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Effect of Retention in First Grade on Parents' Educational Expectations and Children's Academic Outcomes

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Abstract

The effect of retention in first grade (Year 1) on parents' educational expectations was tested in a sample of 530 ethnically diverse and academically at-risk children. Participants attended one of three school districts in Texas. Of the 530 children, 118 were retained in first grade. Retention had a negative effect on parent expectations in Year 2, which was maintained in Year 3. Year 2 parent expectations partially mediated the effect of retention in first grade on Year 3 reading and math achievement and child academic self-efficacy. All effects controlled for Year 1 measures of the outcome. Results were similar across gender, economic adversity, and ethnicity. Implications for minimizing the negative effect of retention on parents' expectations are suggested.

Keywords

grade retention; parent educational expectations; achievement; engagement; perceived competence; elementary students

Grade retention is a common practice in U.S. schools despite weak empirical support for its effectiveness in remediating academic underachievement (Jimerson, 2001). A recent meta-analysis of studies of grade retention from 1995 to 2007 (Allen, Chen, Willson, & Hughes, 2009) found that the overall effect of grade retention was not different from zero. Similarly, a recent study reported that students retained in first grade did not differ on fifth grade math or reading achievement scores from students at comparable risk for retention who were promoted in first grade (Moser, West, & Hughes, 2012). The authors concluded that, although grade retention may not harm students academically, neither does it bestow long-term benefits.

Consistent with developmental systems theory (Lerner, 1998), grade retention likely affects multiple processes that interact across time (Allen, Chen, Willson & Hughes, 2009). Some effects of retention on achievement, for example, may be indirect effects via retention's effects on the child's self-concept, peer relationships, or adults' educational expectations for the child. Despite the appeal of this viewpoint, a paucity of research has investigated the pathways by which retention affects achievement. As a step toward understanding such pathways, the current study investigates the short-term effect of retention in first grade on parents' expectations for their child's long-term educational attainment and the implications of such an effect for student behavioral engagement in learning, academic self-concept, and reading and math achievement two years post-retention.

Effect of parental educational expectations on achievement

Consistent with socialization models of achievement that focus on the role of parenting beliefs and behaviors on children's outcomes (Eccles & Wigfield, 2002), parents' long-term educational expectations predict elementary and secondary students' academic effort and

achievement above prior achievement and relevant demographic factors (Fan, 2001; Galindo & Sheldon, 2012; Singh, Bickley, Trivette, & Keith, 1995; Wood, Kurtz-Costes, & Copping, 2011). Parents' short-term expectations for their children's academic performance are also related concurrently to their children's academic achievement (Galper, Wigfield, & Seefeldt, 1997; Hill, 2001; Martini & Sénéchal, 2012). In a study of students in grades K-2, parents' short-term and long-term educational expectations for their children's success in school were highly correlated (r ranging from .77 to .82), suggesting they reflect similar parental values and aspirations (Mägi, Lerkkanen, Poikkeus, Rasku-Puttonen, & Nurmi, 2011).

Parents' educational expectations are sometimes viewed as a type of parent involvement in school (Fan & Chen, 2001; Lee & Bowen, 2006). However, parent expectations differ from other measures of parent involvement in school in that expectations are beliefs whereas school involvement is measured in terms of parental behavior, such as attending school conferences, helping with homework, and communicating with the teacher. Measures of parent home-based and school-based involvement are only modestly correlated ($r = .12$) with parental educational expectations (Galindo & Sheldon, 2012). When considered together, parents' long-term expectations for their children's educational attainment are more strongly related to academic achievement than are other types of parental involvement (Davis-Keane, 2005; Fan, 2001; Halle, Kurtz-Costes, & Mahoney, 1997; You & Nguyen, 2011). In a meta-analysis of the effects of different types of parental involvement on students' academic achievement, Fan and Chen (2001) found that the average correlation between parent expectations and achievement (.40) was larger than the average correlation between parent school involvement and achievement (.32). In a meta-analysis of the effect of parent involvement on achievement, Hill and Tyson (2009) found that a type of parent involvement involving academic socialization beliefs (e.g., educational expectations and values) was a stronger predictor of achievement ($r = .39$) than home-based or school-based involvement ($r = .03$).

