

# Mechanisms of Influence from Preschool to Educational Attainment: A Three-Study Analysis

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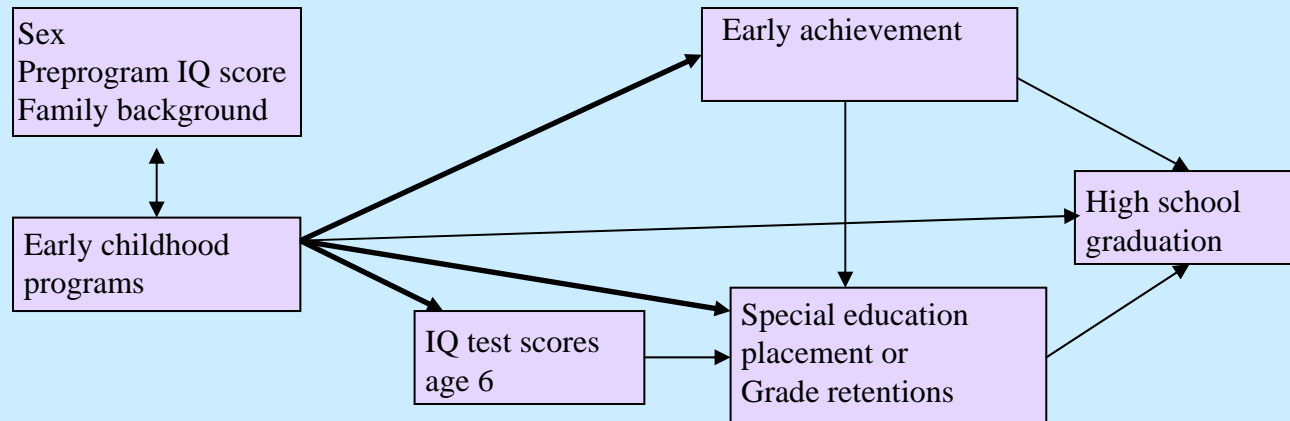
# Why Study Paths of Effects?

- ◆ Strengthen Causal Inferences, especially for Long-Term Effects
- ◆ Increase Generalizability of Findings
- ◆ Contribute to Program Development and Improvement

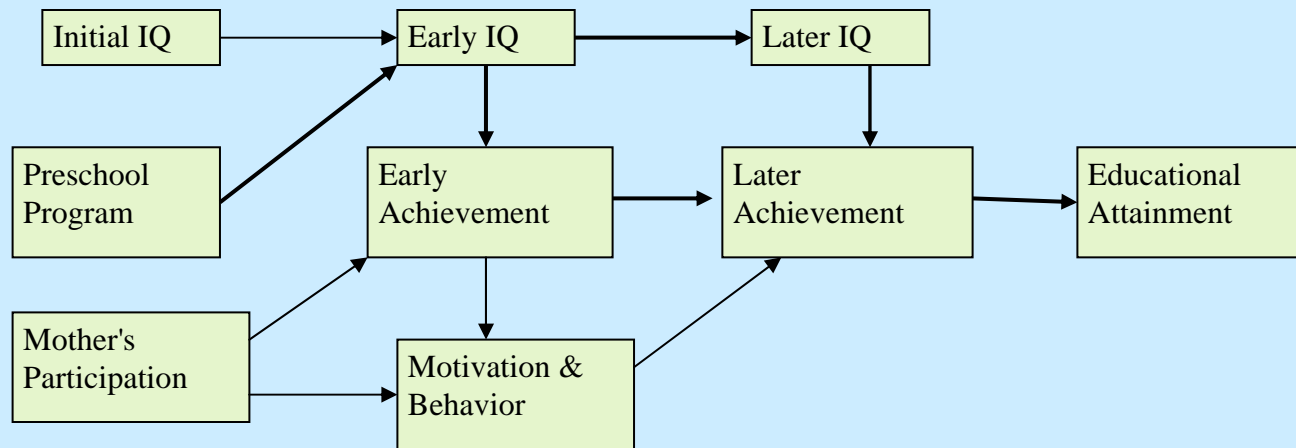
# Challenges of Research on Long-Term Impacts

- ◆ Theories of Change
- ◆ Measurement Sensitivity
- ◆ Appropriate Time Intervals
- ◆ Intervening Events and Experiences
- ◆ Attrition

