

Grade Retention and School Performance: An Extended Investigation

Ann R. McCoy
Department of Research and Accountability
Houston (Texas) Independent School District

Arthur J. Reynolds
School of Social Work
University of Wisconsin–Madison
E-mail: ajreynol@facstaff.wisc.edu

August 1998

Preparation of this paper was supported by grants from the National Institute on the Education of At-Risk Students, U.S. Department of Education (grant no. R306F0055), and the National Institute of Child Health and Human Development (grant no. HD34294).

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Abstract

This study extends Reynolds' (1992) investigation of the social-psychological influences on grade retention and school adjustment in early childhood by tracing the predictors and consequences of grade retention for school achievement, perceived competence, and delinquency in early adolescence (age 14). The study sample included 1,164 (93 percent of the sample from the original study) low-income, mostly black children in the Chicago Longitudinal Study. Twenty-eight percent of the study sample were retained-in-grade by age 14 (first grade to eighth grade). The strongest predictors of retention were early school performance (test scores and grades), sex (boys were more likely to be retained), parent participation in school, and school mobility. Overall, grade retention was significantly associated with lower reading and math achievement at age 14 above and beyond a comprehensive set of explanatory variables. Results based on same-age comparison groups yielded larger effects of retention on school achievement than those based on same-grade comparisons, but both approaches indicated that grade retention was associated with significantly lower reading achievement. In the full model, grade retention was unrelated to perceived school competence at age 12 and to delinquency infractions at age 14. With the exception of reading achievement, retention during the primary grades and retention during grades 4 to 7 yielded a similar pattern of effects. Findings were largely consistent with the earlier study and suggest that intervention approaches other than grade retention are needed to better promote school achievement and adjustment.

Grade Retention and School Performance: An Extended Investigation

INTRODUCTION

Grade retention is making a comeback as a popular method for remediating poor academic performance. As teachers and principals are held more accountable for student performance, retention is increasingly viewed as a key instrument of school reforms around the country. When retention occurs, it not only signals a failure of children to master the curriculum in a given grade but more broadly represents a breakdown in children's primary educational environments. Although there are no national statistics on the rate of retention, it has been estimated that by the time children reach third grade, one in five has been retained (Alexander, Entwisle, and Dauber, 1994; Meisels and Liaw, 1993). It does not portend well for the educational success of children when a sizable number have experienced academic failure upon completing a quarter of their compulsory education.

Previous studies have identified several child, teacher, and family factors that place children at risk for retention. Identification of these factors is important because it makes clear that there are multiple predictors of the decision to retain a child in grade. Relative to nonretained children, children who are retained are more likely to be boys (Dauber, Alexander, and Entwisle, 1993; Gottfredson, Fink, and Graham, 1994; Jimerson and Schuder, 1996; Meisels and Liaw, 1993; Reynolds, 1992), have poor math and reading test scores prior to retention (Dauber, Alexander, and Entwisle, 1993; Meisels and Liaw, 1993; Reynolds, 1992), and to be from ethnic minority groups (Meisels and Liaw, 1993). Subject-matter grades (Cadigan et al., 1988; Meisels and Liaw, 1993) and classroom conduct (Dauber, Alexander, and Entwisle, 1993) also are predictors of grade retention. Cadigan et al. (1988), for example, noted that grades received as early as the first quarter of first grade identified those students who would be retained. In addition, children perceived by their teachers as having poor peer relationships

(Cadigan et al., 1988; Jimerson and Schuder, 1996), poor emotional well-being (Jimerson and Schuder, 1996), and adjustment problems (Reynolds, 1992) are more likely to be retained.

Among the family factors that appear to place children at risk of grade retention are low parent educational attainment (i.e., failure to graduate from high school: Meisels and Liaw, 1993; Reynolds, 1992), socioeconomic disadvantage (Meisels and Liaw, 1993), and frequent school or residential mobility (Reynolds, 1992). Children also are more likely to be retained when they are viewed by their parents as being less capable (Cadigan et al., 1988; Dauber, Alexander, and Entwisle, 1993). When children are rated as less capable by their parents, expectations of success decline, and consequently teachers' recommendations of retention often go unchallenged and alternatives to retention are not pursued. Parents of retained children are often educationally and socioeconomically disadvantaged, and this makes it difficult for them to provide an optimal environment for promoting scholastic achievement or to advocate for their children's academic success.

Longitudinal Effects of Grade Retention

Although reviews of research do not generally support the effectiveness of grade retention (Jackson, 1975; Holmes, 1989; Karweit, 1992), the methodological quality of many previous studies is relatively low (see Alexander, Entwisle, and Dauber, 1994; Reynolds, 1992). This state of affairs, plus the persistent belief among educators that retention can be beneficial if implemented appropriately, has led to its greater use in recent years. In the past decade, however, studies of grade retention have increasingly employed longitudinal designs to estimate the effects of grade retention on children's educational success. Since the policy of grade retention was instituted to promote children's short- and long-term educational progress, longitudinal studies can provide a more accurate portrayal of the impact of grade retention on patterns of adjustment throughout the schooling process. In these studies, comparison groups include children of the same age who are promoted instead of retained (same-age

comparison), children who are 1 year younger than retained children but are in the same grade (same-grade comparison), or both.

Some recent studies indicate that retention can have positive effects. Alexander, Entwisle, and Dauber (1994) investigated the effects of retention in grades 1 to 3 on over 700 Baltimore children in the Beginning School Study. The study is notable in its use of multiple comparison groups and the inclusion of a comprehensive set of control variables including educational performance prior to retention and later special education placement. A major finding was that while the postretention academic performance of retained children remained lower than both same-age and same-grade comparison groups (above and beyond a set of control variables), the performance gap between retained and nonretained children narrowed considerably from preretention levels up to the eighth year of school. This was especially the case for children retained in second and third grades. First grade retainees, however, displayed less academic progress. The authors interpreted this evidence as indicating that retention has modest positive effects, at least for some children, that have gone undocumented in previous studies.

