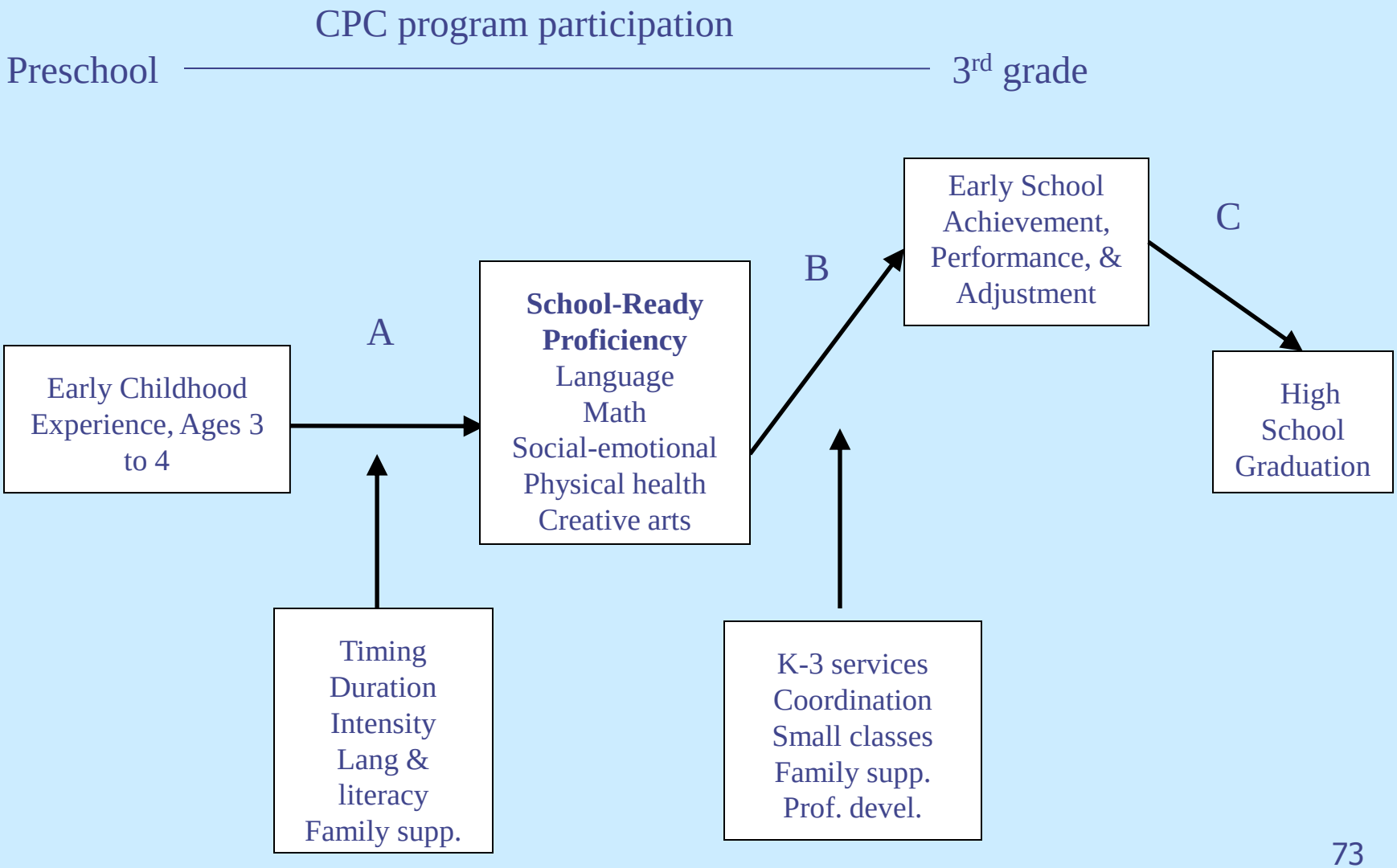
Goals

4. Assess impact by child, family, and program attributes.

5. Determine initial cost-effectiveness.

6. Implement a sustainability