Because parental educational level, income, and wealth are linked both to parents' educational expectations and to children's academic achievement (Zhan & Sherraden, 2003; Zhan, 2006), it is important to statistically control for parent socioeconomic status (SES) in investigating an effect of parent expectations on achievement. Studies document that parent long-term expectations predict children's achievement when measures of such parental assets are statistically controlled (Galindo & Sheldon, 2012; Reynolds & Gill, 1994; Zhan & Sherraden, 2003).

In addition to studies that statistically control for salient covariates, longitudinal studies are essential to building a strong, but not definitive, empirical basis for the proposition that parental educational expectations influence child achievement. Because parent educational expectations are predicted by children's achievement (Spera, Wentzel, & Matto, 2009), it is particularly important to investigate the effect of expectations on *changes* in children's achievement. Although some longitudinal studies fail to find an effect of parent expectations on achievement-related variables above prior achievement and relevant covariates (e.g., Goldenberg, Gallimore, Reese & Garnier, 2001), the majority of longitudinal studies do report such an effect (Englund, Luckner, Whaley, & Egeland, 2004; Reynolds & Gill, 1994; Zhang, Haddad, Torres, & Chen, 2011). For example, in a sample of third and fourth grade African American children, Halle et al. (1997) found that parent long-term educational expectations predicted children's standardized achievement scores above prior achievement scores. In a large and diverse national dataset of high school students, Fan (2001) found parental educational expectations predicted growth in academic achievement. Other researchers have demonstrated reciprocal relationships between parent expectations and achievement (Mistry, White, Benner, & Huynh, 2009; Zhang et al., 2011). For example,

Englund et al. (2004) found evidence of reciprocal effects between first and third grade for children's achievement and parent educational expectations.

Pathways from parent expectations to achievement

Several studies have sought to explain *how* parent expectations influence children's academic achievement. Consistent with conceptualizations of the role of expectancies on behavior drawn from self-efficacy and social learning theories (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996), parents with higher expectations for their children's educational performance engage in more behaviors that promote achievement than do parents with lower expectations (Davis-Kean, 2005; Halle et al., 1997). Several studies have examined parenting behaviors as one means by which parent expectations affect student achievement. In a sample of low income minority families, Halle et al. found that mothers with higher education had higher expectations for their children's future achievement and that these expectations were related both to parents' achievement-promoting behavior in the home as well as to children's positive perceptions of achievement and subsequent achievement. Similarly, in a nationally representative sample, Davis-Kean found that parent long-term expectations have an indirect effect on child achievement through child reading at home and parent-child warmth. Englund et al. (2004) found that parent educational expectations in first grade indirectly affected child achievement in third grade via changes in teacher reports of parental school involvement at grade 3.

Parent educational expectations may also influence achievement via their effect on children's achievement-related beliefs, such as perceptions of their academic competence or academic self-efficacy, as well as the value and utility of academic achievement (Halle et al., 1997; Zhang, et al., 2011). Expectancy Value Theory (Wigfield & Eccles, 2000) posits that individuals' expectations and values for achievement are influenced by their social context (e.g., parent, peer, and teacher achievement expectations and values) and their previous academic experience. Drawing from this framework, Wood et al. (2011) found that African American high school students' perceptions of their parents' educational expectations for them mediated the association between parent educational expectations and youth post-secondary educational aspirations. Gill and Reynolds (1999) found that children's perceptions of parent expectations in fourth or sixth grade uniquely predicted reading and math achievement, above socio-demographic variables, prior achievement, and parent and teacher educational expectations. Tynkkynen, Tolvanen, and Salmela-Aro (2012) found that adolescents' perceptions of their parents' educational expectations predicted their own 5-year trajectories for educational expectations.

A large body of research has shown that children's academic beliefs, including their self-perceptions of academic competence, predict higher levels of engagement in classroom learning activities and higher achievement (Eccles, Wigfield, & Schiefele, 1998). Furthermore, accumulated evidence supports the view that academic self-efficacy beliefs, although partly based on actual academic performance, also have motivating properties that propel improved academic outcomes (Guay, Larose, & Boivin, 2004; Trautwein, Lüdtke, Köller & Baumert, 2006). Students who are more confident of their academic abilities prefer more challenging learning environments, are more persistent in the face of challenges, seek academic assistance from knowledgeable others, and place a higher value on academic mastery than students with lower academic self-efficacy beliefs (Fredericks, Blumenfeld, & Paris, 2004; Skinner, Furrer, Marchand, & Kindermann, 2008). From as early as first grade, children who report higher perceived academic competence beliefs are rated by teachers as more self-directed and behaviorally engaged in classroom learning activities (Gleason, Kwok, & Hughes, 2007).

