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Meta-analysis of Grade Retention Research: Implications for Practice in the 21st Century

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Abstract. Retaining a child at grade level has become increasingly popular, consistent with the emphasis on accountability and standards in elementary education. This article provides a comprehensive review of the research examining the academic and socioemotional outcomes associated with grade retention. Following a brief historical overview of previously published literature reviews, a summary of studies published between 1990 and 1999 is provided. A systematic review and meta-analysis of 20 recent studies includes: outcome variables (i.e., achievement and socioemotional adjustment), age or grade of retained population, matched or controlled for variables in analyses with comparison groups, and the overall conclusion regarding the efficacy of grade retention. Results of recent studies and this meta-analysis are consistent with past literature reviews from the 1970s and 1980s. In addition to a summary of the results, the discussion addresses the disparity between educational practice and converging research regarding grade retention and suggests directions for practice. This review encourages researchers, educational professionals, and legislators to abandon the debate regarding social promotion and grade retention in favor of a more productive course of action in the new millennium.

Grade retention is the practice of requiring a student who has been in a given grade level for a full school year to remain at that level for a subsequent school year (Jackson, 1975). Over the past 25 years, grade retention has been revived as a popular, albeit controversial, method of remediating poor academic performance (Abidin, Golladay, & Howerton, 1971; McCoy & Reynolds, 1999; U.S. Department of Commerce, Bureau of the Census, 1966, 1990). It has been estimated that 5 to 10% of students are retained annually in the United States, representing more than 2.4 million children every year (Dawson, 1998a). There is a concern that rates of retention may increase. For example, as "standards" and "accountability" assumed greater emphasis in education, President Clinton (1998, 1999) called for an end to social promotion, which many educational professionals interpret as a directive to retain low-achieving students. In addition, educational policies related to legislation aimed at increasing standards and emphasizing accountability are likely to result in increased retention rates (e.g., early elementary grade level reading proficiency tests that must be passed before advancing to the next grade level) (U.S. Department of Education, 1999).

Research published between 1900 and 1989 indicated mixed results regarding the efficacy of grade retention on ameliorating children's socioemotional and achievement needs. Concerns regarding the quality of many past studies of grade retention have been presented in several reviews (Holmes, 1989; Jackson, 1975; Niklason, 1984, 1987; Rose, Medway, Cantrell, & Marus, 1983) and reiter-

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ated in recent publications (Alexander, Entwisle, & Dauber, 1994; Jimerson, Carlson, Rotert, Egeland, & Sroufe, 1997). Methodological concerns include: (a) comparing pre- and posttest scores of retained students rather than employing a comparison group, (b) rarely delineating characteristics of comparison groups, (c) failing to consider socioemotional outcomes, and (d) rarely examining the long-term outcomes associated with grade retention. Furthermore, data collected 30 to 40 years ago may be outdated. Although these methodological inadequacies limit unequivocal conclusions from any single study, the confluence of results clearly warrants further consideration. The following historical overview, systematic review, and meta-analysis provide a comprehensive summary of empirical findings of outcomes associated with grade retention.

Historical Overview

Past research reviews and meta-analyses have concluded that the cumulative evidence does not support the use of grade retention as an academic intervention (Holmes, 1989; Holmes & Matthews, 1984; Jackson, 1975). Previous reviews examined studies spanning most of the 20th century (published between 1911 and 1989). A summary of these three major reviews is provided in the following paragraphs.

In 1975, Jackson provided the first systematic, comprehensive overview of the research evidence on the effects of grade retention. This review included 30 studies published between 1911 and 1973. Jackson sought to examine whether low-achieving students or those with socioemotional maladjustment benefited from grade retention or promotion to the next grade. Jackson divided the studies into three groups based on their design type: naturalistic, pre-post, and experimental.

Naturalistic studies compared students who were retained under normal school policies with those who were promoted. Of the 17 studies in this category, 10 reported statistically significant results favoring only promoted students, 3 reported statistically significant results favoring both groups, and 4 reported no significant differences between groups. Both achievement and socioemotional adjustment were examined in a total of 204 analyses. Fifty-one of the analyses resulted in a statistically significant difference favoring the promoted students (24 achievement and 27 socioemotional). Five analyses reported a statistically significant difference favoring retained students (2 for achievement and 3 for socioemotional). The remainder of the 204 analyses resulted in nonsignificant differences, with 85 favoring promoted students and 63 favoring retained students.

Studies employing a pre-post test design compared the performance and adjustment of retained students before and after promotion. Of the 12 studies included, 9 reported only statistically significant gains, 1 reported statistically significant results reflecting both losses and gains, and 2 reported no significant changes. As with the naturalistic studies, both achievement and socioemotional adjustment were examined. A total of 114 analyses were reported, with 98 analyses revealing a statistically significant gain for the retained students (69 achievement, 29 socioemotional). Four analyses of achievement yielded nonsignificant differences favoring the retained students. With regard to adjustment, 1 analysis revealed a statistically significant decrease for the retained students, 2 identified statistically nonsignificant decreases for retained students, 2 identified no change, and 7 resulted in nonsignificant gains for retained students.

Studies using an experimental design compared students with difficulties who were randomly assigned to either grade promotion or grade retention. Of the 3 studies included, 1 reported statistically significant results favoring only promoted students, and 3 reported no significant differences between groups. Studies of this design type examined only academic achievement, with 1 analysis showing a statistically significant difference favoring the promoted students and no analyses finding statistically significant differences favoring retained students. The remainder of the 39 analyses were nonsignificant, with 17 favoring promoted students and 22 favoring retained students.

Although results of the naturalistic studies are clearly different from those of pre-post studies, they are not contradictory. Whereas a naturalistic design compares the effects of grade retention and grade promotion, a pre-post design focuses only on retained students. Both design types have inadequacies that may bias the results. Specifically, naturalistic studies favor promoted students, in that there are likely individual or family characteristics associated with matched peers who were promoted versus retained. Thus, these pre-existing differences may be contributing to subsequent outcomes. In contrast, pre-post studies may be more likely to conclude that grade retention is more or less beneficial than it may be, because in the absence of a comparison group of students, the retained students may indeed demonstrate gains, even though these may be considerably less than for a promoted group of comparison students. Jackson (1975) suggested that it is possible for grade retention to be of some benefit for students; however, grade promotion appears to provide even greater benefits. Results of experimental studies are also equivocal, resulting in one significant result favoring the promotion of students. However, the nonsignificant trends were equally distributed. Jackson (1975) concluded, "There is no reliable body of evidence to indicate that grade retention is more beneficial than grade promotion for students with serious academic or adjustment difficulties" (p. 627). Furthermore, Jackson suggested that educational professionals who retain students do so without valid research evidence to indicate that this intervention strategy will benefit students with academic or adjustment difficulties more than promotion to the next grade.

Nearly a decade following Jackson's review, Holmes and Matthews (1984) performed a meta-analysis exploring the effects of retention on elementary and junior high school students using both achievement and socioemotional outcomes. This meta-analysis included 44 studies published between 1929 and 1981, totaling 4,208 retained students and 6,924 regularly promoted students. Eighteen studies included comparison samples matched on various combinations of IQ, achievement tests, socioeconomic status (SES), gender, grades, and other dimensions.