In a 3-year study, Peterson, DeGracie, and Ayabe (1987) also examined the effects of retention in grades 1 to 3 for a multiethnic sample. Findings of same-age comparisons indicated that students made significant improvements in reading and math achievement in first and second grade during the year of retention but that this advantage diminished significantly 2 to 3 years later. Same-grade comparisons revealed that first grade retainees had better performance in reading, math, and language at the end of the retention year and in reading and language 1 year later. Children retained in second and third grade maintained their performance advantage in reading, language, and math through fourth and fifth grade, respectively. Pierson and Connell (1992) reported similar findings.

Gottfredson, Fink, and Graham (1994) investigated the social-psychological effects of grade retention for a same-age sample of black sixth and seventh graders using 11 measures. Controlling for preretention behavior and prior achievement, retained children reported greater attachment to school,

greater overall ratings of school adjustment, and lower rebelliousness behavior. No significant differences were found for the outcomes of educational expectations, positive peer associations, social integration, and several other classroom ratings. Of course, these short-term effects may or may not persist into the future. Other studies have reported both positive effects (Alexander, Entwisle, and Dauber, 1994; Reynolds, 1992) and negative effects (Meisels and Liaw, 1993; Roderick, 1994) of retention on social-psychological development, but group differences over time tend to favor promoted over retained children.

Three recent studies using same-age comparisons and longer follow-up assessments provide a more negative picture of retention. Meisels and Liaw (1993) used a subsample of black, white, and Hispanic children from the National Education Longitudinal Study of 1988 to estimate the effects of retention during kindergarten to eighth grade as well as the effects of early versus later retention. Adjusted for family background and prior achievement, retained children had lower standardized test scores and academic grades than nonretained children, and they had a higher incidence of special education placement. Children who experienced early retention (kindergarten through third grade) were more likely to experience a decline in their academic performance than were children retained in grades 4 through 8.

Jimerson and Schuder (1996) investigated the long-term effects of retention during kindergarten to third grade for a multiethnic sample. In the year following retention, first and second grade students displayed significant gains in math achievement relative to nonretained students, but by sixth grade the emotional well-being of retained students was significantly lower than their nonretained same-age cohorts. By the time they reached high school, the academic adjustment (i.e., GPA, academic standing, attendance, disciplinary actions) of retained students was significantly lower than that of their never-retained peers. When compared to their “low-achieving but promoted” peers in high school, retained students were more likely either to have enrolled in alternative educational programs or to have dropped

out of school. Only 24 percent of retained students graduated compared to 52 percent of their low-performing peers.

Although these findings are based on a small sample, they are consistent with those of Roderick (1994), who, using archival data, investigated the association between repeating a grade and the likelihood of leaving school early. Findings indicated that the risk of dropping out of school was two times greater for children retained between kindergarten and sixth grade than for those never retained. Both early and later retention increased the risk of children leaving school prematurely. For children retained between kindergarten and third grade, the odds of dropping out of school were 75 percent higher than for never-retained students, and students retained between fourth and sixth grades faced a 90 percent higher risk of dropping out of school than did their never-retained peers.

As indicated by the work described above, longitudinal studies of retention have become more prevalent in recent years, and greater attention is being paid to the comparison group used to estimate the effects of grade retention. Same-age comparisons tend to show that the effects of retention are not positive and are often harmful, especially if it occurs in first grade. Same-grade comparisons show that the effects of retention are more positive in the short term but dissipate over time. Longer-term studies into high school, however, strongly suggest that children who are retained have significantly higher rates of high school dropout (Roderick, 1994; Holmes, 1989; Rumberger, 1995). Even in the presence of methodological limitations that result in overestimation of retention's impact, this possible unintended side effect of retention raises many questions about the practice.

Chicago Longitudinal Study

If the original purpose of grade retention was to promote children's academic success, it follows that retention must be superior to grade promotion or some other alternative policy or program to be considered effective. It was from this perspective that Reynolds (1992) investigated the effects of

retention during grades 1 to 3 on the fourth grade adjustment of 1,245 low-income, minority (95 percent black, 5 percent Hispanic) children in the Chicago Longitudinal Study (CLS). About 20 percent of the students in the study sample were retained between kindergarten and third grade, and of those, 50 percent were retained in first grade. Factors identified as increasing the likelihood of retention were low reading and math test scores in first grade, low teacher ratings of classroom adjustment, low ratings of parent participation in school activities, and school mobility. Based on same-age comparisons and the inclusion of a comprehensive set of preretention control variables, grade retention was significantly associated with lower reading and math achievement scores in the fourth year of school (by about 7 months of performance or 0.70 of a standard deviation), unrelated to teacher ratings of classroom adjustment, and with positive self-perceptions of school competence (by about 0.30 of a standard deviation). The effects of retention in first, second, and third grade were similar. Consistent with previous studies, findings based on same-grade comparisons indicated relatively smaller negative effects on school achievement, but the performance of retained children remained lower than their grade peers.

Although this study was unique in its focus on low-income children from the inner city, the use of multiple comparison groups, and the inclusion of an extensive set of social-psychological control variables, the longer-term consequences of retention were not investigated. As we pointed out above, the focus on longer-term consequences is the most critical area of need. An investigation of the longer-term effects of retention will determine if the possible short-term gains derived from retention are outweighed by any long-term costs. A longer-term study also enables an investigation of whether the effects of early grade retention are different from those of later retention.

Longer-term studies rarely control for differences among students prior to retention by matching them on preretention achievement and teacher ratings, nor do they separate the effects of retention from other school experiences such as special education and school mobility. The failure of prior research to control for a large number of determinants of grade retention and academic success limits current

understanding of both the causes and the consequences of retention. Only Alexander, Entwisle, and Dauber (1994), for example, estimated the effects of retention above and beyond the effects of special education as well as several other explanatory factors.

Finally, Reynolds (1992) found that grade retention was positively associated with children's perceived school competence 1 to 3 years after retention. Although this finding is consistent with more recent studies (Alexander, Entwisle, and Dauber, 1994; Gottfredson, Fink, and Graham, 1994), the stability of this relation needs further investigation. Following Gottfredson, Fink, and Graham (1994), additional social-psychological outcomes also warrant attention.

The present study extends Reynolds' (1992) longitudinal analysis by investigating the precursors to grade retention during first grade to seventh grade and the effects of grade retention on school achievement, perceived school competence, and delinquency infractions up to age 14 (eighth grade year). As a more extensive analysis of the impact of retention, this study examines the effect of retention on delinquency infractions (an outcome not included in the previous study) and the extent to which retained children continue to feel more scholastically competent than their nonretained peers in early adolescence. The differential effects of early and later retention are also investigated.