Ethnic and SES differences in parental educational expectations

Generally, parents of all ethnicities and levels of SES have high expectations for their children's educational attainment (Lee & Bowen, 2006; Spera et al., 2009). Also, across ethnic and income groups, parent expectations are concurrently related to measures of children's academic ability or achievement, with the strength of associations in the small to moderate range (Englund et al., 2004; Halle et al., 1997). However, predictors of parent expectations differ across ethnic groups. In a large sample of middle and high school students, Spera and colleagues found that the relationship between parental educational level and their educational expectations for their children were stronger for Caucasian than for African American and Hispanic parents. Specifically, Caucasian parents with lower levels of education had significantly lower educational aspirations for their children than did ethnic minority parents with similar low levels of education. The researchers suggested that minority parents with low levels of education, relative to Caucasian parents with low levels of education, may be more likely to believe that their children's intelligence is malleable or hold less realistic views of their children's actual skills and abilities.

Some researchers report that ethnicity and income moderate the relationship between parental educational expectations and objective measures of children's achievement (Alexander, Entwisle, & Bedinger, 1994; Davis-Kean, 2005; Halle et al., 1997). For example, in a sample of third through fifth graders, the benefits of high parental educational expectations were weaker among poorer children (Lee & Bowen, 2006), such that the same high level of parent expectations in poor and non-poor families was associated with lower achievement among poor children than non-poor children. These authors suggested that the difference may be due to lower levels of human, cultural, and social capital in lower income homes to translate expectations into higher achievement. However, other researchers report no ethnic or income moderation of the effect of parent involvement, including parent expectations, on achievement (for meta-analysis, see Hill & Tyson, 2009). The processes by which parent expectations influence achievement may also differ across racial and ethnic groups. In a national cross-sectional study of 8 to 12-year-old African American and Euro-American children (Davis-Kean, 2005), parent SES had an indirect effect on child achievement through parenting beliefs and behaviors for both racial groups. However, this effect was completely mediated by parenting beliefs and behaviors for African Americans, whereas for Euro-Americans SES still had a direct effect. This finding is consistent with research indicating that the relationship between wealth and achievement is stronger for Caucasian than for ethnic minority children (Sirin, 2005).

The Current Study

Purpose

The overall purpose of this study is to test the effect of retention in first grade (Year 1) on parent educational expectations for their children the following year (Year 2, when retained students are repeating first grade and promoted students are in second grade) as well as an indirect effect of retention in first grade on Year 3 child behavioral engagement in classroom learning activities, self-perceived cognitive competence, and reading and math achievement through Year 2 parent educational expectations. Given that low literacy skill is the primary predictor of grade retention in first grade (Willson & Hughes, 2009), this question is examined in a sample of students at-risk for grade retention due to low literacy scores at school entrance (see participants).

We elected to study first grade retention rather than retention at higher grades for three reasons. First, parents' perceptions of their child's ability may be more fluid in the early years of formal schooling than in higher grades. Typically, children receive letter grades for

the first time in first grade, and parents also first encounter reports of their child's performance on standardized tests of achievement. An event such as repeating first grade may have a larger effect on parents' expectations at this grade than in higher grades, when parents have a longer history of achievement to draw upon in formulating their beliefs about their child's future educational attainment. Second, children's performance on standardized tests of reading and math achievement are highly stable after third grade. Using data from the NICHD Early Child Care and Youth Development study, Pianta, Belsky, Vandergrift, Houts, and Morrison (2008) reported that 93% of the growth in reading and 76 % of the growth in math between kindergarten and fifth grade takes place by the end of third grade. Thus, social influences on changes in achievement in the early grades are likely to have implications for children's long-term educational attainment. Third, in Texas, the location of the current study, grade retention is more frequent in first grade than in any grade from kindergarten to eighth grade (Texas Education Agency, 2007). Thus, retention practices in first grade deserve careful scrutiny.