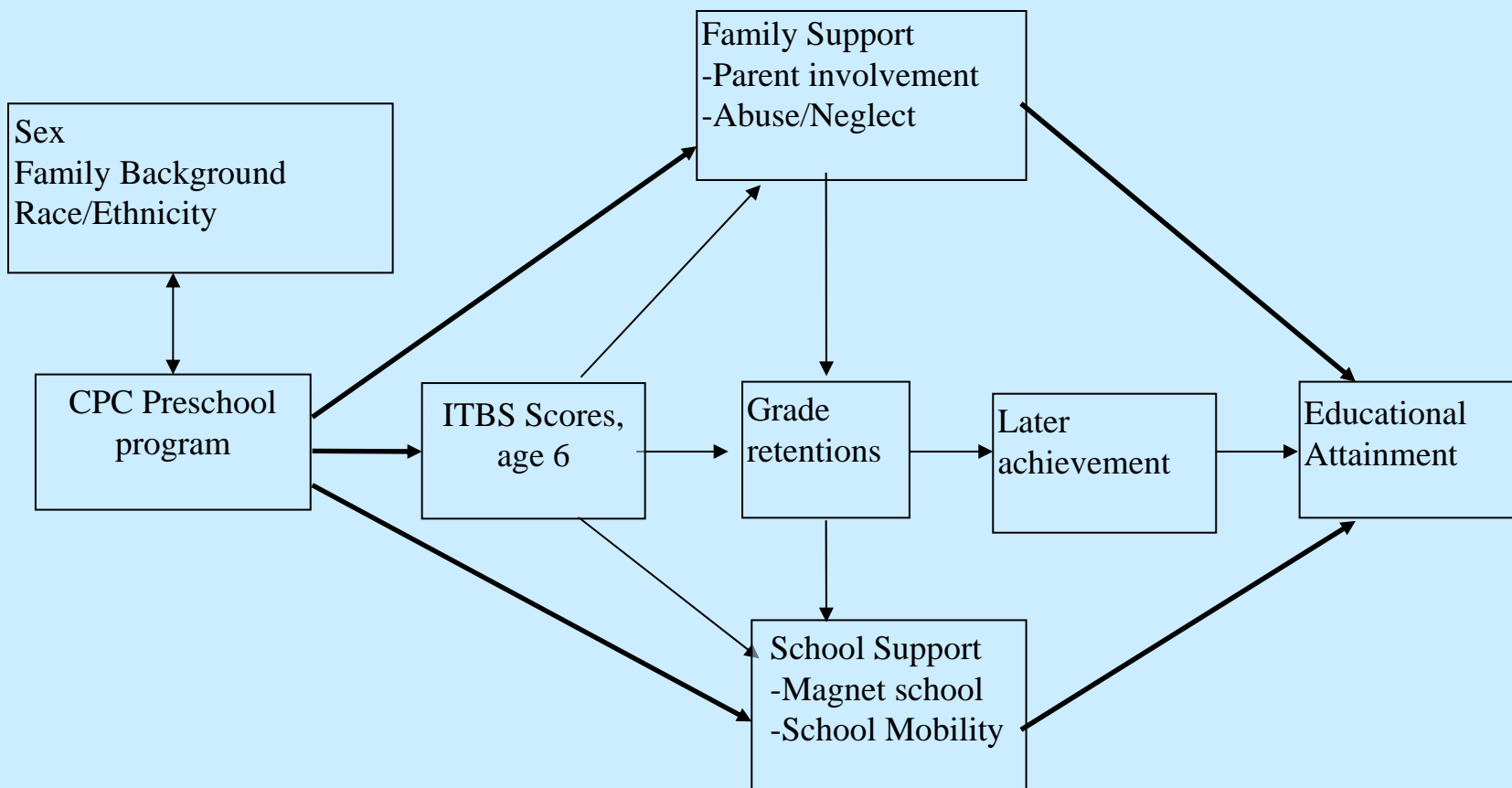
## Paths of Long-term Preschool Effects in Three Studies



Sources of Long-term Effects from the Consortium for Longitudinal Studies (1983)



Sources of Long-term Effects from Perry Preschool (Barnett et al., 1998)



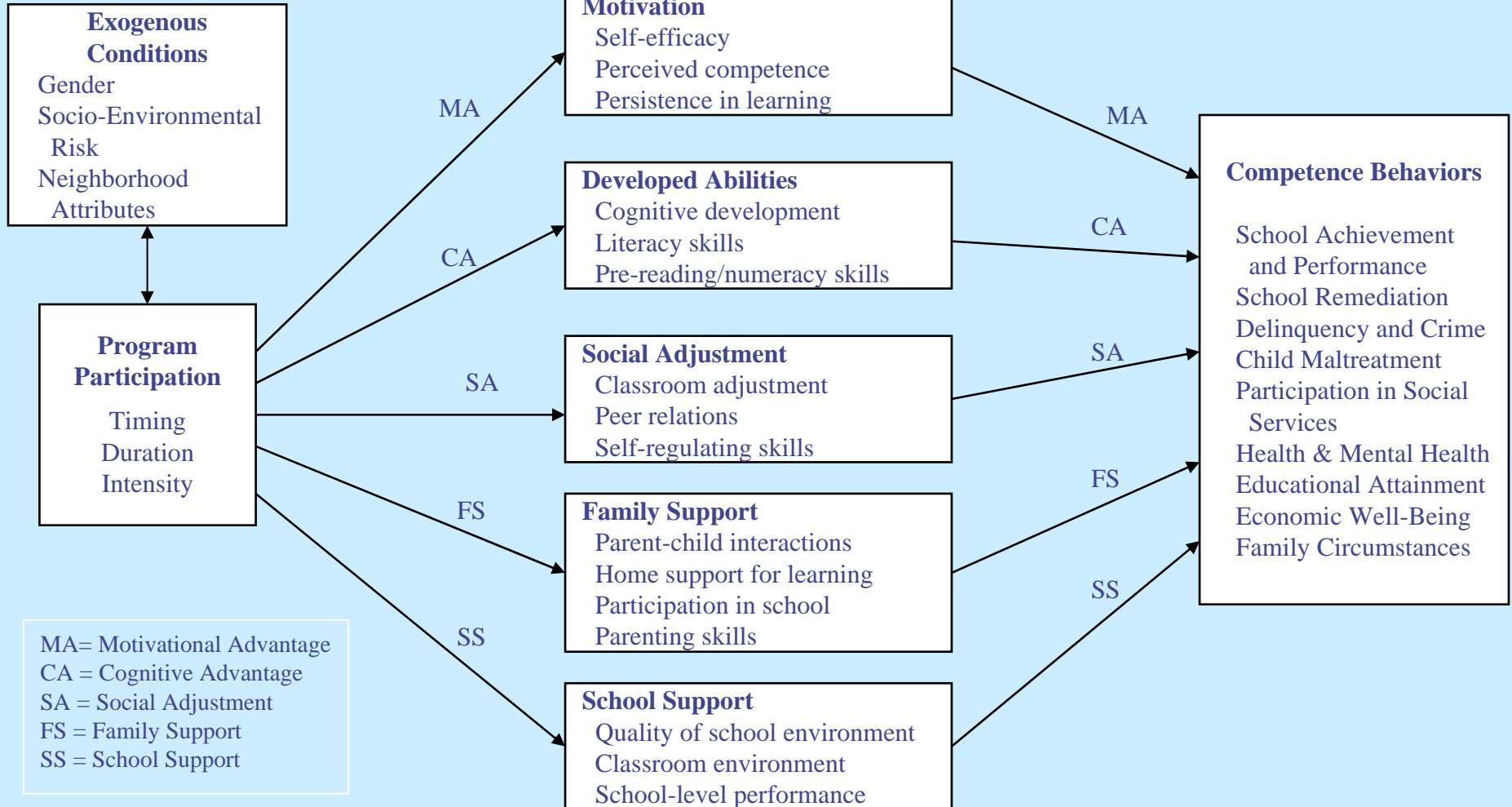
Sources of Long-term Effects from the CPC Program