Holmes and Matthews's (1984) meta-analysis revealed statistically significant differences favoring the promoted students in each area of comparison (e.g., academic achievement, language arts, reading, mathematics, work study skills, social studies, personal adjustment, social adjustment, emotional adjustment, behavior, self-concept, attitude toward school, and attendance). Overall, the retained students had lower academic achievement, poorer personal adjustment, lower self-concept, and held school in less favor than promoted students. When compared with analyses using only studies with matched students, results were consistent. Holmes and Matthews (1984) concluded that educational professionals who continue to retain students do so despite cumulative evidence demonstrating that the potential for negative effects consistently outweighs positive outcomes. Holmes and Matthews also suggested "that the burden of proof falls on the proponents of retention to show there is compelling logic indicating success of their plans when so many other plans have failed" (p. 232).

Holmes (1989) performed a subsequent meta-analysis including 19 additional studies, thus using a total of 63 controlled studies published between 1925 and 1989 where retained students were followed and compared to promoted students. Twenty-five of these studies included participants matched on IQ, achievement, SES, gender, grades, and other variables. Holmes reported that 54 studies indicated overall negative effects associated with grade retention, including socioemotional maladjustment and lower academic achievement. Of the 9 studies that yielded positive results, the benefits of retention appeared to diminish over time. He concluded that when the overall findings were considered, greater negative effects were shown in studies where retained students and promoted controls were matched on IQ and past achievement scores.

Previous reviews indicate an absence of empirical evidence supporting the practice of retaining students. In addition, these reviews

highlight multiple methodological concerns that plague the studies examining grade retention (i.e., unmatched comparison groups, comparing only pre-post scores of retained students with no comparison). During the past decade there has been an emphasis on methodology in studies examining outcomes associated with grade retention; this has generally resulted in more appropriately matched comparison groups than previous research.

Present Review

The last meta-analysis of grade retention studies was published more than a decade ago, and there have been methodological improvements in this area of research since that time. Thus, this article provides both a systematic review and meta-analysis focusing on studies published between 1990 and 1999. Questions answered for each study are: (a) What variables are used to match the comparison group to the retained students? (b) In what grade are the students retained and at what age/grade are the outcomes examined? (c) What are the results of analyses exploring academic achievement outcomes of retained students relative to a comparison group of promoted students? (d) What are the results of analyses exploring socioemotional and behavioral outcomes of retained students in contrast to a comparison group of promoted students? and (e) What do the authors of each paper conclude regarding the efficacy of grade retention?

Method

A systematic search of the literature was conducted to identify studies of grade retention published between 1990 and 1999. Descriptors such as grade retention, grade repetition, nonpromotion, grade failure, flunked, failed, retained, and other synonyms were used to search reference databases. Computer databases searched included the Education Research Information Center (ERIC) and Psychological Information Abstracts (PsychINFO). Results yielded over 400 references between 1990 and 1999. Additional studies were identified through a review of references in each publication obtained.

Selection criteria for inclusion in this review were: (a) research must have been presented in a professional publication (e.g., journal article or book); (b) results must have addressed the efficacy of grade retention (i.e., achievement, socioemotional, or other); (c) study must have included an identifiable comparison group of promoted students; and (d) research must have been published during the past decade (i.e., 1990 to 1999). Based on the selection criteria, 20 articles were included in this review. To address potential selection bias, many theses and conference presentations were also reviewed, but none of these studies were included as there were multiple methodological limitations that precluded them from meeting the selection criteria.

Procedures

The summary and analysis of the 20 articles provided the following information: (a) variables used for matching the comparison group and retained students (i.e., IQ, academic achievement, socioemotional and behavioral adjustment, SES, and gender); (b) specification of the age/grade at which retention and the measurement of outcome variables occurred; (c) a review of analyses comparing retained students to a matched group (i.e., academic achievement and socioemotional and behavioral adjustment); and (d) the overall conclusion of the author(s) regarding the efficacy of grade retention.

Two categories were created for grouping analyses presented in the 20 studies: academic achievement and socioemotional adjustment. Academic achievement was most often measured by results on a standardized norm-referenced achievement test (e.g., Peabody Individual Achievement Test [Dunn & Markwardt, 1970]; Woodcock-Johnson Tests of Achievement [Woodcock & Johnson, 1990]). Most studies examined relative gains in achievement test scores; some used residual scores from regression models, whereas others used statistically adjusted scores to account for initial differences. A few studies also included report card marks or classroom grades as an indicator of achievement. Indicators of socioemotional adjustment were more diverse

and included peer competence, self-esteem, locus of control, achievement expectations, school satisfaction, school engagement, behavior problems, and other composite variables incorporating students' attitudes, behaviors, and social and emotional adjustment. It should be noted that most studies included only students retained during kindergarten, first, second, and third grades; however, a small number included students retained in kindergarten through eighth grade as indicated in Table 1 (Alexander et al., 1994; Gottfredson, Fink, & Graham, 1994; Hagborg, Masella, Palladino, & Shepardson, 1991; McCoy & Reynolds, 1999; Meisels & Liaw, 1993; Pierson & Connell, 1992).

Comprehensive summary of each study. Consistent with Jackson's (1975) review, the outcome of each relevant analysis was coded with respect to its significance (i.e., statistically significant results favoring retained students, no significant differences between groups, or statistically significant results favoring the comparison group of promoted students). An alpha level of $p<.05$ was established as the criterion for statistically significant outcomes. All studies were coded by the author in addition to codes by research assistants to examine reliability (Light & Pillemer, 1984). These research assistants had previous training in research methodology and statistics. Thus, a brief introduction to the task was provided. Samples of coded analyses were reviewed and then the two research assistants were given a manuscript to code. These initial codes were discussed and the two research assistants were directed to independently code each of the statistical analyses comparing outcomes between retained students and the comparison group of students in the remainder of available studies. All studies were coded by at least two individuals, and most were coded by all three. Upon initial comparison of codes, there were minor discrepancies in the overall number of analyses coded. In particular, there were five incidents in which one coder did not record a specific analysis. Discrepancies were resolved through discussion and through reexamination; all analyses were documented. There were no differences in coding the direction of results or the significance of results. The codes for each analysis comparing retained students to a comparison group of promoted students are listed for each study in Table 1.

Statistical meta-analysis. Meta-analysis is based on the concept of effect size (ES) (Cohen 1988; Glass, 1978; Glass, McGaw, & Smith, 1981). Computation of the effect size is a statistical procedure that allows researchers to systematically pool results across studies to examine the relative benefit of an educational intervention. Meta-analysis procedures result in a measure of the difference between two groups expressed in quantitative units that are comparable across studies (Cooper & Hedges, 1994; Hedges & Olkin, 1985; Hunter & Schmidt, 1990). Each effect size is standardized with respect to the comparison group standard deviation. Thus, it is possible to combine the results from different measures at different grade levels. A negative effect size suggests that an intervention (retention in this case) had a negative or deleterious effect relative to the comparison groups of promoted students.