Hypotheses

The study hypothesizes an indirect effect of retention on children's academic outcomes (i.e., perceived cognitive competence, behavioral engagement, and reading and math achievement), via parental educational expectations. Specifically, we expect an indirect effect of retention in Year 1 on Year 3 child outcomes (i.e., reading and math achievement, teacher-rated behavioral engagement, and child perceived cognitive competence), via the negative effect of retention on parents' Year 2 educational expectations, controlling for Year 1 demographic variables and performance on the outcome variable. Furthermore, we expect the negative effect of retention on parent educational expectations in Year 2 will be maintained in Year 3. Based on prior research documenting racial/ethnic and income differences in the role of parent expectations on children's academic outcomes, as well as research on gender differences in the effect of parent socialization practices (Maccoby, 2007), we examine whether grade retention, parent expectations, and child outcomes operate similarly across different racial/ethnic and income groups as well as gender.

Participants and school districts

Participants were drawn from a larger sample of 784 children participating in a longitudinal study examining the impact of grade retention on academic achievement. Participants for the longitudinal study were recruited across two sequential cohorts in the fall of 2001 and 2002 from one urban (total enrollment 24,429) and two small city school districts, with total enrollments of 13,558 and 7,424, respectively. Each school district had written policies on grade retention in first grade that stated that failure to demonstrate grade level standards in achievement should be the primary consideration in decisions regarding grade retention. In accordance with state education regulations, each district assessed first grade students' literacy skills on a state-approved measure of grade-level competencies, and students had up to three opportunities to obtain a "passing" score. Performance on this test was one of several factors considered by the district in making retention decisions. Decisions regarding retention were made by a team of at least three individuals appointed by the principal that included the child's parents or legal guardian.

Children were eligible to participate in the larger longitudinal study if they scored below the median score for their school district on the first administration of the district-administered test of literacy, spoke either English or Spanish, and were not receiving special education services other than speech and language services. Of the 784 recruited children, 530 (48% female) met the following inclusionary criteria for the current study: had data on retention status in first grade, had data on parent-reported educational aspirations at baseline (before any child had been retained), was promoted in grades 2 and 3, and had data for each

outcome variable for at least one time period. Differences between the 530 included and 254 excluded children were tested using independent t-tests and chi-square difference testing ($p < .01$). No differences were found on gender or parent educational level. Excluded children were more likely to be eligible for free or reduced lunch (65% of excluded students versus 53% of included students, $p < .01$), to be non-White (75.6% of excluded students vs. 61.3% of included students, $p < .01$), and to score lower on administered measure of literacy at baseline (z scores of $-.71$ for excluded students vs. $-.60$ for included students, $p = .03$). Of the 254 excluded children, 65 were excluded due to being retained in Year 2 or Year 3. Supplementary attrition analyses demonstrated that the differences between the included and excluded children on free or reduced lunch, ethnicity, and district literacy scores were due to these 65 subsequently retained children; children excluded due to missing data did not differ from the 530 children included in the study. Thus, the analysis sample is representative of those children in the original sample who were retained in first grade or continuously promoted through grade 3.

The ethnic composition for the 530 eligible participants was 39% White, 35% Hispanic (32% enrolled in bilingual classes), 21% African American, and 5% other. At entrance to first grade, children's mean age was 6.57 ($SD = .39$), and 53% of participants received free or reduced lunch. In 41% of households, at least one parent had completed high school, and in 46% at least one parent had completed college. Children's mean Broad Reading and Broad Math age standard scores on the Woodcock Johnson III (Woodcock, McGrew, & Mather, 2001), or the comparable Spanish language test of achievement, the Bateria-III (Muñoz-Sandoval, Woodcock, McGrew, & Mather, 2005), were 97.01 ($SD = 17.97$) for Reading and 101.99 ($SD = 14.51$) for Math. A total of 118 (22%) children were retained in first grade and 412 (78%) were promoted. Table 1 presents descriptive data for analysis variables. These 530 students were enrolled in 182 classrooms (35 schools) in Year 1 and in 219 classrooms (43 schools) at Year 3. The mean (standard deviation) of the number of the retained students per school and per classroom are .23 (.24) and .20 (.35), respectively. The percentage of the retained students attending each of the 35 schools ranged from 0.8 to 11.9. Of the retained students, 44% attended one of 5 schools.

As is common in longitudinal studies with community samples, some participants were missing data on some variables. The mean proportion of missing values for the included children was 8%.

Measurement Overview

Assessments were conducted annually for three years, beginning when participants were in first grade (Year 1). IQ was assessed only at Year 1. Parent educational expectations were assessed each year. Dependent variables (math achievement, reading achievement, child perceived cognitive competence, and teacher-rated behavioral engagement) were assessed at Years 1 and 3. Teacher-reported behavioral engagement and parent-reported educational expectations were obtained from longer questionnaires mailed to teachers and parents, and both were compensated for completing and returning the questionnaires. Both Spanish and English versions of the questionnaires were mailed to parents of children in bilingual classrooms and to parents who spoke any Spanish based on teacher report. IQ and reading and math achievement scores were obtained tests administered individually at school by research staff.

