Pathways of Effects of Early Childhood Intervention on Educational Attainment and Delinquency

Arthur J. Reynolds
Suh-Ruu Ou
James D. Topitzes

Research Questions

- Examined together, which hypotheses contribute most to the mediation of the effect of preschool on educational attainment?

- Do the hypotheses that explain the mediation of educational attainment best explain the relationship between preschool participation and lower rates of delinquency?
Conceptual Framework of mediation Model

Measures

- **Educational Attainment**
  - High school completion by September 2000 (N=1,286)
- **Delinquency**
  - Any official court delinquency petition filed by age 18 (N=1,404)
- **Preschool Participation**
- **Covariates**
  - Gender
  - Black
  - Family Risk Index
    - Single-parent family status
    - Parent were unemployed
    - Attendance area in which 60% or more of children reside in low-income families
    - Eligibility for a subsidized lunch
    - Parent not high school graduated
    - Four or more children in the household
Mediators of Intervening effects

- **Cognitive Advantage**
  - ITBS word analysis score at age 6

- **Family Support**
  - Teacher and parents’ rating of parent involvement in school through age 12
  - Any abuse or neglect petition from ages 4 to 12

- **Social Adjustment**
  - Teachers’ rating of classroom adjustment at age 9

- **Motivation**
  - Students’ report of whether expect to go to college at age 10 to 15

- **School Support**
  - Number of years attendance in magnet schools from ages 10 to 14
  - Number of school moves from ages 10 to 14

- **Retention**
  - Ever retained between kindergarten and eighth grade

Data Analysis

- Structural equation modeling program LISREL was used to investigate the pathways and contributions of the five hypotheses to the explanation of program effects.
Results

LISREL mediation model for high school completion, coefficients are standardized and adjusted for measurement errors.
LISREL mediation model for delinquency outcome, coefficients are standardized and adjusted for measurement errors.

### Early Childhood Variables
- Participation
- Classroom Adjustment, Age 9
- Tbis Word Analysis in Kindergarten

### Ages 5-9
- Grade Retention by Age 15
- Abuse/neglect Report, Ages 4-12

### Middle Childhood
- Ages 9-12
- Attended Magnet Schools, Ages 10-14
- Number of School Moves, Ages 10-14
- Educational Expectations, Ages 10-15

### Adolescence
- Age 12-
- Attended Magnet Schools, Ages 10-14
- Grade Retention by Age 15
- ITBS Word Analysis in Kindergarten
- Any Delinquency Petition by Age 18

### Percentage of Total Indirect Effect of Preschool Accounted for by Mediators

- **Cognitive Advantage**
  - High School Completion: 23.2%
  - Juvenile Arrest: 18.7%
- **Family Support**
  - High School Completion: 27.9%
  - Juvenile Arrest: 21.3%
- **School Support**
  - High School Completion: 31.1%
  - Juvenile Arrest: 48.1%

RMSEA= 0.036
AGFI= 0.97
R²=.37
Summary of Findings

• Cognitive advantage, family support, and school support hypotheses significantly mediated the effect of preschool participation on educational attainment.

• The three hypotheses also explained the relationship between preschool participation and lower rates of delinquency.

Limitations

• The results are correlational.

• Indicators of some of the intervention hypotheses were defined narrowly.

• Other alterable predictors of educational attainment and delinquency were not included.
Implications

- Long-term effects of intervention are more likely to occur if family and school experiences after the end of intervention are of sufficient quality.

- Improvements in the quality of elementary schools are likely to encourage the transmission of long-term effects of early intervention.

- Family support hypothesis

- Cognitive advantage is indirectly mediated the effect of preschool participation on educational attainment and delinquency.