Consistent with previously published meta-analyses examining grade retention (Holmes, 1989; Holmes & Matthews, 1984), the effect size (ES) was defined as the difference between the mean of the retained group (X_r) and the mean of the comparison (promoted) group (X_p) divided by the standard deviation of the comparison group (S_p) yielding the following formula: $ES = (X_r - X_p)/S_p$ (Holmes, 1989). Group means adjusted for prior differences were used when available. In studies where the necessary group means and standard deviations were not included in the publication, the authors were contacted to provide the necessary data. For a small number of analyses, the effect sizes were estimated by working backwards from the reported significance tests (as described in Holmes, 1984). Analyses where sufficient statistical information was unavailable (e.g., categorical variables) and variables examined in only a single study were not included in the meta-analysis.

Because some studies yielded only 1 effect size and others yielded as many as 25, additional analyses were performed to see if any single study had produced substantial dis-

Table 1
Systematic Summary: Conclusions, Characteristics, and Results of Analyses of Retained Students and Matched Comparison Groups

Study	Author(s) Conclude	Results with Comparison Group (Number of Analyses) Achievement				Socioemotional			Outcome Grade/Age	Grade Retained	Comparison Group Matched or Controlled				
(# of Retained & Comparison)		--	ns	++		--	ns	++			IQ	AA	SA	SES	SEX
Johnson, Merrell, & Stover (1990) (n = 20 & 17)	_	0	7	0		0	0	0	4th	K & 1st	n	n	n	n	n
											(recommended for retention)				
Ferguson (1991) (n = 46 & 20)	_	0	4	0		1	9	0	2nd	K	n	y	n	y	y
Hagborg et al. (1991) (n = 38 & 38)	_	4	0	0		4	5	0	H.S.	K - 7th	n	y	n	n	y
Mantzicopoulos & Morrison (1992) (n = 53 & 53)	_	0	4	2^	(g)	0	15	0	K - 2nd	K	n	y	n	y	y
		0	2	2^	(a)	0	10	0	6 & 9 yrs						
McCombs-Thomas et al. (1992) (n = 31 & 31)	_	0	10	0		0	6	0	2nd - 5th	K & 1st	y	y	n	n	y
Phelps et al. (1992) (n = 24 & 24)	_	2	1	0		0	2	0	7th - 9th	K - 4th	y	n	n	y	y
Pierson & Connell (1992) (n = 74 & 69)	+	0	3	1		0	6	0	3rd - 6th	1st - 4th	y	n	n	n	y
Reynolds (1992) (n = 231 & 200)	_	2	0	0		0	1	1	4th	K - 3rd	n	y	y	y	y

(continued)

Table 1 (continued)

Study (# of Retained & Comparison)	Author(s) Conclude	Results with Comparison Group (Number of Analyses) Achievement --	ns	++		Socioemotional --	ns	++	Outcome Grade/Age	Grade Retained	Comparison Group Matched or Controlled IQ	AA	SA	SES	SEX
Meisels & Liaw (1993) (n = 3,203 & 13,420)	–	2	0	0		2	0	0	8th	K - 8th	n	n	n	y	y
Reynolds & Bezruczko (1993) (n = 1,255)	–	1	0	0		0	2	0	4th	K - 3rd	y	y	y	y	y
Rust & Wallace (1993) (n = 60 & 60)	–	0	2	1^		0	0	0	K - 3rd	K	n	y	n	y	y
Alexander, Entwisle, & Dauber (1994) (n = 242 & 106)	+	21 23	28 7	1 0	(g) (a)	1 0	35 0	4 0	1st - 8th	1st - 3rd+	n	y	n	y	y
Dennebaum & Kulberg (1994) (n = 25 & 17)	–	12	0	0		0	0	0	1st - 3rd	K	y (recommended for retention)	n	n	n	n
Gottfredson, Fink, & Graham (1994) (n = 197 & 204)	+	0	0	0		0	8^	3^	6th - 8th	6th - 7th	n	n	y	y	y
Ferguson & Mueller-Strieb (1996) (n = 33 & 14)	–	0	1	0		0	0	0	2nd	K	n	y	n	y	n
Jimerson et al. (1997) (n = 32 & 50)	–	0	14	1^		1	10	0	1st -2nd 6th & 16yrs	K - 3rd	y	y	y	y	n
Mantzicopoulos (1997) (n = 25 & 15)	–	0	1	1		0	10	0	1st & 2nd	K	y	y	y	y	y

Table 1 (continued)

Study	Author(s) Conclude	Results with Comparison Group (Number of Analyses) Achievement				Socioemotional			Outcome Grade/Age	Grade Retained	Comparison Group Matched or Controlled				
(# of Retained & Comparison)		--	ns	++		--	ns	++			IQ	AA	SA	SES	SEX
Pianta, Tietbohl, & Bennett (1997) (n = 49 & 52)	+	0	0	0		0	5	0	K & 1st	K	y	n	n	y	n
Jimerson (1999) (n = 20 & 23)	–	0	0	0	(g)	1	0	0	11th	K - 3rd	y	y	n	y	n
		2	0	0	(a)	3e	1e	0	19 & 20 yrs						
McCoy & Reynolds (1999) (n = 315 & 843)	–	1	1	0	(g)	0	1	0	7th	1st - 7th	n	y	y	y	y
		2	0	0	(a)	0	1	0	12 & 14 yrs						
Total per column	4(+) 16(-)	82	84	3(6)		13	119(8)	5(3)			9(y)	13(y)	6(y)	15(y)	14(y)
Percentage per column		47	48	2(3)		9	80(6)	3(2)			45	65	30	75	70

Note: + = Overall author(s) conclusions support grade retention; - = Overall author(s) conclusions do not support grade retention; -- = Number of analyses indicating significantly negative outcomes for the retained group relative to comparison group; ns = Number of analyses indicating no significant differences between retained group and comparison group; ++ = Number of analyses indicating significantly positive outcomes for the retained group relative to comparison group; ^ indicates that results reflect differences during the year/grade repeated (i.e., second year in kindergarten); (g) = same grade comparisons; (a) = same age comparisons; e = educational/employment and post-secondary enrollment variables; IQ = Intelligence; AA = Academic Achievement; SA = Socioemotional Adjustment; SES = Socioeconomic Status; SEX = gender; n = no (not matched or controlled); y = yes (matched or controlled); 1st - 3rd+ = the reported analyses examined students retained in grades 1, 2, and 3, however the study included retentions through 7th grade; (6) = results presented in parentheses indicates that results reflect differences considering the year repeated (i.e., second year in Kindergarten) (these numbers reflect the sum of analyses indicated with "^" as described above).

tortions in the effect sizes. For each study, all individual effect sizes were summed and averaged. These means were used to recalculate the effect sizes for each of the outcomes. This procedure gives each study equal weight in determining the overall result. Effect sizes weighted by study were not found to differ significantly from reported effect sizes weighted by the number of effects; thus, they do not appear in the results.

Results

Variables Used to Match the Comparison Group

Comparison groups ranged from those with only one matched variable to those with students who were recommended for retention but were not retained and essentially matched on all variables considered (i.e., IQ, academic achievement, socioemotional adjustment, SES, and gender). Methods used for matching retained and promoted students were: (a) selecting a comparable sample, and (b) controlling for prior levels in comparison analyses (e.g., academic achievement, socioemotional adjustment). Nineteen of the 20 studies matched retained and promoted students on at least one of the variables examined (see Table 1). Eighteen of the 20 studies included two or more matching variables. More specifically, 45% matched on or controlled for IQ, 65% matched on or controlled for academic achievement, 30% matched on or controlled for socioemotional adjustment, 75% matched on or controlled for SES, and 70% matched on or controlled for gender. Fourteen of the studies examined both academic achievement and some dimension of socioemotional adjustment; however, it is a methodological limitation that 11 studies reporting results of socioemotional comparisons did not control or match on this variable. Thus, findings for socioemotional outcomes may reflect preretention differences unaccounted for in the analyses.