Measures

Retention status

Retention status in first grade was defined as the child remaining in first grade in Year 2 of the study based on school records. Retention status in subsequent years was also based on school records or on parent report if school records were incomplete.

Parental educational expectations

Parent expectations were assessed in the spring of Year 1 and Year 2. Parents were sent a questionnaire that included the expectation item that asked “What do you expect will be the highest level of education your child will complete?” The levels were 1 (less than high school), 2 (finish high school), 3 (complete technical school or some college after high school), 4 (finish college), and 5 (complete post-graduate or professional school). Response options range from not finishing high school to post-graduate work (Englund et al., 2004; Halle, Kurtz-Costes, & Mahoney, 1997; Spera et al., 2009). This single question is the most commonly used method of assessing parents’ long-term educational expectations and has good evidence of predictive validity (Englund, et al., 2004; Lee & Bowen, 2006; Halle et al., 1997; Spera et al., 2009; Wood et al., 2011).

Teacher-rated behavioral engagement

At Year 3, teachers rated students’ behavioral engagement with an 11-item questionnaire. These items were adapted from both the teacher-completed and the student-completed ratings of student engagement (Skinner, Zimmer-Gembeck, & Connell, 1998). The behavioral engagement scale has demonstrated good factorial and predictive validity (Wu, Hughes, & Kwok, 2010). Teachers were asked to indicate the extent to which each statement was true of their student on a 1 (Not true at all) to 4 (Very true) scale ($\alpha = .93$). The items assess effort, persistence, concentration, and interest. Example items include “tries very hard to do well in school,” “concentrates on doing work,” and “wants to learn only what he/she has to in school” (reverse scored). At Year 1, teacher-rated behavioral engagement was assessed with a 10-item teacher-report scale ($\alpha = .95$) that has been equated to the Year 3 measure of teacher-rated engagement, and that has good evidence of predictive validity (Hughes, Luo, Kwok, & Loyd, 2008).

Child perceived cognitive competence

During Year 3, in individual interviews, children completed the sex-appropriate version of the Self-Perception Profile for Children (Harter, 1985). Only the Scholastic Competence scale was used. To administer the measure, the examiner presents each child with a pair of statements and asks the child to identify which statement is more like him or her. Each of the six items on the Scholastic Competence Scale of the Self-Perception Profile for Children consists of two opposite descriptions (e.g., “Some children do very well in their classwork” but “Other children don’t do very well in their classwork”). Children choose the description that is more like them and then indicate whether the description is *somewhat true* or *very true* for them. Accordingly, each item is scored on a four-point scale with a higher score reflecting a more positive self-view. The internal consistency for these six items for our sample was .63.

In Year 1, in individual interviews, children completed the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter & Pike, 1984), a downward extension of the original Perceived Competence Scale for Children that was developed for use with 4–7 year olds (Harter, 1982). The younger and older versions of the perceived competence scales used in this study differ primarily in format; the pictorial format of the

younger version was adopted to help young children identify more concretely with the tasks presented in the items, as well as to help hold children's attention. The internal consistency of the 6-item Scholastic Competence scale for our sample was .78.

Reading and Math achievement

The Woodcock Johnson -III Tests of Achievement (WJ-III, Woodcock et al., 2001) is an individually administered measure of academic achievement for individuals ages 2 to adulthood. For our purposes, we used the WJ-III Broad Reading scores (Letter-Word Identification, Reading Fluency, and Passage Comprehension subtests) and the WJ-III Broad Math scores (Calculations, Math Fluency, and Math Calculation Skills subtests). The reliability and construct validity of WJ-III scores is supported by extensive research (Woodcock et al., 2001; Grenwelge, 2009; Willson & Hughes, 2009). Analyses were conducted with Rasch-based "W" scores, which are based on a ratio scale of measurement and have the same standard deviations and standard errors of measurement at any level of measurement. Thus, they are especially well-suited to assessing change in achievement. Children who had ever been in bilingual classrooms or who had ever been identified by the schools as Limited English Proficient or Spanish speaking were administered the *Woodcock-Munoz Language Test* (Woodcock & Muñoz-Sandoval, 1993) to determine if they were more proficient in Spanish than in English. Children more proficient in Spanish were administered the *Batería -R* (Woodcock & Muñoz-Sandoval, 1996) in Year 1 and the *Batería -III* (Muñoz-Sandoval, et al., 2005) in Year 3. These tests are the parallel Spanish versions of the WJ-R (Woodcock & Johnson, 1989) and the WJ-III, and which yield comparable W scores.

