The Effect of Early Grade Retention on Children’s Skills and Achievement

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ABSTRACT

• Grade retention is often used as an intervention to prevent later school failure despite mixed findings from empirical research on retention’s effects. This poster investigates possible effects of retention in early grades on teacher-rated children’s psychosocial skills, learning-related skills, and assessed achievement scores.
• We hypothesized the following:
  • Children who have been retained will score significantly lower on later school achievement tests in relation to children who have been promoted to the next grade.
  • Retained children will be rated significantly higher on aggressive and withdrawn behavior and lower on prosocial and self-regulatory skills by their teachers versus the promoted children.

METHOD

Sample
• Part of a larger Preschool Curriculum Evaluation Research (PCER) study of the effects of different preschool curricula on children’s achievement
• Original 548 children in PCER study all attended rural low-income preschools in a southeastern state
• A subset of participants who were retained in kindergarten or second grade and those who were in the matched-ability group were included.

Study of Kindergarten Retention Sample: Retained Group (N = 32)
Matched Promoted Group (N = 65)
Study of 2nd Grade Retention Sample: Retained Group (N = 22)
Matched Promoted Group (N = 62)

Measures
• Teacher ratings of children’s behavior and academic performance in each study year (preschool through 3rd grade)
• Direct assessments of children’s academic skills on standardized measures in preschool, kindergarten, and 1st grade
• Children’s scores on the standardized statewide achievement assessment, Tennessee Comprehensive Assessment Program (TCAP), at the end of 3rd grade.

Analysis
• Linear mixed modeling was used to predict children’s skills and achievement in third grade from their retention status
• Children were nested within the school they attended in the year following the retention year.
• Models were run separately for each outcome and each grade level.

Outcomes
• Children’s third-grade TCAP scores on reading/language, mathematics, science, and social studies achievement
• Latest teacher report of children’s psychosocial skills (i.e., aggressive, withdrawn, and prosocial behavior) and learning-related skills (i.e., self-regulation)

Predictor
• Retention Status

Covariate
• Propensity score

Propensity Score Estimation and Matching Procedure
• 28 K and 9 2nd grade covariates from the retention year, including child demographics (e.g., gender, ethnicity), children’s basic skill and oral language factor scores from the Woodcock Johnson III, and teachers’ perceptions of children’s academic and psychosocial skills were identified.
• Missing data in the covariates from the retention year and the main outcomes were imputed.
• 11 K and 6 2nd grade covariates that were correlated with grade retention above .20 in each year were included in propensity score estimation.
• If 2 covariates were highly correlated with each other, the variable that had the greater association with retention was retained, resulting in 6 K and 5 2nd grade covariates used in the final propensity score analysis.
• Every child’s propensity of being retained as a function of covariates from the retention year was estimated by binary logistic regression.
• Retained and promoted children that were in the highest quintile of the propensity score distribution (representing the highest probability of being retained) were included in the final hypotheses tests.

RESULTS

• Over 90% of retained children in both years were in the highest quintile of propensity scores.
• Of the children who were promoted each year, approximately 15% at each grade level had propensity scores in the highest quintile, but they were not retained. These children became our matched groups in each grade.
• After propensity scores were created, the original variables that contributed to those scores were examined for the retained and promoted children in the matched groups.

DISCUSSION

• This longitudinal sample provides the advantage of a prospective analysis of the effects of retention on children outcomes because of the data collected on the children each year.
• Our sample was primarily rural and non-minority, occurring in a single state that does not have a policy restricting retention to any grades. These findings may not replicate with urban samples or in states with other policies.
• Our data suggest, however, that more nuanced investigations of the effects of retention should be mounted, and that the appropriate comparisons of the long term effects must be children who have the same characteristics as children who are retained, but who have different experiences in school.

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Propensity Score Estimation and Matching Procedure

- The Effect of Kindergarten Retention on:
  - Prosocial Behavior
  - Aggressive Behavior
  - Withdrawing Behavior
  - Self-Regulated Learning
  - TCAP Reading/Language
  - TCAP Math
  - TCAP Science

- The Effect of 2nd Grade Retention on:
  - Prosocial Behavior
  - Aggressive Behavior
  - Withdrawing Behavior
  - Self-Regulated Learning
  - TCAP Reading/Language
  - TCAP Math

Illustrative Examples: The Effect of Retention on Child Outcomes

*Significant Difference by Retention Status