



Effect of retention in elementary grades on grade 9 motivation for educational attainment[☆]

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ABSTRACT

This study investigated the effect of grade retention in elementary school on students' motivation for educational attainment in grade 9. We equated retained and promoted students on 67 covariates assessed in grade 1 through propensity score weighting. Retained students (31.55%, $n_{retained} = 177$) and continuously promoted students (68.45%, $n_{promoted} = 384$) were compared on the bifactor model of motivation for educational attainment (Cham, Hughes, West & Im, 2014). This model consists of a General factor (student's overall motivation for educational attainment), and three specific factors: student perceived Teacher Educational Expectations, Peer Educational Aspirations, and Value of Education. Measurement invariance between retained and promoted groups was established. Retained students scored significantly higher than promoted students on each specific factor but not on the General factor. Results showed that the retained and promoted students did not significantly differ on the General factor. The retained students had significantly higher scores on each specific factor than those of the promoted students. The results suggested that grade retention may not have the negative effects so widely assumed in the published literature; it is an expensive intervention with minimal evidence of benefits to the retained student.

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1. Introduction

The substantial percentage of students who leave school without a high school diploma is a major concern for educators, policy-makers, and society at large. In 2009, 8.1% of 18- through 24-year-olds had not received a high school diploma or alternative credential and were not currently enrolled in high school (Chapman, Laird & KewalRamani, 2011). Failure to attain a high school degree predicts life-long economic, occupational, social, and health disparities (Alliance for Excellence in Education, 2007; Pleis, Ward & Lucas, 2010). The decision to drop out of school is the last step of a gradual process of disengagement that begins as early as middle school and increases in high school (Alexander, Entwisle & Horsey, 1997; Englund, Egeland & Collins, 2008; Janosz, Archambault, Morizot & Pagni, 2008; Reschly & Christenson, 2013). Given the serious negative consequences of dropping out of school for the individual and for society, researchers have sought to identify factors that predict drop out in hopes of developing interventions that ameliorate risk processes.

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Retention in grade consistently predicts subsequent dropping out of school (Alexander, Entwisle & Kabbani, 2001; Bowers & Sprott, 2012). However, this association may be a result of a host of inter-related factors at the individual, family, and school levels that predict not only grade retention but also high school completion. The current study applies more rigorous statistical controls for such confounders than have been employed in prior research to isolate an effect of grade retention in the elementary grades on students' grade 9 motivation to complete high school and pursue post-secondary education.

1.1. Grade retention as a risk factor for dropping out of school

A number of studies report that students who repeated one or more grades in school are at least twice as likely to drop out of school as are students who are continuously promoted (for a review, see Jimerson, Anderson & Whipple, 2002). The association between grade retention and dropping out of school has led researchers to suggest that grade retention has a negative effect on school completion (Grissom & Shepard, 1989; Jimerson, 1999; Roderick, 1994; Rumberger, 1987). However, these studies generally failed to employ research designs that adequately controlled for pre-existing differences between students who were retained and those who were promoted (Allen, Chen, Willson & Hughes, 2009). Importantly, students are not randomly selected into the “intervention” of grade retention, and retained students differ from promoted students on a number of confounders that predict academic attainment even prior to grade retention, including low achievement, conduct problems, poor relationships with teachers, low parental involvement in school, and poverty (Barrington & Hendricks, 1989; Englund et al., 2008; Janosz et al., 2008; Roderick, 1994; Wang & Fredricks, 2014; Willson & Hughes, 2006). Thus, grade retention may be confounded with other pre-existing vulnerabilities that place students at-risk for poor academic and behavioral functioning that ultimately leads to dropping out of school. These pre-existing vulnerabilities provide an alternative explanation for why students leave school early. Next, we summarize previous research on the effect of grade retention on academic achievement and on psychosocial variables that place students at-risk for dropping out of school.

1.2. Effect of grade retention on academic achievement

Low academic performance is the strongest predictor of leaving school prior to earning a high school diploma (Battin-Pearson et al., 2000; Newcomb et al., 2002; Wang & Fredricks, 2014). Thus, research on the effect of grade retention on academic performance has the potential to clarify the association between grade retention and school dropout. Early reviews of the literature on the effects of grade retention on subsequent academic achievement concluded that grade retention had a negative effect on achievement (for meta-analytic reviews see Holmes, 1989; Jimerson, 2001; for narrative reviews see Jimerson et al., 2002; Sipple, Killeen & Monk, 2004). However, most of the studies included in these reviews are plagued by significant methodological limitations, the most important being a lack of a comparison group of promoted peers equivalent prior to retention on achievement and other variables predictive of achievement.

The importance of adequate controls for pre-existing differences between retained and promoted students was highlighted recently in a meta-analysis of studies published between 1990 and 2007 on the effects of grade retention on subsequent academic performance (Allen et al., 2009). This meta-analysis found that the studies employing more rigorous controls for student, school, and family characteristics associated with selection into the grade retention intervention were less likely to find that retention has a negative effect on achievement. Recent studies on the effect of grade retention on academic motivation and achievement have utilized modern methods of controlling for selection effects in observational studies, including instrumental variable analysis (Alet, 2010; Dong, 2010) and propensity score analysis (Dong, 2010; Goos, Van Damme, Onghena, Petry & de Bilde, 2013; Moser, West & Hughes, 2012; Wu, West & Hughes, 2008). In the first approach, instrumental variable analysis, the key procedure is to identify and measure an instrumental variable. An instrumental variable is a variable that is related only to the retention status but not directly related to the outcome variable. An unbiased estimate of the effect of grade retention is then obtained through proper statistical adjustment of the retention–outcome variable relationship using the instrumental variable (DeMaris, 2014; Morgan & Winship, 2007, chapter 7). In the second approach, a propensity score, the estimated probability that the student will be retained is calculated for each student based on a set of measured covariates. Each covariate potentially confounds the estimate of the effect of grade retention if (1) there are pre-existing (baseline) differences between the retained and promoted students on the covariate and (2) the covariate is related to the outcome variable of interest. Procedures such as matching and weighting can then be used to equate the retained and promoted students on their propensity scores (Schafer & Kang, 2008; West et al., 2014). When (a) all the true confounders are measured, (b) the distributions of the propensity scores of the retained and promoted students overlap, and (c) the propensity scores are correctly estimated, successful equating of the retained and promoted students' propensity scores theoretically implies successful equating on each of the covariates used in the calculation of the propensity score. Given that successful equating is achieved on all confounders, the propensity score analysis produces an unbiased estimate of the average effect of grade retention on students. Rubin (2001) and West et al. (2014) have emphasized the importance of attempting to identify and reliably measure all important confounding variables for inclusion in the construction of propensity scores. The propensity score analysis may have advantages over the instrumental variable analysis in some cases because it is less sensitive to violations of its assumptions and it permits probing of the likely consequences of violations of assumptions (Morgan & Winship, 2007; West et al., 2014).

In a study using the same longitudinal sample as the current study, Moser et al. (2012) used propensity score matching to equate the retained and promoted students based on a large and comprehensive set of potential confounders measured prior to any student being retained. In the retention year, the retained students performed better academically on nationally normed reading and math

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