The following questions are addressed: (1) Which family, social, and academic factors predict grade retention during the elementary grades? (2) Is grade retention associated with significantly lower scores in reading and math achievement at age 14, with more positive ratings of perceived school competence, and with a lower incidence of delinquency infractions above and beyond preretention performance and school experiences? (3) Does the timing of grade retention (in the primary grades or later) influence school achievement and adjustment?

METHODS

Sample and Measures

The study sample includes participants in the CLS (Reynolds, 1994; Reynolds et al., 1996a; Reynolds and Bezruczko, 1993), an ongoing investigation of children at risk for school underachievement due to poverty and its associated factors. The study sample includes 1,164 low-income children, mostly black, who were active in the Chicago Public Schools at age 14 (spring of 1994). They represent 93 percent of the sample from the previous study (Reynolds, 1992). Children in the CLS graduated from government-funded kindergarten programs in the Chicago Public Schools in 1986, including the Chicago Child-Parent Centers and the Effective Schools Project. Participation in these kindergarten programs is limited to families of children living in impoverished school neighborhoods eligible for Title I funding from the Elementary and Secondary Education Act. At age 14, most children were in eighth grade; those who had been retained once were in seventh grade. Nineteen children had been retained two or more times.

Data were collected from multiple sources. School records provided descriptive information on children including gender, race, grade, and school enrollment. Standardized test scores in reading and math were obtained annually from kindergarten (1986) through eighth grade (1994). Other data were obtained through teacher surveys (i.e., parent participation and children's classroom adjustment) and parent interviews in second through sixth grades (i.e., parent education and eligibility for free lunch).

Grade Retention

Grade retention was used as both an explanatory and outcome variable. Children who were retained during first to seventh grade were coded 1 and those not retained (continuously promoted) were coded 0. Data were based on a year-by-year comparison of individual grade placements in the fall

semester of each school year as indicated in centralized school records. To investigate the effects of timing of retention, early and later retention were measured similarly. Children retained in kindergarten were not included in the analysis.

Outcomes Measures

Three of the four outcomes were measured at age 14—reading achievement, math achievement, and delinquency infractions. Perceived school competence was measured at age 12, the oldest age at which scores were obtained.

Reading and Math Achievement. School achievement was assessed using subtest scores on the reading comprehension (58 items) and mathematics (117 items consisting of concepts, problem solving, and computation) sections of the Iowa Test of Basic Skills (ITBS, Level 13 or 14). The ITBS is a norm-referenced (i.e., grade-normed) test. It is group-administered to students annually in April. Achievement levels on this test are developmental standard scores with the national average centered at 100 in the fall of third grade and 160 in the fall of eighth grade. Scores were based on the 1988 national standardization. The ITBS is among the most reliable and valid of standardized tests. Internal consistency coefficients for reading and math in grade 8 were .92 and .95, respectively.

Perceived School Competence. Children's perceptions of school competence were measured at age 12 (or 1992) by a 12-item scale of school self-concept. Response options ranged from (1) not much to (3) a lot. The items included (1) I get good grades in school, (2) my classmates like me, (3) I get in trouble at school, (4) I get along well with others, (5) I do my homework, (6) I answer questions in class, (7) I give up when school work gets hard, (8) when I get bad grades I try even harder, (9) I try hard in school, (10) my teacher thinks I will go far in school, (11) I am smart, (12) I do better in school than my classmates. The internal consistency reliability was .75. As expected, the scale correlates moderately

($r_s = .30-.40$) with standardized test scores. Self-perceptions of competence appear to complement school achievement well (Harter, 1982).

School-Reported Delinquency. Delinquency infractions were measured dichotomously as the prevalence of problem, illicit, or illegal behavior measured over a 2-year period (ages 13 to 14). Data were based on school-reported discipline data obtained from the centralized records of the Chicago Public Schools. Infractions range in severity from (1) truancy to (5) arson, aggravated assault, or worse. Although not a measure of official delinquency, this school-based measure includes a variety of infractions symptomatic of problem behavior that predicts criminal delinquency in later adolescence.

Explanatory Measures: Sociodemographics

A comprehensive set of predictors of both grade retention and school adjustment indicators were included, as follows:

Gender. Sex of child as identified by parents in school records. Girls were coded 1, boys 0.

Parent Education. Parents reported whether they were high school graduates or had an equivalent degree. Data came from survey questionnaires administered during grades 2 through 6. Over 90 percent of parents completing this survey were mothers.

Free Lunch Eligibility. Parents reported whether their children were eligible for free lunch. Response options were (1) free, (2) reduced lunch, and (3) not eligible. Data also came from survey questionnaires administered in grades 2 through 6.

School SES. This school-level indicator was the proportion of children in the school attendance area from low-income families. These values were derived from the U.S. census as reported by the Chicago Public Schools (1987).

Missing Data from Parent(s). To determine if children with missing parent data had similar levels of school achievement, a dummy variable for missing data was included. Following Cohen and

Cohen (1983), this missing-data variable was entered as an explanatory variable after imputing missing cases with an estimate. Children missing on parent education were assigned the value 0 (not a high school graduate); those missing on free lunch were assigned the value 1 (full subsidy).

Years of Participation in Early Childhood Intervention. The number of years of participation in the Chicago Child-Parent Centers (CPC) program was included as an additional control variable. The CPC program is a Title I-funded extended early childhood intervention for children in low-income families. Children can participate from preschool to third grade for up to 6 years of intervention. The program includes both educational- and family-support components and implements a relatively structured basic-skills approach to early childhood development (see Reynolds, 1994).

Early Adjustment Indicators

Classroom Adjustment. First grade teachers' assessments of children's classroom behavior were coded using a six-item Likert-type scale. Response options ranged from (1) poor or not at all to (5) excellent or much. The items included (1) came to my class ready to learn, (2) completes work according to instructions, (3) complies with classroom rules, (4) displays confidence in approaching learning tasks, (5) works and plays well with others, and (6) participates in group discussions. The internal consistency reliability was .92.