Grade of Retention and the Age/Grade of Outcomes

Fourteen of the studies included students retained only in Kindergarten through third grade and 6 studies included students retained in Kindergarten through eighth grade (see Table 1). Comparisons between the outcomes associated with early or later retention were not significant (Meisels & Liaw, 1993). Although prior reviews have suggested that students retained later have poorer outcomes than those retained in early grades, results of these studies demonstrated similar outcomes regardless of the grade of retention during elementary school. However, it is important to interpret these results with caution given the small number of studies with students retained after third grade.

Most studies reported grade level outcomes; however, several included both grade level and age level comparisons. A few studies included variables that were age-related, thus comparisons were made with a same-age comparison group (e.g., dropout status at age 19 years, post-secondary enrollment at age 20 years, high school graduation at age 20 years, education/employment status at age 20 years) (Jimerson, 1999). The grade level of outcomes reported ranged from Kindergarten to 11th grade. The results of analyses comparing retained students in their second year at the same grade level are indicated on Table 1 (i.e., "^"). Most studies (17 of 20) examined outcomes in Grades 1 through 7 and many (14 of 20) reported outcomes during a series of years (e.g., first through seventh grade, or second through fifth grade). Six studies reported on a single outcome year (Ferguson, 1991; Ferguson & Mueller-Strieb, 1996; Johnson, Merrell, & Stover, 1990; Meisels & Liaw, 1993; Reynolds, 1992; Reynolds & Bezruczko, 1993). Only six studies reported outcomes beyond Grade 7 (Alexander et al., 1994; Hagborg et al., 1991; Jimerson, 1999; Jimerson et al., 1997; Meisels & Liaw, 1993; Phelps, Dowdell, Rizzo, Ehrlich, & Wilczenski, 1992).

Results of Analyses Exploring Academic Achievement Outcomes

The 20 studies yielded a total of 175 analyses exploring academic achievement outcomes of retained students relative to a comparison group of promoted students (see Table 1), of which 91 revealed statistically significant differences. Of these statistically signifi-

cant analyses, 9 favored the retained students relative to the comparison group of promoted students, whereas 82 favored the comparison group of promoted students relative to the retained students. Of the 175 analyses, 84 yielded no statistically significant differences between the retained and comparison students. Thus, 47% of the analyses favored the matched comparison group of promoted students, 5% favored the retained students, and 48% indicated no significant differences between the two groups. It also should be noted that 6 of the 9 analyses favoring the retained students reflect differences during the repeated year (i.e., second year in kindergarten) (Jimerson et al., 1997; Mantzicopoulos & Morrison, 1992; Rust & Wallace, 1993). Thus, analyses of outcomes beyond the repeated year yielded 3 analyses favoring retained students.

The 169 academic achievement effect sizes were based on the results of 18 individual studies (1,249 retained students and 1,557 comparison students). The mean ES of -.39 indicated that the retained group scored .39 of a standard deviation unit lower than the comparison promoted group (see Table 2). In examining the effect sizes for language arts, reading, math, composite scores, and grade point average, the comparison promoted group was higher in all areas (.36, .54, .49, .20, and .18, respectively). Six effect sizes for the year following retention indicated that the retained

Table 2
Mean Effect Sizes (ES)

	# of ES	# of Studies	ES Weighted by Effect	ES Holmes & Matthews (1984)	ES Holmes (1989)
Overall Effect Size	246	20	-.31	-.37	-.15
Academic Achievement	169	18	-.39	-.44	-.19
Language Arts	11	5	-.36	-.40	-.16
Reading	52	11	-.54	-.48	-.08
Mathematics	48	10	-.49	-.33	-.11
Total/Composites	13	8	-.20	na	na
GPA	45	6	-.18	-.58	-.58
Socioemotional Adjustment	77	16	-.22	-.27	-.09
Social	12	5	-.08	-.27	-.09
Emotional	13	6	-.28	-.37	.03
Behavioral	30	11	-.11	-.31	-.13
Self-Concept	16	6	-.04	-.19	-.13
Adjustment Composite	4	4	-.15	-.16	na
Attendance	2	2	-.65	-.12	-.18

Note: na = not available; Negative ES indicate outcomes in favor of the comparison promoted group; ES suggests degree of difference, interpreted in Standard Deviation units.

group scored .15 of a standard deviation higher than the comparison promoted group after completing the same grade a second time. As illustrated in Table 2, results are consistent with the Holmes and Matthews' (1984) and Holmes' (1989) meta-analyses. The distribution of academic achievement effect sizes yielded in these studies is illustrated in Figure 1. As depicted in the figure, a large portion of ES were between -.50 and 0.

Results of Analyses Exploring Socio-emotional and Behavioral Outcomes

Sixteen of the 20 studies addressed socioemotional outcomes. These 16 studies yielded 148 analyses that examined socioemotional adjustment outcomes of retained students relative to a comparison group of students (see Table 1). Of these analyses, 8 favored the retained students relative to the comparison group of students, whereas 13 favored the comparison group of promoted students. Of the 148 analyses, 127 yielded no statistically significant differences between the retained and comparison students. Thus, 9% of the analyses favored the comparison group of students, approximately 5% favored the retained students, and 86% indicated no significant differences between the two groups.

Of the 246 effect sizes computed, 77 were grouped as measures of socioemotional and behavioral adjustment (1,161 retained students and 1,651 comparison students) (see Table 2). These 77 effect sizes were computed from 16 studies and had a mean of -.22, indicating that the retained groups scored .22 standard deviation units lower than the comparison groups on these measures. The mean effect size was lower for the retained groups on each of the subareas (i.e., social, emotional, behavioral, self-concept, and ratings of adjustment ES = .08, .28, .11, .04, and .15, respectively) (Table 2). Finally, two effect sizes examining attendance indicated that retained student groups were .65 standard deviation units lower than the comparison promoted groups. As illustrated in Table 2, the effect sizes for social, emotional, and behavioral adjustment were similar to the Holmes and Matthews (1984) and Holmes (1989) meta-analyses whereas effect sizes for self-concept (-.04) and attendance (-.65) were notably different. The distribution of socioemotional and behavioral adjustment effect sizes yielded in these studies is illustrated in Figure 2. As depicted in the figure, the majority of ES were between -.50 and 0. Of the 148 analyses listed in Table 1, 60 were not included in the statistical analyses because of