# Common Paths from Early Childhood to Adult Well-Being

**Early Childhood**  
Ages 3-9

**Ages 5-12**

**Adolescence to Adulthood**



# Main Effects on Years of Education at Age 21

|                      | Prog | Control |
|----------------------|------|---------|
| Carolina Abecedarian | 12.3 | 11.6    |
| Child-Parent Centers | 11.3 | 10.8    |
| Perry Preschool      | 11.5 | 11.0    |

# Questions

- ◆ Do Indicators of the Five Hypotheses Contribute to Explanation of Main Effects?
- ◆ What Paths of Influence are Common Across Studies?

# Measures of the 5 Hypotheses

## ◆ Cognitive Advantage

- Cognitive skills at age 5
- Ever retained or receive special education
- Age 14/15 reading achievement

## ◆ Family Support

- Parent involvement (teacher ratings or interview/observation)

## ◆ Social Adjustment

- Teachers' rating of classroom adjustment
- Juvenile arrest

## ◆ Motivational Advantage

- Achievement motivation (teacher ratings)

## ◆ School Support

- School type
- School moves

# Summary of Main Effects

# 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     |

# Cognitive Advantage

Perry: Stanford Binet IQ

Remediation or Special Ed. by age 15

CAT reading at age 14

ABC: WPPSI

Remediation or Special Ed. by age 15

W-J reading at age 15

CPC: ITBS cognitive composite

Remediation or Special Ed. by age 15

ITBS reading at age 14

# Motivation

## Achievement Motivation (ages 6-7, averaged)

### Teacher ratings

- Example items (matched across studies):
  - ◆ Shows interest in learning
  - ◆ Tries hard
  - ◆ Asks questions that show an interest in ideas
  - ◆ Works carefully and does his/her best
  - ◆ Is eager to learn

### Items drawn from:

- Perry: Public Behavior Inventory
- ABC: Classroom Behavior Inventory
- CPC: Teacher Questionnaire

# Social Adjustment

## Elementary Social Adjustment (ages 7-9)

### Teacher Ratings

- Perry:PBI, Socio-emotional Adjustment
- ABC: CBI, Social Adjustment
- CPC: Socio-emotional Maturity
- Example items:
  - ◆ Follows directions
  - ◆ Seeks out other children
  - ◆ Waits for turn

## Juvenile Arrests (prior to age 18/19)

# Family Support

## Parent involvement (ages 7-9)

- Perry: Teacher rating of mother's participation with school (YRS)
- ABC: parent involvement scale derived from HOME (age 8; parent interview and observations)
  - ◆ Sample items: parent reads to or listens to child read once per week, parent offers help if child is frustrated by a task
- CPC: Teacher rating of parents' involvement with school