First Grade Reading and Math Achievement. Subtest scores on the ITBS (Level 6 or 7) were used to measure school achievement (Hieronymus, Lindquist, and Hoover, 1980). The reading subtest assessed spelling, capitalization, punctuation, and usage, and expression. Competency in mathematics was assessed using concepts, problem solving, and computation. Internal consistency coefficients for reading and math in grade 1 were .95 and .92, respectively (Hieronymus, Lindquist, and Hoover, 1982).

Grade in Reading. Teacher-awarded grades in reading at the end of first grade were coded as follows: A = 5, B = 4, C = 3, D = 2, F = 1. Responses were based on a teacher questionnaire.

Intervening School-Based Factors

School Mobility. The measure of mobility was the number of times children changed schools between first and eighth grade. Data came from annual school records and ranged from 0 to 5. Both normative and nonnormative moves were counted.

Parent Involvement in School. The number of years (between first and sixth grade) of parent involvement in school activities was rated by teachers as average or above average in response to the following item: “Parents’ participation in school activities.” In prior studies (Reynolds et al., 1996b), ratings of parent involvement in school have been found to be significantly associated with school achievement, and they are also distinct from teacher ratings of classroom adjustment (Reynolds, 1991).

Special Education Placement. School-reported information indicated whether children received any special education services during first grade to seventh grade. Placements were mainstreamed or self-contained, mostly the former. The most frequent types of placement were for specific learning disabilities and speech and language problems.

Data Analysis

The analyses were based on same-age (retained children in seventh grade versus continuously promoted children in eighth grade) and same-grade (retained children in seventh grade versus promoted children in seventh grade) comparisons. Hierarchical multiple regression was used to estimate the effects of grade retention on reading achievement, math achievement, and perceived school competence. Similar to Reynolds (1992), the order of entry was as follows: Step 1—grade retention; Step 2—sociodemographic factors; Step 3—early adjustment indicators; and Step 4—intervening school-based factors. Sociodemographic factors represent pre-existing social/environmental conditions which may have contributed to retention. Early adjustment indicators are markers of the degree to which children have been able to adapt to the academic and social demands of school. Finally, intervening

school-based factors were included because these are events occurring after school entry that involve interactions between children's families and their school environments. These factors could be confounded with the effects of retention. Logistic regression was used to estimate the effects of grade retention on dichotomously coded delinquency. The order of entry was identical to that for the previously identified outcomes. The estimated effects of grade retention are reported in both ITBS developmental standard scores and standard deviation units or effect sizes (ES). Effect sizes of .20 or higher are interpreted as educationally meaningful.

RESULTS

Descriptive statistics of the study variables for retained, promoted, and the total study sample are presented in Table 1. As expected, retained children had lower scores in reading and math achievement at age 14, lower ratings of perceived competence, and a higher rate of delinquency infractions. Retainees also were more likely to be boys and to have parents with less than a high school education; they had lower achievement test scores and classroom ratings in first grade. Prior to investigating the effects of grade retention, we probed its predictors.

Predictors of Grade Retention

Table 2 displays predictors of grade retention using logistic regression analysis. The overall model fit the data well ($\chi^2 = 28.5$, $df = 3$; $R^2 = .29$). Both logit coefficients and transformed linear probability coefficients are reported. The linear probability coefficients are interpreted as estimates of the probability of retention based on a one unit change in the predictor (Pindyck and Rubinfeld, 1991, p. 260). The effects were estimated at the mean rate of retention during first to eighth grade of .271.

TABLE 1
Means (M) and Standard Deviations (SD) for Retained, Promoted, and All Children

Construct	Retained Children			Promoted Children			All Children		
	N	M	SD	N	M	SD	N	M	SD
Age 14 Outcomes									
Reading achievement	315	127.44	18.64	843	151.64	19.98	1158	145.06	22.38
Mathematics achievement	315	131.37	16.64	843	153.40	15.71	1158	147.41	18.69
Perceived school competence (Grade 6)	187	35.75	4.89	538	38.08	4.42	725	37.48	4.65
Delinquency (grades 7 & 8)	315	.152	.360	849	.119	.324	1164	.128	.334
Explanatory Variables									
<i>Sociodemographic Factors</i>									
Sex of child (1=girl)	314	.36	.48	847	.58	.49	1161	.52	.50
Parent education	315	.29	.46	849	.44	.49	1164	.40	.49
Free lunch eligibility	315	.94	.24	849	.87	.34	1164	.88	.32
School SES	315	67.0	9.6	849	66.49	9.4	1164	66.63	9.49
Missing data from parents	315	.70	.66	849	.51	.64	1164	.56	.65
Total years of CPC intervention	315	2.27	1.82	849	3.12	1.97	1164	2.89	1.97

(table continues)

TABLE 1, continued

Construct	Retained Children			Promoted Children			All Children		
	N	M	SD	N	M	SD	N	M	SD
<i>Early Adjustment Indicators</i>									
Classroom adjustment (grade 1)	315	15.74	4.58	849	20.64	5.04	1164	19.32	5.38
Reading achievement (grade 1)	269	63.51	10.3	800	76.85	12.86	1069	73.49	13.56
Mathematics achievement (grade 1)	269	63.55	12.52	803	76.33	12.01	1072	73.12	13.34
Grade in reading (grade 1)	315	2.45	.96	849	3.50	.91	1164	3.22	1.04
<i>Intervening School-Based Factors</i>									
School mobility	315	1.47	1.19	849	1.00	1.11	1164	1.13	1.15
Parent involvement (1=above average)	315	1.27	1.17	849	.398	1.50	1164	2.05	1.49
Special education placement	315	1.33	2.25	849	.398	1.32	1164	.651	1.68