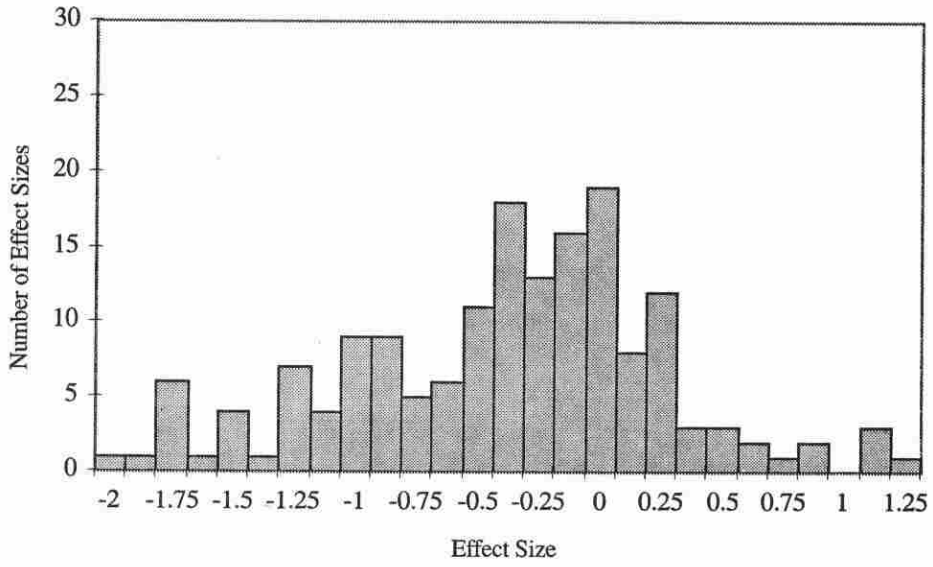


Figure 1. Distribution of academic achievement effect sizes (n = 169).

the inability to calculate an effect size (e.g., categorical variables, missing data), or because the variable was included only in a single study.

Authors' Conclusions Regarding the Efficacy of Grade Retention

Of the 20 studies exploring the efficacy of grade retention published between 1990-1999, the authors of four studies (20%) reached favorable conclusions regarding the effectiveness of grade retention (see Table 1). In contrast, authors of the other 16 studies (80%) did not report favorable conclusions regarding the efficacy of grade retention. The authors' interpretation of the results sometimes included consideration of trends in their results or additional analyses comparing retained students during the retained year relative to their achievement or socioemotional adjustment during subsequent years (what Jackson [1975] referred to as a pre-post design). For instance, Pianta, Tietbohl, and Bennett (1997) reported that when compared to themselves over a 2.5-year period, retained students showed reductions in behavior problems and increased task orientation; they concluded that although grade retention was not a clear solution for increasing competence, it was associated with decreased incompetence. Similarly, although Alexander and colleagues (Alexander et al., 1994) seemingly concluded in favor of grade retention, they also specified that retention is not a solution and remedial strategies beyond simply repeating instruction are necessary. Thus, even authors concluding in favor of grade retention propose that additional remedial strategies are important to facilitate the educational success of students.

The longitudinal duration of research regarding grade retention emerged as an important consideration in light of the results of some studies reporting relative advantages for retained students during the year immediately following retention. The results of this meta-analysis reinforce the importance of considering the longitudinal outcomes of retained students. Analyses focusing on the repeated academic year produce a mean effect size of .09 in favor of the retained students (i.e., analyses with "^" as indicated in Table 1), whereas the longitudinal results demonstrate a mean effect size of -.31. Although studies report results favoring retained students during the repeated year, initial gains often disappear and sometimes even reverse during later years when following the same sample (Holmes, 1989; Jimerson, 1999; Jimerson et al., 1997; Mantzicopoulos & Morrison, 1992).

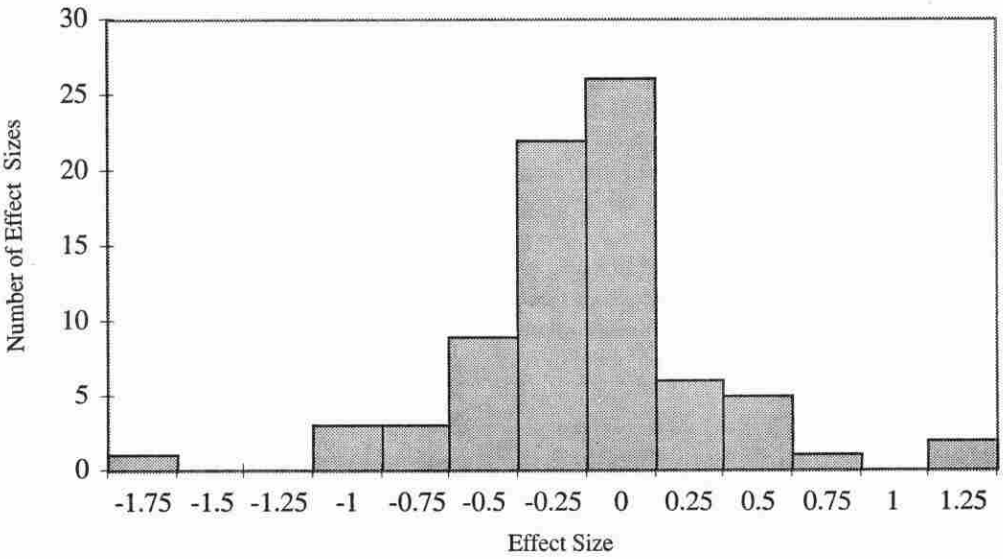


Figure 2. Distribution of socioemotional and behavioral adjustment effect sizes (n = 77).

Discussion

Summary of the Findings

Methodologically, most studies published during the past decade utilized a combination of IQ, academic achievement, socioemotional adjustment, SES, and gender to match groups or control analyses between the comparison group and the retained students. Seventeen studies examined outcomes through Grade 7, whereas 6 included outcomes during eighth grade and beyond. The majority of analyses yielded no significant differences between the retained students and matched comparison group (48% of achievement analyses and 86% of socioemotional adjustment analyses). Whereas 47% of the achievement analyses and 9% of the socioemotional adjustment analyses favored the matched comparison group, 5% of achievement and 5% of socioemotional adjustment analyses favored the retained students. Overall, the average effect size indicated that the retained groups were .31 standard deviation units below the matched comparison groups. The average effect size for academic achievement (-.39) and socioemotional/ behavioral adjustment (-.22) favored the matched comparison group. The meta-analysis indicates that the greatest differences between groups were evident on measures of attendance, reading, mathematics, language, and emotional adjustment (-.65, -.54, -.49, -.36, and -.28, respectively). Of the 20 studies comparing retained students with a matched control group, the authors of 16 (80%) concluded that grade retention is ineffective as an intervention for academic achievement and socioemotional adjustment.

The results of educational research regarding outcomes associated with grade retention described above may be further illuminated considering a transactional model of development (Jimerson, 1999). A central tenet of the transactional model is that developmental processes reflect the transactions between individuals and environments in which each is altered by the other, and that these transactions impact subsequent interactions in an ongoing continuous manner (Sameroff & Chandler, 1975). Thus, current outcomes are always a product of current circumstances and one's developmental history (Sameroff, 1992; Sameroff & Fiese, 1989; Sroufe, Egeland, & Carlson, 1999). As discussed above, there are an assortment of socioemotional and achievement outcomes associated with grade retention during elementary school. To understand the effects of education on children, we must acknowledge the transactional nature of the students' developmental history, their experiences at school, as well as other contemporaneous experiences (see Cairns & Cairns, 1994; Dryfoos, 1990; Evans & DiBenedetto, 1990; Kirsch, Jungeblut, Jenkins, & Kolstad, 1993; Kronick & Hargis, 1990; Sroufe et al., 1999; Wehlage, Smith, & Lipman, 1992 for further discussion).