# School Support

Perry: Number of school moves (ages 7-14)  
Enrollment in Ypsilanti schools

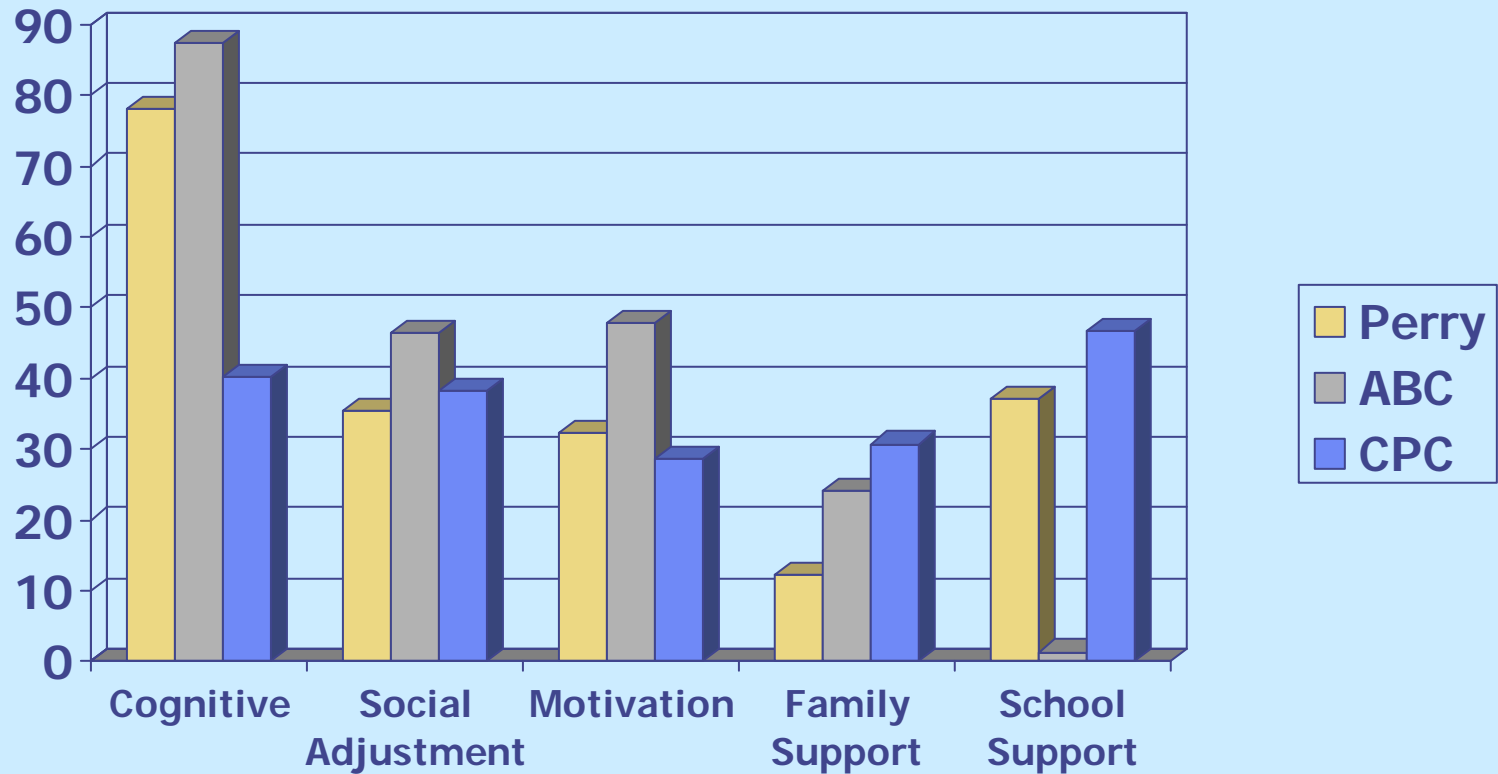
ABC: Enrollment in Chapel Hill schools

CPC: Attend a High Quality School (ages 10-14)  
Number of school moves (ages 10-14)