TABLE 2
Logistic Regression Coefficients for Incidence of Grade Retention

Predictor	Logit Coefficient (B)	Estimated Effect on Probability of Retention
<i>Sociodemographic Factors</i>		
Sex of child (1=girl)	-.625***	-.124
Parent education (1=high school graduate)	-.047	-9.3E-03
Free lunch eligibility (3=not eligible)	.623	.123
School SES	-.016	-3.2E-03
Missing data from parents	.157	.031
Total years of CPC intervention	-.021	-4.2E-03
<i>Early Adjustment Indicators</i>		
Classroom adjustment (grade 1)	-.040	-7.9E-03
Mathematics achievement (grade 1)	-.026**	-5.1E-03
Reading achievement (grade 1)	-.035***	-6.9E-03
Grade in reading (grade 1)	-.549***	-.109
<i>Intervening School-Based Factors</i>		
School mobility	.166*	.033
Parental involvement (1=above average)	-.322***	-.064
Special education placement	.005	9.9E-04
-2 log likelihood	820.8	
Chi-square	28.5	
Constant	6.63	
Variance explained (pseudo)	.29	
Number of cases	1054	

* p<.05
 ** p<.01
 *** p<.001

Six variables were significant predictors of retention.¹ Boys were significantly more likely than girls to be retained in grade; the adjusted retention rate for boys was 12.4 percentage points higher than that of girls. As expected, three measures of academic performance in first grade were significant predictors of grade retention: reading achievement, math achievement, and children's grade in reading. For the latter, each additional decrease in reading grades (e.g., B to C) was associated with a 10.9 percentage-point increase in grade retention. Likewise, a 1-point decline in reading achievement in first grade was associated with a 0.7 percentage-point increase in the probability of grade retention. A 10-point decline was associated with a 7.0 percentage-point increase in the probability of retention. Similarly, a 10-point decline in math achievement was associated with a 5.0 percentage-point increase in the probability of retention.

Consistent with Reynolds (1992), school mobility and parent participation in school also significantly predicted the incidence of grade retention over the elementary grades. Changing schools frequently appears to increase the probability that a child will be retained, while greater parent participation in school was significantly associated with decreased probability of grade retention. Interestingly, parent education, free lunch eligibility, number of years of CPC participation, special education placement, and teacher ratings of classroom adjustment did not predict retention above and beyond other factors.

¹Inclusion of a measure of preschool developmental readiness to predict subsequent retention and academic achievement did not significantly contribute to the prediction of eighth grade reading and math achievement. It explained 2 percent of the variance above and beyond other factors. Similarly, it explained an additional 1 percent of the variance in the model predicting grade retention.

Grade Retention and School Achievement at Age 14

Table 3 presents ordinary least squares regressions predicting reading and mathematics achievement at age 14 as well as perceived school competence at age 12.² Findings for school achievement and perceived competence are presented first. Findings for delinquency are reported in a separate section. Overall, grade retention was associated with significantly lower reading and math achievement at age 14 above and beyond any combination of model variables. The full explanatory model (Step 4) accounted for substantial portions of the variance for both reading ($R^2=.47$) and math ($R^2=.57$) achievement.³ After controlling for sociodemographic factors, early adjustment indicators, and intervening school-based factors, children who were retained scored 9.5 standard-score points lower in reading achievement than their nonretained same-age peers and 8.9 standard-score points lower in math achievement.

Reading Achievement. Grade retention was a consistent predictor of low reading achievement. The group difference was most pronounced in the unadjusted model (Step 1) where retained children scored 24.2 points lower in reading achievement than their nonretained same-age peers. While the magnitude of this relation was smaller after inclusion of the sociodemographic factors (21.1 points) and early adjustment indicators (10.6 points), the estimated effects were significant in all analyses. In other words, over 50 percent of the observed differences between groups was due to other explanatory factors, yet this did not change the interpretation of the findings—grade retention affected reading negatively and significantly. Among other predictors of reading achievement were sex, parental education, free lunch

²The effect of single retention versus double retention was investigated. Only a small number of participants experienced multiple retentions (18 double retentions, 1 triple retention). The effects of any retention did not change when a dummy variable for multiple retentions was included.

³The addition of interaction terms did not significantly improve the explanatory power of the model relative to reading and mathematics achievement (i.e., they explained an additional 1 percent of the variance).

TABLE 3
Unstandardized Regression Coefficients of Model Predicting Age 14 Reading Achievement, Mathematics Achievement,
and Perceived School Competence (Age 12) Using Different Sets of Control Variables

Predictors	Reading Achievement				Mathematics Achievement				Perceived School Competence			
	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4
Grade retention (1 = retained)	-24.2***	-21.1***	-10.6***	-9.5***	-22.1***	-19.9***	-9.7***	-8.9***	-2.3***	-1.9***	-.69	-.43
<i>Sociodemographic Factors</i>												
Sex (1 = girls)		4.9***	2.6	2.1*		2.4*	.23	-.29		.95**	.61	.59
Parent education (1 = high school grad)		6.3***	4.1**	3.8**		3.8***	1.6	1.4		7.5	.48	.42
Free lunch eligibility (3 = not eligible)		-5.5**	-3.3	-3.3*		-4.7**	-2.4	-2.4*		.14	.43	.44
School SES		-7.9E-02	-2.4E-02	-7.1E-03		-8.6E-02	-2.4E-02	-1.2E-02		-5.7E-02**	-5.3E-02**	-4.9E-02**
Missing data from parent(s)		-.43	-.87	-.21		-.54	-.96	-.73		-.16	-.22	2.3E-02
Years of CPC intervention		.77**	-.24	-.45		.65*	-.39*	-.49*		8.8E-02	3.0E-02	-9.5E-02
<i>Early Adjustment Indicators</i>												
Classroom adjustment (grade 1)			.51***	.41**			.45***	.38**			.11*	9.3E-02
Math achievement			.29***	.24***			.43***	.38***			1.5E-02	8.8E-03
Reading achievement (grade 1)			.35***	.33***			.27***	.26***			6.8E-02***	6.2E-02***
Grade in reading (grade 1)			1.3	.99			.80	.50			-.22	-.25
<i>Intervening School-Based Factors</i>												
School mobility				-.16				7.8E-02				-.17
Parental involvement (1 = above average)				1.5***				.77*				.42**
Special education placement				1.9***				-1.8***				-.14
Constant	151.6	153.8	88.6	94.9	153.4	158.3	91.6	97.8	38.1	40.7	32.9	33.5
Variance explained (pseudo)	.23	.28	.45	.47	.28	.31	.55	.57	.05	.08	.14	.16
Number of cases	1158	1158	1158	1158	1158	1158	1158	1158	725	725	725	725

* p < .05
** p < .01
*** p < .001

eligibility, first grade teacher ratings of classroom adjustment, first grade math and reading achievement, parental involvement in school, and placement in special education.