plan to facilitate maintenance and expansion.

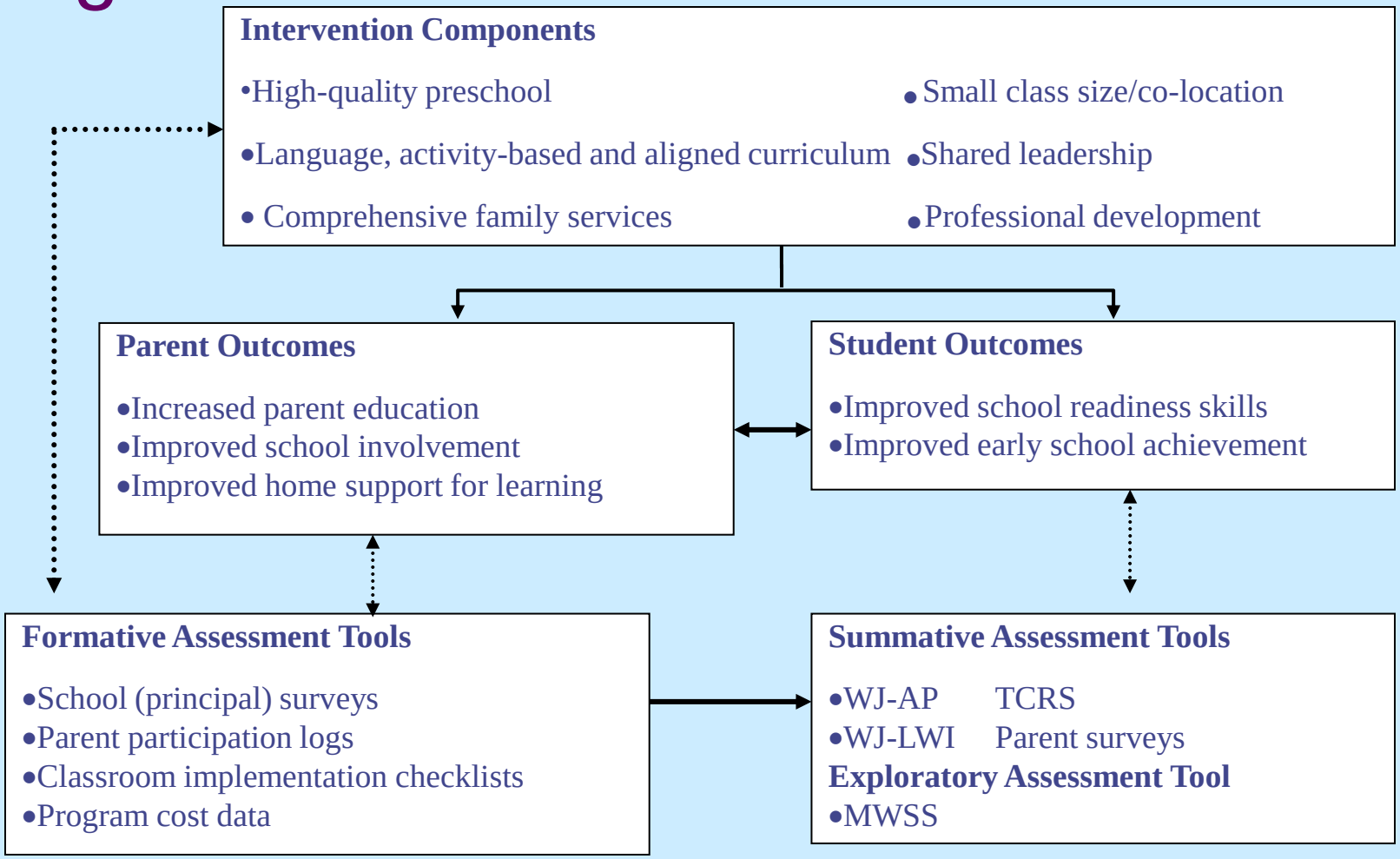
Key Paths of CPC PK-3 Model Promoting Educational Success: School Entry to Graduation