The reported outcomes associated with grade retention may be a result of the confluence of factors throughout development, all of which work in an increasingly deleterious probabilistic manner over time. Rather than suggesting that grade retention inevitably leads to associated outcomes in a direct and causal manner, the transactional perspective reminds us to consider the complex interplay of individual and experiential influences across time. Clearly, there are school, family, and individual characteristics associated with the likelihood of grade retention (Jimerson et al., 1997) and these characteristics will influence subsequent development and achievement trajectories. Such characteristics have important implications when selecting appropriate remedial intervention strategies. Considering the developmental history of many retained students and assorted circumstances (e.g., low SES, single-parent households, lower cognitive scores), it is not surprising that retaining a child at grade level has failed to demonstrate long-term effectiveness on socioemotional or achievement outcomes. That is, simply having a student repeat a grade is unlikely to address the multiple factors influencing the students' poor achievement or adjustment that resulted in the decision to retain the student. It is postulated that children who are at risk as a result of poor achievement or adjustment require additional resources or services to facilitate achievement trajectories. Thus, the transac-

tional model of development provides a conceptual framework to facilitate the interpretation of achievement, socioemotional, and behavioral outcomes associated with grade retention and emphasizes the importance of considering alternative early intervention strategies.

Long-Term Outcomes Associated with Grade Retention

In their synthesis of research on grade retention, Shepard and Smith (1990) concluded, "Although grade retention is widely practiced, it does not help children to 'catch up.' Retained children may appear to do better in the short term, but they are at much greater risk for future failure than their equally achieving, non-retained peers" (p. 84). A recent review of the association between grade retention and dropping out of high school demonstrates that children retained during elementary school are at an increased risk of dropping out of high school (Jimerson, Anderson, & Whipple, 2001). One study reported that up to 78% of dropouts were retained at least once (Tuck, 1989); others suggest that grade retention increases the risk of dropping out between 20% and 50% (Bachman, Green, & Wirtanen, 1971; Jimerson, 1999). It has been reported that retained students are 2 to 11 times more likely to drop out (Cairns, Cairns, & Neckerman, 1989; Ensminger & Slusarick, 1992; Grissom & Shepard, 1989; Roderick, 1994, 1995). Grade retention has been identified as the single most powerful predictor of dropping out (Rumberger, 1995).

Considering assorted evidence suggesting short-term gains, altering of achievement/behavioral trajectories, and mixed achievement and adjustment outcomes correlated with grade retention, the striking association of grade retention and dropping out of high school has led to the statement "we've won the battle but lost the war," in reference to the long-term outcomes of grade retention (Dawson, 1998b, p. 21). Educational professionals, researchers, and politicians reviewing the efficacy of grade retention on academic success would benefit from awareness of the literature addressing the association between grade retention and dropping out.

Implications for Practice

Most educational professionals and researchers recognize that neither repeating a grade nor merely moving on to the next grade provides the necessary scaffolding to improve academic and social skills for students at-risk of academic failure. Instead, it is necessary to implement and examine remedial strategies that can facilitate academic success. Because of their unique training, roles, and responsibilities, school psychologists are in an optimal position to move educational systems and research forward, beyond the discussion of retention or social promotion in order to facilitate the educational success of all students. School psychologists are encouraged to explore alternative interventions, empirically examine the efficacy of such efforts, document merits and limitations of various strategies, and disseminate the results of current and past research to other educational professionals. During the past decade, literature relevant to the practice of school psychology has included reviews of current intervention strategies and specific suggestions to optimize student achievement trajectories (Forness, Kavale, Blum, & Lloyd, 1997; Knoff & Batsche, 1995; National Association of School Psychologists, 1998; Slavin, Karweit, & Madden, 1989). Thus, scientists and practitioners are encouraged to consider the following information in developing empirically validated early intervention programs to assist children at-risk of school failure.

Emphasizing the importance of the cumulative evidence regarding various intervention strategies, educational professionals are encouraged to consider the results of a recent *Mega-Analysis of Meta-Analyses* examining the effectiveness of interventions in special education and related services that identifies several effective intervention strategies (Forness et al., 1997). Instructional strategies producing the most powerful effect sizes in the meta-analyses were: (a) mnemonic strategies (Mastropieri & Scruggs, 1989); (b) enhancing reading comprehension (Talbott, Lloyd, & Tankersley, 1994); (c) behavior modification (Skiba & Casey, 1985); (d) direct instruction (White, 1988); (e) cognitive behavior modi-

fication (Robinson, Smith, Miller, & Brownell, 1999); (f) formative evaluation (Fuchs & Fuchs, 1986); and (g) early intervention (Casto & Mastropieri, 1986). The meta-analyses also identify several intervention strategies demonstrating little effectiveness (e.g., Feingold diet). Results of such educational research warrant further attention by school psychologists and other professionals attempting to facilitate developmental and achievement trajectories of children.

School psychologists are also encouraged by the National Association of School Psychologists (NASP) to consider alternatives to retention and social promotion (1998). NASP encourages education professionals to consider a wide array of well-researched, effective, and responsible strategies, and specifically recommends: (a) actively encouraging parents' involvement; (b) adopting age-appropriate and culturally sensitive instructional strategies; (c) establishing multi-age groupings in classrooms with teachers trained to work with mixed-age and ability populations; (d) providing effective early reading programs; (e) implementing effective school-based mental health programs; (f) identifying specific learning or behavior problems, designing interventions to address those problems, and evaluating the efficacy of those interventions; (g) providing appropriate special education services; (h) implementing tutoring programs; and (i) establishing full-service schools to provide a community-based vehicle to meet the needs of at-risk students. In addition, NASP published a handout for parents (Canter & Carey, 1998) and a handout for teachers (Canter, Carey, & Dawson, 1998) regarding retention and promotion, that highlight selective research and identify what parents and teachers may do to help children. Although a detailed description of research-based interventions is beyond the scope of this review, the information above should benefit school psychologists and other educational professionals providing leadership in helping their schools to consider effective alternatives to grade retention and social promotion.

Politics, Policies, and Progress

Political rhetoric and legislation are currently focused on increased standards and accountability. This emphasis on standards and accountability may provide an opportunity for educational professionals to implement necessary strategies to promote achievement of at-risk students. Resources are necessary to assist children at-risk and it seems the current zeitgeist may provide leverage to yield such additional resources. As "academic excellence" emerges as a prominent national issue, it is important to accept the responsibility of facilitating the progress of students who do not meet district/school/state standards. In short, student failures are society's failures. All educational professionals, families, and students must collaborate to insure that everything is done to facilitate student progress towards educational standards. Rather than focusing on whether or not to retain a child, educational professionals are encouraged to implement intervention strategies to facilitate student achievement. Given that assisting students at-risk has long been the focal point of school psychology, school psychologists may seize this opportunity to underscore the importance of appropriate remedial strategies and emphasize the responsibility of all educational professionals and families in facilitating achievement trajectories of these students.