Math Achievement. The findings for math achievement were largely consistent with those of reading. Children who were retained scored 8.9 standard-score points lower than their nonretained same-age peers after controlling for sociodemographic factors, early adjustment indicators, and intervening school-based factors. Grade retention consistently predicted lower math achievement test scores in each step of the model. In the unadjusted model (Step 1), retained children scored 22.1 points lower than their nonretained peers. In Steps 2 and 3, the coefficients, were, respectively, 19.9 and 9.7 standard-score points. In contrast to reading achievement, sex of child and parent education were not significantly associated with math achievement (in Steps 3 and 4), and years of CPC participation was associated with lower math achievement. This latter result should be interpreted cautiously and is likely due to regression toward the mean.

Perceived School Competence. The estimates in Table 3 reveal that grade retention was significantly associated with lower ratings of perceived competence at age 12 only in the unadjusted model (Step 1) and in the model including sociodemographic variables (Step 2). In the full explanatory model (Step 4), grade retention was unrelated to perceived competence. The direction of influence favored children who were not retained. These findings differ from those of the previous study (Reynolds, 1992). School SES, first grade reading achievement, and parental involvement all contributed to children's perceived competence.

Same-Grade Comparisons of Reading and Math Achievement

The above findings were based on same-age comparisons of retained and nonretained children. Table 4 provides same-grade and same-age comparisons of the estimated effects of retention for reading and math achievement. The seventh grade achievement test scores of retained students were compared to

TABLE 4
Unstandardized Regression Coefficient of Grade Retention on Reading and Mathematics
Achievement at Grade 7 (Same Grade Comparison) and Age 14 (Same Age Comparison)

	Same Grade		Same Age	
	Reading Achievement (B)	Mathematics Achievement (B)	Reading Achievement (B)	Mathematics Achievement (B)
<i>Predictors</i>				
Grade retention (1 = retained)	-4.6***	-1.3	-9.5***	-8.9***
<i>Sociodemographic Factors</i>				
Sex (1 = girls)	.32	-.19	2.1	-.29
Parent education (1 = high school grad)	2.1*	1.9*	3.8**	1.4
Free lunch eligibility (1 = not eligible)	-3.2*	-2.6*	-3.3*	-2.4*
School SES	-6.5E-02	-4.6E-02	-7.1E-03	-1.2E-02
Missing data from parent(s)	.24	-.16	-.21	-.73
Years of preschool intervention	-.35	-.36	-.45	-.49*
<i>Early Adjustment Indicators</i>				
Classroom adjustment (grade 1)	.29*	.41***	.41**	.38**
Math achievement	.22***	.37***	.24***	.38***
Reading achievement	.34***	.24***	.33***	.26***
Grade in reading (grade 1)	1.3	.47	.99	.50
<i>Intervening School-Based Factors</i>				
School mobility	1.7E-02	.10	-.16	7.8E-02
Parental involvement (1 = above average)	1.5***	1.1***	1.5***	.77**
Special education placement	-1.8***	-1.4***	1.9***	1.8***
Constant	95.7	91.9	94.9	97.8
Variance explained (pseudo)	.43	.49	.47	.57
Number of cases	1124	1120	1158	1158

* p < .05
** p < .01
*** p < .001

the seventh grade scores of promoted children (same-grade comparison). Consistent with findings based on same-age comparisons, retained children scored significantly lower than their same-grade cohorts in reading achievement at seventh grade, though the adjusted group difference was smaller ($B = -4.6$ standard-score points). Although retained children also scored lower than the same-grade comparison group in math achievement ($B = -1.3$ standard-score points), this difference was not statistically significant. Thus, while the findings based on same-grade comparisons yielded smaller negative effects of retention, both comparison-group contrasts showed that the academic performance of retained children did not meet or surpass that of promoted children even after accounting for the factors that presumably determine retention.

Effect Sizes of Timing of Grade Retention on Reading and Math Achievement

Table 5 displays effect sizes for any retention as well as for retentions that occurred during first to third grades (early retention) and during fourth through seventh grades (later retention). Effect sizes represent proportions of standard deviations. They are calculated by dividing the mean difference between groups by the within-group standard deviation (Hedges and Olkin, 1985). Note that the effect sizes for later grade retention took into account school performance at age 10 (fourth grade), including reading and math achievement, and classroom adjustment. Based on the full model (Step 4), early grade retention was more associated with lower reading achievement ($ES = -.403$ SD) than was later retention ($ES = -.189$ SD). Only the former coefficient was statistically significant.

The effect sizes for math achievement indicated no relation between timing of retention and later performance at age 14. For the full model, both early retention ($ES = -.385$) and later retention ($ES = -.363$) were significantly associated with lower math achievement above and beyond variables in the explanatory model.

TABLE 5
Effect Sizes (in Standard Deviation Units) of Grade Retention
in the Explanatory Model for Age 14 Reading Achievement,
Mathematics Achievement, and Perceived School Competence (Age 12)

Characteristic	N	Step 1	Step 2	Step 3	Step 4
<i>Reading Achievement</i>					
Any retention (grades 1–7)	315	-1.08***	-.941***	-.475***	-.424***
Early retention (grades 1–3)	241	-1.08***	-.942***	-.445***	-.403***
Later retention (grades 4–7)	74	-.618***	-.390**	-.207	-.189
<i>Mathematics Achievement</i>					
Any retention (grades 1–7)	315	-1.18***	-1.07***	-.521***	-.481***
Early retention (grades 1–3)	241	-1.14***	-1.02***	-.422***	-.385***
Later retention (grades 4–7)	74	-.777***	-.577***	-.371***	-.363***
<i>Perceived School Competence</i>					
Any retention (grades 1–7)	315	-.495***	-.400***	-.147	-.091
Early retention (grades 1–3)	241	-.415***	-.335***	-.059	.014
Later retention (grades 4–7)	74	-.516**	-.363	-.199	-.180

* p < .05
 ** p < .01
 *** p < .001

The effect sizes of any, early, and later retention presented in Table 5 indicate that grade retention was unrelated to perceived competence in the full model regardless of whether it occurred during the primary grades or later in elementary school.