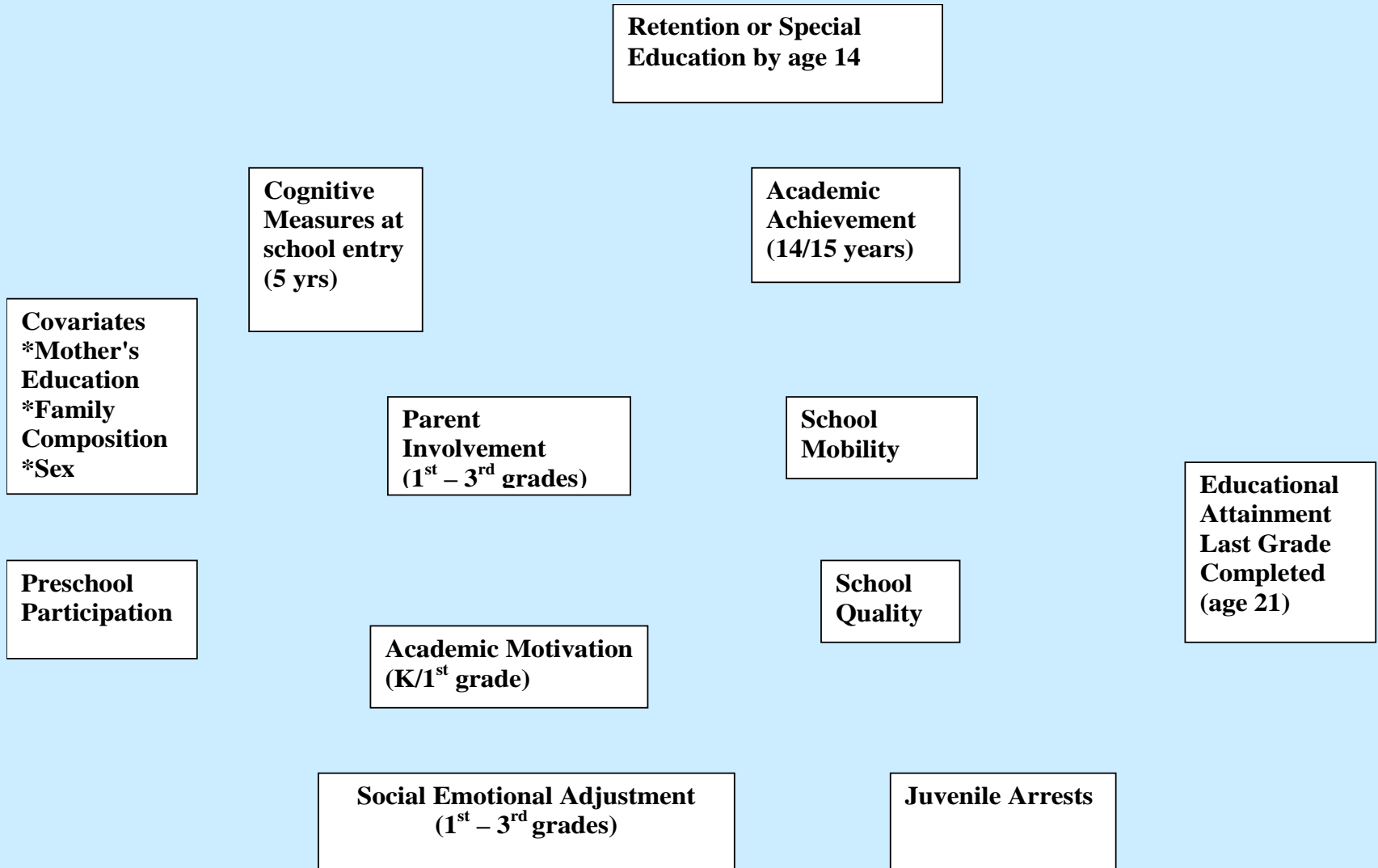
# Mediation Procedure

1. Estimate Main Effect of Preschool.
2. Add Mediators of Each Hypothesis Alone (Model 1).
3. Control for Cognitive Advantage Mediator (Model 2).
4. Enter Cognitive, Social, and Motivation Mediators together (Model 3)
5. Enter All Five Hypotheses Together (Model 4, Full Model).

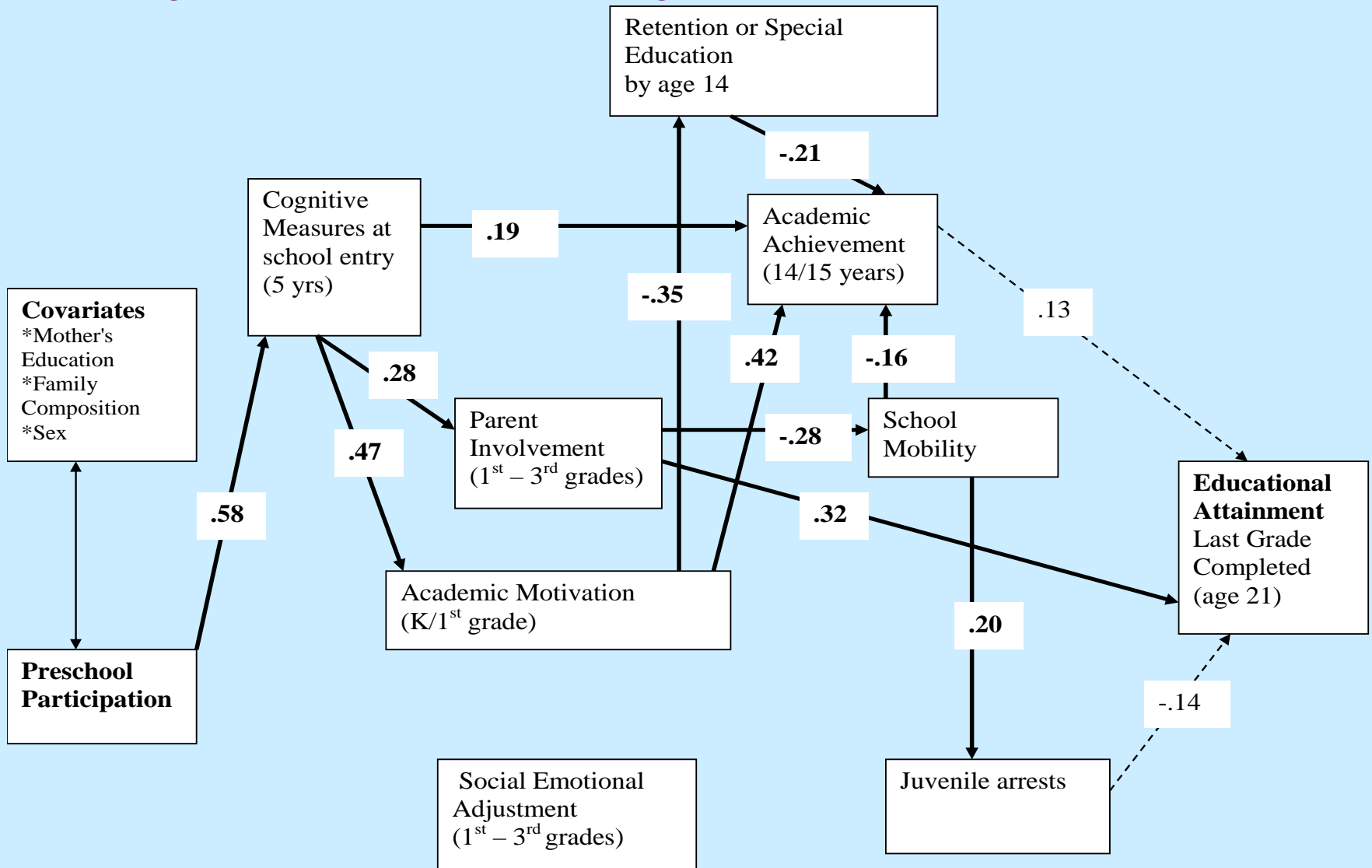
# Percent Reduction from Main Effect for Individual Hypotheses