Cognitive ability (IQ)

In Year 1, first grade children were individually tested at school with the Universal Nonverbal Intelligence Test (UNIT; Bracken & McCallum, 1998). The UNIT is a nationally standardized non-verbal measurement of the general intelligence and cognitive abilities of children and adolescents. We used the Abbreviated version of the UNIT that yields a full scale IQ, which is highly correlated with scores obtained with the full battery ($r=.91$) and has demonstrated good test-retest and internal consistency reliabilities as well as construct validity (Hooper, 2003; Bracken & McCallum, 1998).

Demographic variables

Child gender, ethnicity, and economic adversity (defined as income eligibility for free or reduced lunch; 0 = not eligible and 1 = eligible) were obtained from the schools. These variables were used to test whether the hypothesized structural relationships were equivalent across demographic groups.

Analyses

The hypothesized model and the analytical approach

The conceptual mediation model is presented in Figure 1. The bolded two arrows (α and β) indicate the targeted mediation effect where retention status in first grade was hypothesized to predict parent educational expectations in Year 2 (i.e., the α path controlling for the parent expectations and other covariates measured in first grade) which, in turn, further predicted different aspects of the academic achievement (i.e., WJ-III reading and WJ-III math scores) and psychosocial adjustment (i.e., teacher-rated behavioral engagement and child self-perceived cognitive competence) in Year 3 (i.e., the β path with controlling for the first grade retention status and the corresponding first grade measure) respectively.

We determined that the between school variance in retention status in first grade was ignorable given that the school level variance was not significant for all the outcome variables. Additionally, we calculated the design effect for each of the outcome variables and all of them were smaller than 2, which further supported that exclusion of the school level in the analysis would not lead to biased results and conclusions (Hox & Maas, 2002). To account for the potential dependency among the observations (students) within clusters (teachers), the hypothesized mediation model was estimated by using the Type=Complex routine in Mplus (v.6.11, Muthén & Muthén, 1998–2011) which uses MLR, the maximum likelihood estimation method with robust standard errors and a mean-adjusted chi-square statistic test. To address the missingness and to utilize all the information of available data, we analyzed all the models using the full information maximum likelihood (FIML) method using Mplus (version 6.11, Muthén & Muthén, 1998–2011) which applies the expectation maximization algorithm (Little and Rubin, 2002).

Results

Preliminary and correlational results

Table 1 provides the means as well as the correlations among all analysis variables. All correlations were in the expected direction. Retention status was associated with lower IQ and reading and math achievement, as well as lower parent expectations at Year 1. Parent educational expectations demonstrated strong 1-year stability (average $r = .77$). Reading and math achievement were moderately stable from Year 1 to Year 3 ($r = .67$ and $.66$, respectively), as was teacher-rated behavioral engagement ($r = .50$). Children's perceived cognitive competence at Year 1 and Year 3 were significantly correlated ($r = .23$). Parent educational expectations at Time 1 were significantly, but modestly, correlated with children's reading and math achievement ($r = .13$ and $.39$, respectively) and IQ scores ($r = .23$).

Model results

The same mediation model as shown in Figure 1 was fit to each of the four different outcome variables (i.e., WJ-III reading score, WJ-III math score, teacher-rated behavioral engagement, and child's self-perceived cognitive competence) separately. Despite the significant overall model chi-square test, all these models still fit the data adequately based on the model fit statistics (i.e., CFI ranged from .98 to .99 while RMSEA ranged from .05 to .09, and SRMR ranged from .01 to .03). All coefficients were statistically significant (at $p < .05$), except for the effect of children's IQ in first grade on parent expectations in Year 2.