Grade Retention and Delinquency Infractions

Table 6 presents the full-model predictors of delinquency using logistic regression. Both logit coefficients and transformed linear probability coefficients are reported. Grade retention was unrelated to school-reported delinquency infractions. The direction of influence favored retained children in that their rate of delinquency tended to be lower than their same-age comparison group. As with math achievement and perceived school competence, no effect of timing of retention was detected. The estimated effect on delinquency of early retention and later retention was the same.

Although the overall model did not fit the data well and accounted for only a small proportion of variance, two variables did significantly predict delinquency. Boys were significantly more likely than girls to have a delinquency infraction. In addition, school mobility was positively associated with delinquency such that children who frequently changed schools were more likely to experience a delinquency infraction. Each additional move was associated with a 2.2 percentage-point increase in the probability of delinquency.

DISCUSSION

Summary of Findings

The purpose of this study was to investigate the longer-term effects of grade retention on school achievement and social-psychological behavior by extending previous analyses in the CLS. The study adds uniquely to the literature on the consequences of grade retention. It is one of the few prospective longitudinal studies of retention beginning in kindergarten and tracing the performance of retained and

TABLE 6
Logistic Regression Coefficients for Delinquency Infractions

Predictor	Logit Coefficient (B)	Estimated Effect on Probability of Delinquency
Grade retention (1=retained)	-.304	-.034
<i>Sociodemographic Factors</i>		
Sex of child (1=girl)	-.547**	-.061
Parent education (1=high school graduate)	-.121	-.014
Free lunch eligibility (3=not eligible)	-.353	-.039
School SES	-.016	-1.8E-03
Missing data from parents	.105	.012
Total years of CPC intervention	-.068	-7.6E-03
<i>Early Adjustment Indicators</i>		
Classroom adjustment (grade 1)	-.051	-5.7E-03
Mathematics achievement (grade 1)	.005	5.6E-04
Reading achievement (grade 1)	.001	1.1E-04
Grade in reading (grade 1)	-.046	-5.2E-03
<i>Intervening School-based Factors</i>		
School mobility	.199**	.022
Parental involvement (1=above average)	-.131	-.015
Special education placement	.011	1.2E-03
-2 log likelihood	778.58	
Chi-square	10.35	
Constant	.421	
Variance explained (pseudo)	.036	
Number of cases	1054	

* p<.05
** p<.01
*** p<.001

nonretained children through the end of eighth grade (age 14). Because of the prospective longitudinal study design, we were also able to take into account many child and family attributes prior to the decision to retain, especially early school performance and the potentially confounding effects of special education placement, school mobility, and participation in early childhood intervention. With few exceptions (e.g., Alexander, Entwisle, and Dauber, 1994; Reynolds, 1992), prior studies do not have these methodological strengths. These attributes bolster our confidence in the validity of the findings.

Nearly 30 percent of students in the study sample were retained during the elementary grades. Among the predictors of retention were early academic performance, parent participation in school, school mobility, and sex—boys were more likely to be retained. Our multivariate results consistently indicated that grade retention did not lead to improved academic performance or enhanced social-psychological functioning at ages 12 to 14. To the contrary, grade retention was associated with significantly lower school achievement above and beyond many other known predictors. Relative to their same-age peers, children who were retained during grades 1 to 7 had significantly lower scores in reading and math achievement after controlling for preretention performance, family background, and early school experiences. Relative to their same-grade peers, retained children had significantly lower scores in reading achievement at age 14. These retained children also had lower math achievement than their same-grade cohort, but the difference was not significant. Same-age comparisons of perceived school competence and delinquency infractions also indicated intergroup equivalence. Regarding the timing of retention, the estimated effects on reading achievement of early grade retention (during grades 1 to 3) were larger and more negative than the effects of later grade retention. The timing of grade retention had no discernible impact on math achievement, perceived school competence, and delinquency infractions. Except for delinquency infractions, the direction of influence in all analyses favored never-retained children. Thus, grade retention conferred little academic advantage over time for

this study sample. Before discussing the implications of these findings for education and child development, we interpret results in the context of the previous study and of related studies.

Comparison of Findings to Reynolds (1992) and Other Studies

Our findings are largely consistent with the fourth grade follow-up study (Reynolds, 1992). As in the earlier study, same-age comparisons of school achievement indicated that retained children had significantly lower achievement in reading and math after taking into account nearly the same set of preretention measures and early school experiences. In the present study, for example, retained children scored 9 standard-score points lower (about 8 months of performance), on average, than their never-retained peers at age 14. In the previous study, retained children scored about 8 points lower than their peers (about 7 months of performance). Same-grade comparisons yielded findings that were similar to those of the previous study, though in the present analysis the reading achievement of retained children was significantly below that of the comparison group.

Two notable differences between studies did occur. In the present study, grade retention was unrelated to children's perceived school competence in the explanatory model whereas in Reynolds (1992) grade retention was associated with significantly more positive perceptions of school competence. This positive effect of grade retention was explained by social comparison theory. Because of their greater physical maturity and self-expectations, children who are retained are more likely to rate their competence more favorably relative to their new, younger classmates. Evidently these more positive perceptions are short-lived. By age 12, retained and nonretained children had similarly positive perceptions of competence. Perhaps school norms of academic success become more internalized over time, and the transition to adolescence may alter self-perceptions of competence among low-achieving children. Of course, self-perceptions of competence may become more realistic beginning in early

adolescence. Retained children may have an increasing awareness that their academic performance does not measure up to that of their nonretained peers.

Another difference in findings between studies is that the effect sizes (in SD units) of grade retention for same-age comparisons were smaller in the present study (about 0.40 SD at age 14) than in the previous one (about 0.70 SD at age 10). This is primarily due to the substantial increase in the variation of achievement test scores as children develop (i.e., the fan spread). Although both studies reported an 8 to 9 standard-score point difference in academic performance, the magnitude of this difference is larger during the early grades. At age 10, for example, an 8-point decline in reading achievement (i.e., from 4.2 to 3.5 grade equivalents) is equivalent to a drop from the 35th to the 20th percentile, while at age 14 a similar decline is equivalent to a drop from the 30th to the 20th percentile. Interestingly, the effect size for same-grade comparisons increased rather than decreased from ages 10 to 14, especially for reading achievement. Overall, the findings of the present study indicate that the negative association and estimated effect of grade retention remained substantial from ages 10 to 14. The lone positive effect on perceived school competence from the previous study was not detected 4 years later, and same-grade comparisons showed that the achievement gap widened between retained and nonretained children.