Summary

This article reviewed research from the 1900s examining the academic and socio-emotional outcomes associated with grade retention, including a systematic summary and meta-analysis of studies published between 1990-1999. Research results published between 1990 and 1999 are very similar to findings reported during the preceding 90 years (Holmes, 1989; Holmes & Matthews, 1984; Jackson, 1975). Specifically, studies examining the efficacy of grade retention on academic achievement and socioemotional adjustment that have been published during the past decade report results that are consistent with the converging evidence and conclusions of research from earlier in the century that fail to demonstrate that grade retention provides greater benefits to students with academic or adjustment difficulties than does promotion to the next

grade. Thus, rather than encouraging further research regarding the relative efficacy of grade retention and social promotion, it seems prudent to move beyond the question "to retain or not to retain?" as we enter the new millennium. In isolation, neither social promotion nor grade retention will solve our nation's educational ills nor facilitate the academic success of children. Instead attention must be directed toward alternative remedial strategies. Researchers, educators, administrators, and legislators should commit to implement and investigate specific remedial intervention strategies designed to facilitate socioemotional adjustment and educational achievement of our nation's youth. School psychologists are in a unique position to play a critical role in encouraging educational professionals to use interventions with demonstrated effectiveness. In an era emphasizing standards and increasing accountability in education, school psychologists and other educational professionals may use the results of this study and nearly a century of research in advocating that students at-risk of academic failure are not simply retained or socially promoted in the new millennium.

References

(* indicates studies included in this meta-analysis)

Abidin, R. R., Golladay, W. M., & Howerton, A. L. (1971). Elementary school retention: An unjustifiable, discriminatory, and noxious policy. *Journal of School Psychology, 9*, 410-414.

*Alexander, K., Entwisle, D., & Dauber, S. (1994). *On the success of failure: A reassessment of the effects of retention in the primary grades*. New York: Cambridge University Press.

Bachman, J., Green, S., & Wirtanen, I. (1971). *Dropping out: Problem or symptom?* Ann Arbor, MI: Institute for Social Research.

Cairns, R., & Cairns, B. (1994). *Lifelines and risks: Pathways of youth in our time*. Cambridge: Cambridge University Press.

Cairns, R., Cairns, B., & Neckerman, H. (1989). Early school dropout: Configurations and determinants. *Child Development, 60*, 1437-1452.

Canter, A,. & Carey, K. (1998). *Retention and promotion: A handout for parents.* (Available from the National Association of School Psychologists, 4340 East West Highway, Suite 402, Bethesda, MD 20814.)

Canter, A., Carey, K., & Dawson, P. (1998). *Retention and promotion: A handout for teachers.* (Available from the National Association of School Psychologists, 4340 East West Highway, Suite 402, Bethesda, MD 20814.)

Casto, G., & Mastropieri, M. A. (1986). The efficacy of early intervention programs: A meta-analysis. *Exceptional Children, 52*, 417-424.

Clinton, W. (1998). *State of the Union Address (January 1, 1999).* Washington, DC: U. S. Government Printing Office.

Clinton, W. (1999). *State of the Union Address (January 1, 1999).* Washington, DC: U.S. Government Printing Office.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cooper, H., & Hedges, L. V. (1994). *The handbook of research synthesis*. New York: Sage.

Dawson, P. (1998a). A primer on student grade retention: What the research says. *Communiqué, 26*, 28-30.

Dawson, P. (1998b). A review of "On the success of failure: A reassessment of the effects of retention in the primary grades." *Communiqué, 26*, 20-21.

*Dennebaum, J. M., & Kuhlberg, J. M. (1994). Kindergarten retention and transition classrooms: Their relationship to achievement. *Psychology in the Schools, 31*, 5-12.

Dryfoos, J. (1990). *Adolescents at risk: Prevalence and prevention*. New York: Oxford University Press.

Dunn, L. M., & Markwardt, F. C. (1970). *The Peabody Individual Achievement Test*. Circle Pines, MN: American Guidance Service, Inc.

Ensminger, M., & Slusarick, A. (1992). Paths to high school graduation or dropout: A longitudinal study or a first grade cohort. *Sociology of Education, 65*, 95-113.

Evans, I., & DiBenedetto, A. (1990). Pathways to school dropout: A conceptual model for early prevention. *Special Services in School, 6*, 63-80.

*Ferguson, P. (1991). Longitudinal outcome differences among promoted and transitional at-risk kindergarten students. *Psychology in the Schools, 28*, 139-146.

*Ferguson, P., & Mueller-Streib, M. (1996). Longitudinal outcome effects of non-at-risk and at-risk transition first-grade samples: A follow-up study and further analysis. *Psychology in the Schools, 33*, 38-45.

Forness, S. R., Kavale, K. A., Blum, I. M., & Lloyd, J. W. (1997). Mega-analysis of meta-analyses: What works in special education and related services. *Teaching Exceptional Children, 29*, 4-9.

Fuchs, L. A., & Fuchs, D. (1986). Effects of systematic formative evaluation: A meta-analysis. *Exceptional Children, 53*, 199-208.

Glass, G. (1978). Integrating findings: The meta-analysis of research. *Review of Research in Education, 5*, 351-379.

Glass, G., McGaw, B., & Smith, M. (1981). *Meta-analysis in social research*. Beverly Hills, CA: Sage.

*Gottfredson, D. C., Fink, C. M., & Graham, N. (1994). Grade retention and problem behavior. *American Educational Research Journal, 3)*, 761-784.

Grissom, J., & Shepard, L. (1989). Repeating and dropping out of school. In L. A. Shepard & M. L. Smith (Eds.), *Flunking grades: Research and policies on retention* (pp. 16-33). London: The Falmer Press.

*Hagborg, W. J., Masella, G., Palladino, P., & Shepardson, J. (1991). A follow-up study of high school students with a history of grade retention. *Psychology in the Schools, 28*, 310-317.

Hedges, L., & Olkin, I. (1985). *Statistical methods for meta-analysis*. New York: Academic Press.

Holmes, C. T. (1984). Effect size estimation in meta-analysis. *Journal of Experimental Education, 52*, 106-109.

Holmes, C. T. (1989). Grade-level retention effects: A meta-analysis of research studies. In L. A. Shepard & M. L. Smith (Eds.), *Flunking grades: Research and policies on retention* (pp. 16-33). London: The Falmer Press.

Holmes, C. T., & Matthews, K. M. (1984). The effects of nonpromotion on elementary and junior high school pupils: A meta-analysis. *Reviews of Educational Research, 54*, 225-236.

Hunter, J., & Schmidt, F. (1990). *Methods of meta-analysis: Correcting error and bias in research findings*. Newbury Park, CA: Sage.

Jackson, G. (1975). The research evidence on the effects of grade retention. *Review of Educational Research, 45*, 613-635.

*Jimerson, S. (1999). On the failure of failure: Examining the association of early grade retention and late adolescent education and employment outcomes. *Journal of School Psychology, 37*, 243-272.

Jimerson, S., Anderson, G., & Whipple, A. (2001). *Winning the battle and losing the war: Examining the relationship between grade retention and dropping out of high school*. Manuscript submitted for publication.