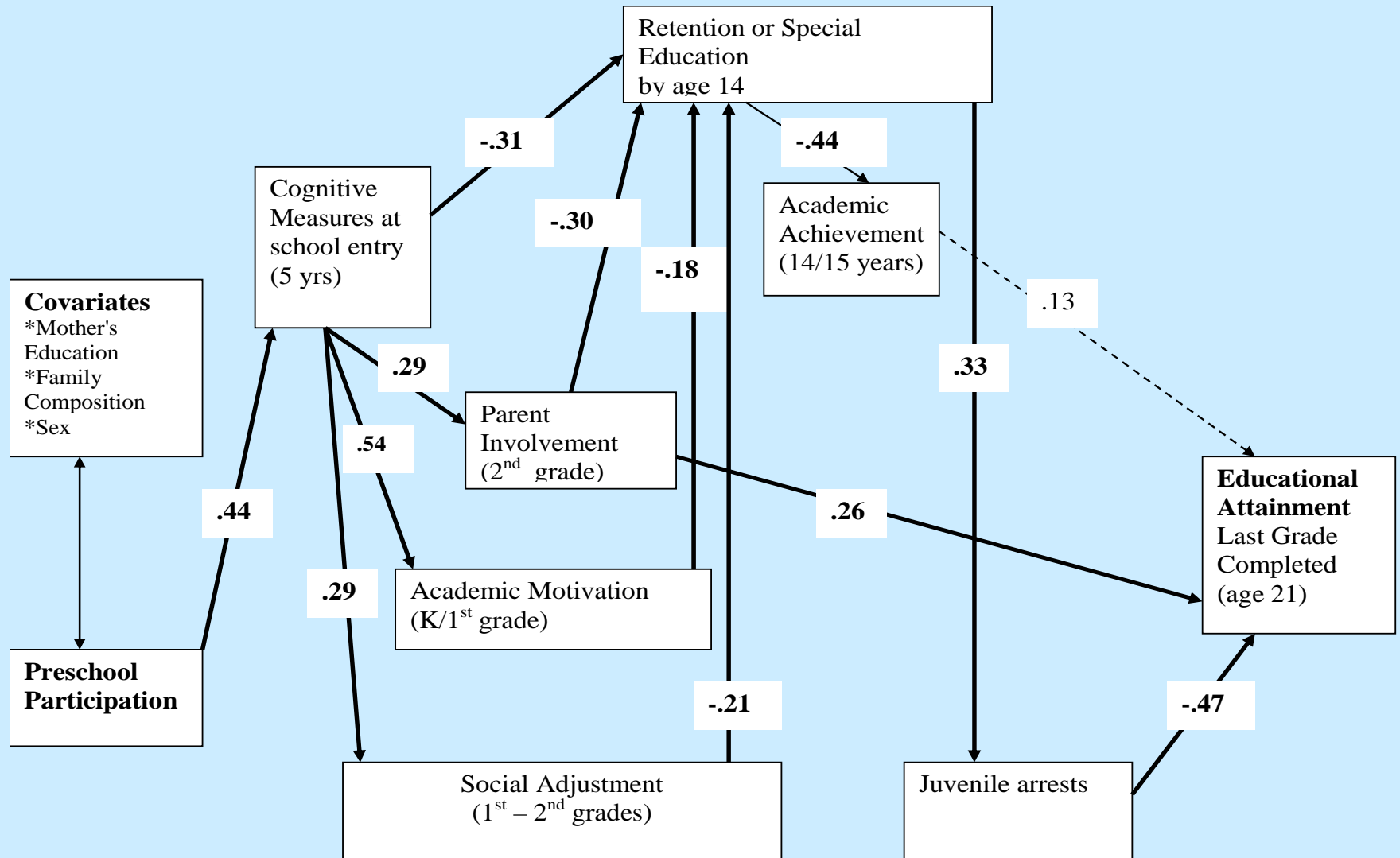
# Conceptual Model



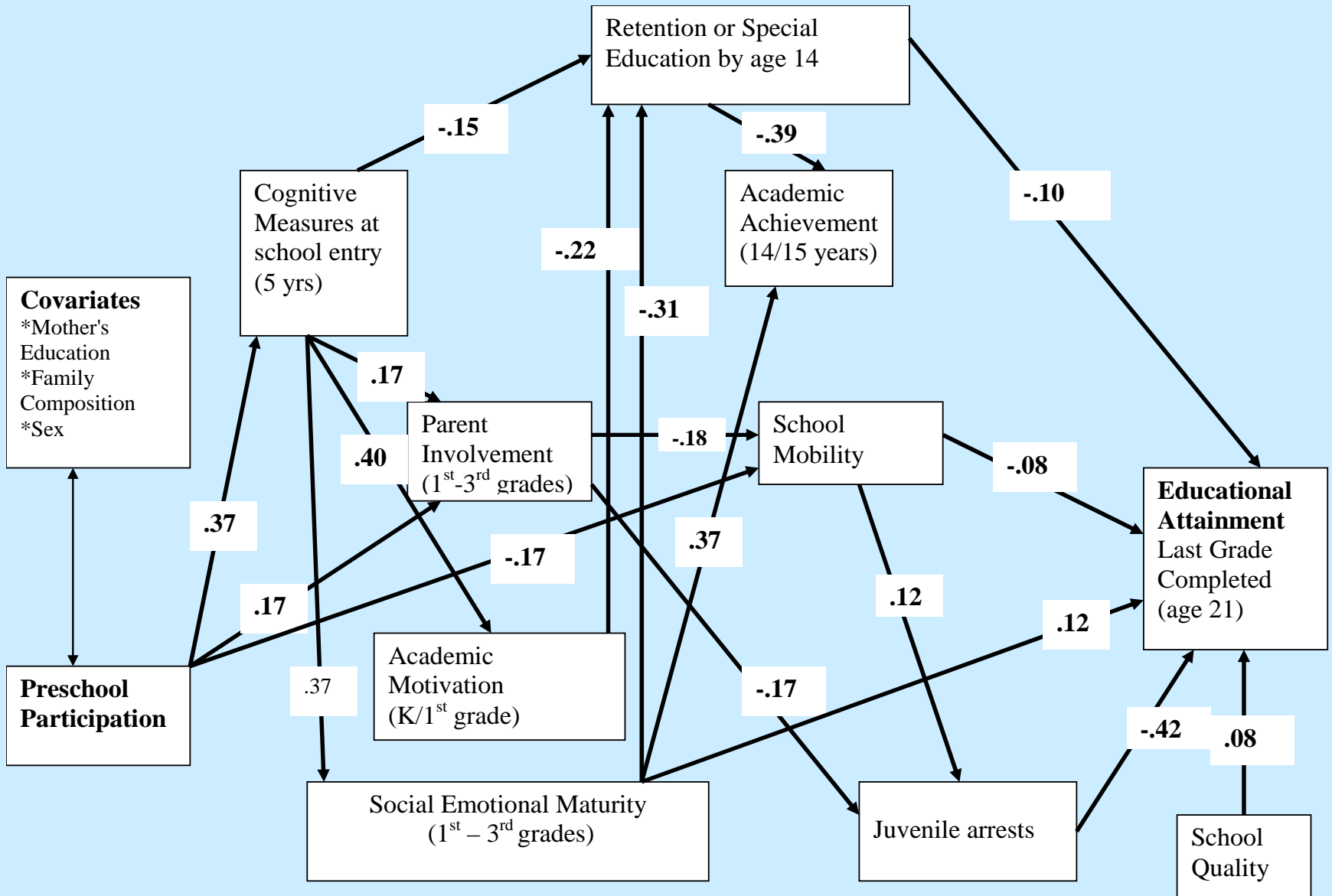
# Perry Preschool Study



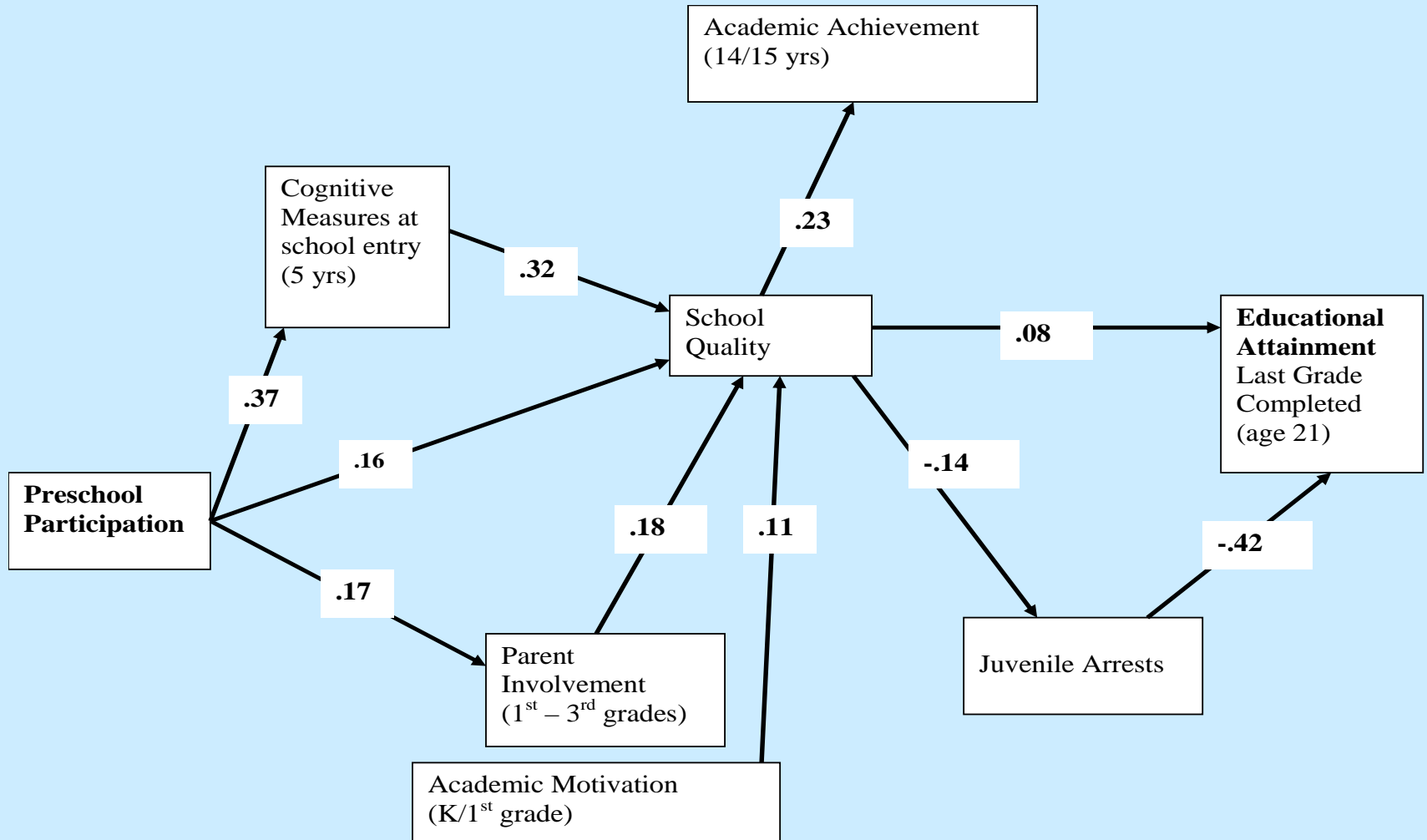
# Carolina Abecedarian Project



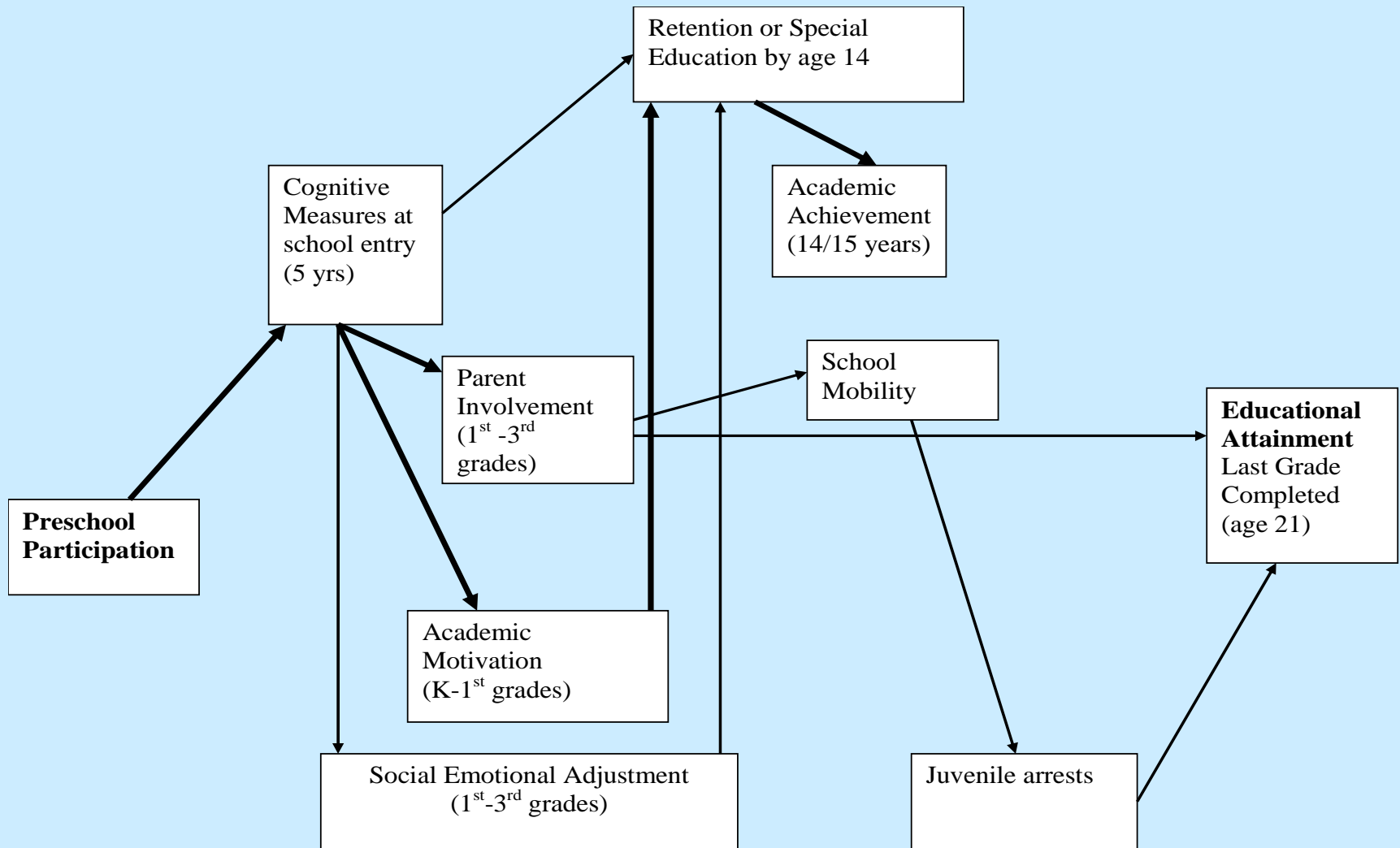
# Child Parent Centers



# School Quality Path for Child Parent Centers



# Common Paths Across Studies



# Limitations

- ◆ Measurement of School Support
- ◆ Construct Distinction of Social Adjustment and Motivation
- ◆ Sample Sizes and Stability of Estimates

# Contributions

- ◆ Support for Five Hypothesis Model
- ◆ Contributions by Most Indicators
- ◆ Common Paths were Identified
- ◆ Program-specific Paths are Evident