The findings of the present study are also consistent with several recent analyses (Jimerson and Schuder, 1996; Meisels and Liaw, 1993; Roderick, 1994; Rumberger, 1995) indicating that grade retention does not benefit children scholastically. Reviews of research largely support these findings (Karweit, 1992; Matthews, 1989). Although other studies lend some support to the positive effects of grade retention on school achievement under same-grade comparisons (Peterson, DeGracie, and Ayabe, 1987; Pierson and Connell, 1992), these effects are typically observed in the short term and for students that are middle class and are retained after the primary grades. In their Baltimore study, Alexander, Entwisle, and Dauber (1994) also reported some positive effects of grade retention in second and third

grade children such that the achievement gap between retained and nonretained children prior to retention narrowed substantially in the years following retention. This occurred for both same-age and same-grade comparisons. Nevertheless, they also reported that children who were retained lagged consistently behind both their same-age and same-grade peers by the eighth grade year even after accounting for differences in preretention achievement and many other factors. Finally, our findings that grade retention was unrelated to social-psychological behavior at ages 12 to 14 occupy the intermediate position between studies showing positive effects (Alexander, Entwisle, and Dauber, 1994; Gottfredson, Fink, and Graham, 1994) and those showing negative effects (Meisels and Liaw, 1993; Roderick, 1994). This variation in findings across studies may reflect differences in measures, sample characteristics, and explanatory models. The change from positive effects of retention on perceived school competence in Reynolds (1992) to no observable effects reported in the present study, for example, reflects differences in age of assessment. Interestingly, our finding that school mobility was significantly associated with a greater likelihood of delinquency infractions suggests that school experiences can predict social outcomes.

Interpreting the Effects of Retention and the Need for Preventive Interventions

Based on the historical criterion in which retention is judged to be an effective educational practice only if it is demonstrated to be more beneficial than the alternatives (e.g., promotion or some other type of remediating), most studies would find retention to be ineffective for the vast majority of students. This does not mean that grade promotion is the best practice for addressing the needs of low-achieving students. Rather, other things being equal, grade promotion is more efficacious, on average, than grade retention, especially in the early grades.

Grade retention is a remedial and tertiary intervention strategy. It is a response to academic failure. The rationale is that by repeating the previous year's instruction children will "catch up" with

their new grade cohort. By itself, grade retention would not be expected to remediate the academic problems that many children experience. Grade retention plus remediating (e.g., summer school, tutoring) may have a better chance for success, and such retention-plus strategies are being implemented with greater frequency today. But this raises the question of whether retention plus remediating will be more effective than promotion plus remediating. Although the answer is not clear, unless there is a retention by remediating interaction effect, this question reduces to the age-old question of retention versus promotion. Based on the results of many previous studies, the effects of most retention plus remediating approaches are likely to be disappointing.

A typical student who is retained is far behind his/her peers. The average reading performance in first grade of retained study children, for example, was at the 19th percentile nationally compared to the 49th percentile for nonretained children (a 7-month difference in performance). To address the substantial academic needs of underachieving students successfully, interventions need to be comprehensive, innovative, and intensive, and they would benefit from being implemented prior to academic failure. Among the programs and reform strategies that have demonstrated effectiveness for students at risk are the comprehensive early intervention and tutoring program Success for All (Madden et al., 1993), the School Development Program (Comer, 1993), and early childhood interventions beginning in preschool that include both educational- and family-support components (Barnett, 1995; Consortium for Longitudinal Studies, 1983; Ramey and Ramey, 1998). Early childhood interventions of good quality, for example, have been found to reduce later grade retention by up to 40 percent (Barnett, 1995; Reynolds et al., 1997), and some of these include large-scale programs such as Head Start. Indeed, participation in the CPC preschool program and the primary-grade expansion program in which many children in this study participated has been associated with reductions in grade retention in the elementary grades (Reynolds, 1994, 1995). Because fewer than one-half of eligible children participate in compensatory preschool programs nationally (National Education Goals Panel, 1995) and far fewer

participate in extended intervention programs, wider dissemination of early intervention programs may promote early patterns of achievement and thus reduce the need for later grade retention. Educational practices and policies that may be more effective alternatives to grade retention include reducing class sizes and adult-to-child ratios in the early grades, participation in summer school, and increasing the general quality of classroom instruction.

Implications

Our findings and those of many other studies indicate that grade retention is at best an insufficient intervention strategy for promoting student achievement, at least for many central-city minority children. At worst, grade retention impedes children's academic success and should be substantially modified or replaced by programs and policies with demonstrated effectiveness. Although the findings of this study should be viewed within the context of the low-income sample and the correlational study design, the major implication is that grade retention does not appear to benefit many of the children it is designed to help. For all achievement comparisons, retained children consistently underperformed their promoted peers, and usually significantly. No positive effects of grade retention were detected. Policies and practices other than grade retention are needed to better promote children's learning and development. Grade retention is both a remedial and reactive educational practice. Comprehensive and intensive intervention efforts appear to be needed more than ever. Prevention programs and interventions designed to promote social competence beginning in early childhood are promising approaches to addressing the needs of children (Weissberg and Greenberg, 1998), and they would benefit from larger-scale implementation.

Nevertheless, future research should include the systematic evaluation of alternatives to grade retention, including both retention plus remediating and promotion plus remediating approaches. The effects of grade retention on high school dropout also warrant further examination through prospective

longitudinal studies. Other intended and unintended side effects of grade retention are especially important to consider in understanding its economic and social consequences. Finally, the processes through which grade retention exerts its influence on scholastic and social success need further exploration. If consistent relations between retention and later academic problems are observed, are these due to psychological disengagement from the schooling process, to lower expectations by teachers and by students themselves, or to co-occurring schooling experiences such as tracking and ability grouping that are consequences of repeating a grade? Only when these questions are better addressed will a more complete understanding of the impact of grade retention on children's development be achieved.

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