*Jimerson, S., Carlson, E., Rotert, M., Egeland, B., & Sroufe, L. A. (1997). A prospective, longitudinal study of the correlates and consequences of early grade retention. *Journal of School Psychology, 35*, 3-25.

*Johnson, E. R., Merrell, K. W., & Stover, L. (1990). The effects of early grade retention on the academic achievement of fourth-grade students. *Psychology in the Schools, 27*, 333-338.

Kirsch, I., Jungeblut, A., Jenkins, L., & Kolstad, A. (1993). *Adult literacy in America: A first look at the results of the national adult literacy survey*. Report prepared by Educational Testing Service with the National Center for Education Statistics, U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Knoff, H., & Batsche, G. (1995). Project ACHIEVE: Analyzing school reform process for at-risk and underachieving students. *School Psychology Review, 24*, 579-603.

Kronick, R., & Hargis, C. (1990). *Dropouts: Who drops out and why and the recommended action*. Springfield, IL: Charles C. Thomas Publishing.

Light, R,. & Pillemer, D. (1984). *Summing up: The science of reviewing research*. Cambridge, MA: Harvard University Press.

*Mantzicopoulos, P. (1997). Do certain groups of children profit from early grade retention? *Psychology in the Schools, 34*, 115-127.

*Mantzicopoulos, P., & Morrison, D. (1992). Kindergarten retention: Academic and behavioral outcomes through the end of the second grade. *American Educational Research Journal, 29*, 182-198.

Mastropieri, M. A., & Scruggs, T. E. (1989). Constructing more meaningful relations: Mnemonic instruction for special populations. *Educational Psychology Review, 1*(2), 83-111.

*McCombs-Thomas, A., Armistead, L., Kempton, T., Lynch, S., Forehand, R., Nousianen, S., Neighbors, B., & Tannenbaum, L. (1992). Early retention: Are there long term beneficial effects? *Psychology in the Schools, 29*, 342-347.

*McCoy, A. R., & Reynolds, A. J. (1999). Grade retention and school performance: An extended investigation. *Journal of School Psychology, 37*(3), 273-298.

*Meisels, S. J., & Liaw, F. R. (1993). Failure in grade: Do retained students catch up? *Journal of Educational Research, 87*, 69-77.

National Association of School Psychologists (NASP). (1998). *Position statement: Student grade retention and social promotion*. Silver Spring, MD: Author.

Niklason, L. (1984). Nonpromotion: A pseudoscientific solution. *Psychology in the Schools, 21*, 485-499.

Niklason, L. B. (1987). Do certain groups of children profit from a grade retention? *Psychology in the Schools, 24*, 339-345.

*Phelps, L., Dowdell, N., Rizzo, F. G., Ehrlich, P., & Wilczenski, F. (1992). Five to ten years after placement: The long-term efficacy of retention and pre-grade transition. *Journal of Psychoeducational Assessment, 10*, 116-123.

*Pianta, R. C., Tietbohl, P. J., & Bennett, E. M. (1997). Differences in social adjustment and classroom behavior between children retained in Kindergarten and groups of age and grade matched peers. *Early Education and Development, 8*, 137-152.

*Pierson, L., & Connell, J. (1992). Effect of grade retention on self-system processes, school engagement and academic performance. *Journal of Educational Psychology, 84*, 300-307.

*Reynolds, A. J. (1992). Grade retention and school adjustment: An exploratory analysis. *Educational Evaluation and Policy Analysis, 14*, 101-121.

*Reynolds, A. J., & Bezruczko, N. (1993). School adjustment of children at risk through fourth grade. *Merrill Palmer Quarterly, 39*, 457-480.

Robinson, T. R., Smith, S. W., Miller, M. D., & Brownell, M. T. (1999). Cognitive behavior modification of hyperactivity-impulsivity and aggression: A meta-analysis of school-based studies. *Journal of Educational Psychology, 91*, 195-203.

Roderick, M. (1994). Grade retention and school dropout: Investigating the association. *American Educational Research Journal, 31*, 729-759.

Roderick, M. (1995). Grade retention and school dropout: Policy debate and research questions. *The Research Bulletin, 15*, 88-92.

Rose, J., Medway, F., Cantrell, V., & Marus, S. (1983). A fresh look at the retention-promotion controversy. *Journal of School Psychology, 21*, 201-211.

Rumberger, R. (1995). Dropping out of middle school: A multilevel analysis of students and schools. *American Educational Research Journal, 32*, 583-625.

*Rust, J., & Wallace, K. (1993). Effects of grade level retention for four years. *Journal of Instructional Psychology, 20*(2), 162-166.

Sameroff, A. (1992). Systems, development, and early intervention. *Monographs of the Society for Research in Child Development, 57* (6), 154-163.

Sameroff, A., & Chandler, M. (1975). Reproductive risk and the continuum of care-taking casualty. In F. Horowitz, E. Hetherington, P. Scarr-Salapatek, & A. Siegal (Eds.), *Review of child development research* (vol. 4, pp. 187-244). Chicago: University of Chicago Press.

Sameroff, A., & Fiese, B. (1989). Transactional regulation and early intervention. In S. J. Meisels & J. Shonkoff (Eds.), *Early intervention: A handbook of theory, practice and analysis* (pp. 119-149). New York: Cambridge University Press.

Shepard, L. S., & Smith, M. L. (1990). Synthesis of research on grade retention. *Educational Leadership, 47*, 84-88.

Skiba, R., & Casey, A. (1985). Interventions for behaviorally disordered students: A quantitative review and methodological critique. *Behavioral Disorders, 10*, 239-252.

Slavin, R. E., Karweit, N. L., & Madden, N. A. (1989). *Effective programs for students at risk*. Boston: Allyn & Bacon.

Sroufe, L. A., Egeland, B., & Carlson, E. (1999). One social world: The integrated development of parent-child and peer relationships. In W. A. Collins & B. Larson (Eds.), *Minnesota Symposia on Child Psychology: Vol. 30. Relationships as developmental contexts* (pp. 241-262). Mahwah, NJ: Erlbaum.

Talbott, E., Lloyd, J. W., & Tankersley, M. (1994). Effects of reading comprehension interventions for students with learning disabilities. *Learning Disability Quarterly, 17*, 223-232.

Tuck, K. (1989, April). *A study of students who left: D.C. public school dropouts*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

U.S. Department of Commerce, Bureau of the Census. (1966). *Current population reports. School enrollment: Social and economic characteristics of students*. Washington, DC: U.S. Government Printing Office.

U.S. Department of Commerce, Bureau of the Census. (1990). *Current population reports. School enrollment: Social and economic characteristics of students*. Washington, DC: U.S. Government Printing Office.

U.S. Department of Education. (1999). *Taking responsibility for ending social promotion: A guide for educators and state and local leaders*. Washington, DC: U.S. Government Printing Office.

Wehlage, G., Smith, G., & Lipman, P. (1992). Restructuring urban schools: The new future experience. *American Educational Research Journal, 29*, 52-93.

White, W. A. T. (1988). A meta-analysis of effects of direct instruction in special education. *Education and Treatment of Children, 11*, 364-374.

Woodcock, R. W., & Johnson, M. B. (1990). *Woodcock-Johnson Psycho-Educational Battery—Revised*. Allen, TX: DLM Teaching Resources.

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