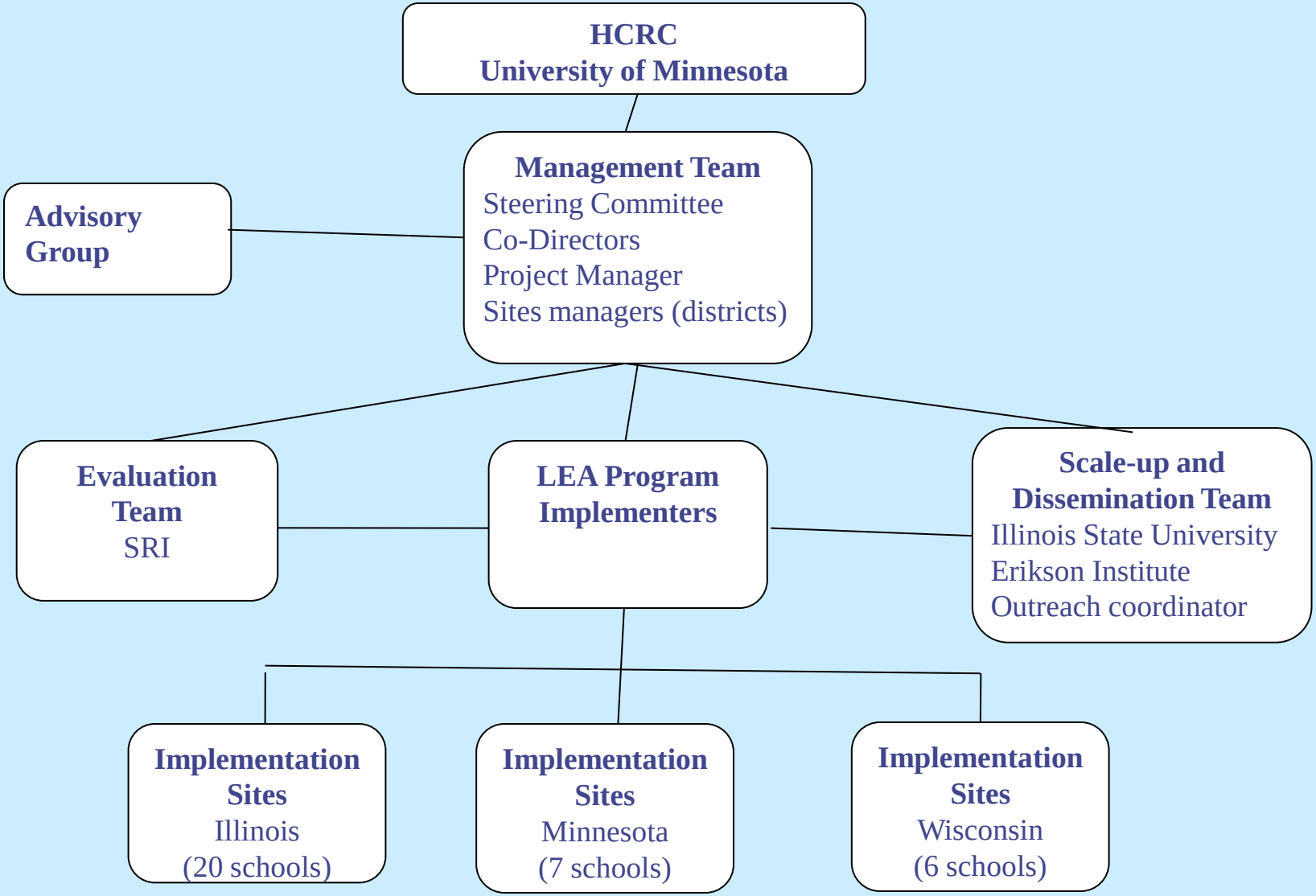
Research Design (SRI)

- 30 program schools in six districts will implement starting in fall 2012. Primarily Title I schools in high-need areas. 2,400 preschool participants will be followed to third grade
- 30 control schools will be matched to program schools based on propensity scores of school, family, and child attributes.
- Assessments of children will be in preschool, kindergarten, and up to third grade.

Logic Model for Evaluation



Management Plan



Further Reading

Child-Parent Centers (PK-3)

Reynolds, A. (2000). Success in early intervention: The Chicago Child-Parent Centers. U of Nebraska Press.

Age-26 Cost-Benefit Analysis

Reynolds, A., Temple, J., White, B., Ou, S., & Robertson, D. (2010). Child Development, 82, 379-404.

Birth to 10

Reynolds, A., Rolnick, A., Englund, M., & Temple, J. (Eds.). (2010). Child programs and practices in the first decade of life: A human capital integration. Cambridge.

Further Reading

Age-28 Follow up

Reynolds, A., Temple, J. et al. (2011). Science, 333 (6040), 360-364. (Extensive supporting material on-line)

Mechanisms Study

Reynolds, A., Ou, S. (2011). Child Development, 82, 379-404.

Review of Pk-3 programs

Annual Review of Clinical Psychology (2008), 4, 109-139

Children and Youth Services Review (2010), 32, 1121-1131.