All the coefficients presented in Table 2 are standardized. All tests of statistical significance are two-tail tests. Because we hypothesized directional effects and have a small sample size, we report p values that are $.10$, to minimize Type II errors. We describe these effects as marginally statistically significant. All analyses controlled for parent educational expectations from Year 1 as well as parent highest education level, child's IQ, and WJ-III reading and math scores in Year 1. The coefficients (or the α path in Figure 1) for the relation between retention status in first grade and the mediator, parent educational expectations measured in Year 2, were significant and very similar across all four models with different outcome variables (i.e., $\alpha_{Read3} = -.07, p < .05$; $\alpha_{Math3} = -.07, p < .05$; $\alpha_{T-Eng3} = -.06, p < .05$; $\alpha_{C-cog3} = -.07, p < .05$). These results indicate that there was a significant negative effect of grade retention in first grade on parent educational expectations the following year even after controlling for parent educational expectations and other covariates from the previous year.

The coefficients (or the β path in Figure 1) in the relation between the mediator, parent educational expectations measured in Year 2, and the targeted outcome variable measured in Year 3 were similar for all four outcome variables $\beta_{Read3} = .16, p < .05$; $\beta_{Math3} = .10, p < .05$; $\beta_{T-Eng3} = .12, p < .05$; $\beta_{C-Cog3} = .16, p < .05$), after controlling for the corresponding outcome variable measured in Year 1.

We tested the hypothesized mediation effects for all four models with the “Model Indirect” option in Mplus (v.6.11, Muthén & Muthén, 1998–2011), which adopts Sobel’s (1982) test of mediation effects. Based on the recommendations and steps proposed by MacKinnon (2008) for testing longitudinal indirect effects, we tested indirect effects for all four models, including models for which a direct effect was not found. As suggested by Shrout and Bolger (2002; also see MacKinnon, Krull & Lockwood, 2000), the significant direct effect is not a prerequisite step for testing a mediation effect. Parent educational expectations in Year 2 significantly mediated the effect of retention in first grade on the Year 3 WJ-III reading

scores (i.e., $\hat{\alpha}\hat{\beta}_{Read3} = -.54, p < .05$). The mediation effects of parent educational expectations on the relations between retention status and math achievement and the child’s perceived cognitive competence were marginally statistically significant (i.e.,

$\hat{\alpha}\hat{\beta}_{Math3} = -.19, p = .10$; $\hat{\alpha}\hat{\beta}_{C-Cog3} = -.02, p = .08$). Finally, the hypothesized mediation effect of parent educational expectation on the relation between first grade retention status

and teacher-rated behavioral engagement was not significant ($\hat{\alpha}\hat{\beta}_{T-Eng3} = -.01, p = .12$), even though the corresponding α and β paths were both statistically significant. For the models involving reading achievement, math achievement, and perceived cognitive competence, a direct effect of retention in first grade on the Year 3 outcomes was still statistically significant. Thus, parent educational expectations partially mediated the relation between the retention status in first grade and these outcomes.

Additionally, we examined whether the effect of retention in first grade on parent educational expectations was maintained in Year 3. The negative effect of retention in first grade on Year 2 parent expectations ($\hat{\beta}_{P-EXP2} = -.07, p < .05$) was maintained in Year 3 ($\hat{\beta}_{P-EXP3} = -.09, p < .05$), after controlling for parent educational expectations measured in Year 1. For the retained students, the means of their parents’ educational expectations in Year 2 and Year 3 were 3.58 and 3.54 respectively, whereas for the promoted students, the means of their parents’ educational expectations in Year 2 and Year 3 were 4.04 and 4.05, respectively.

We also tested possible gender, economic adversity, and ethnic differences on the mediation effect of parent educational expectations based on the hypothesized models. Due to the use of robust estimator, Satorra–Bentler adjusted Chi-square difference test (Satorra, 2000) was adopted to examine the possible gender, economic adversity, and ethnic group differences on the mediation effects. None of the adjusted chi-square difference tests was significant, indicating that the mediation effect of parent expectations on the relation between grade retention and all the targeted outcomes was invariant across different gender, economic adversity status, and ethnic groups.

Discussion

As expected, retention in first grade had a negative effect on parent educational expectations the following year. Furthermore, changes in parent expectations mediated the effect of retention on reading achievement and child perceived cognitive competence. Importantly, the negative effect of retention on parent educational expectations in Year 2 (the repeat year for retained children) was maintained in Year 3. Whereas some prior research has documented ethnic or income moderation of parent expectations on academic outcomes (Davis-Kean,

2005; Lee & Bowen, 2006), neither ethnicity, economic adversity, or gender moderated these effects. The fact that the current sample is an academically at-risk sample may explain the lack of racial or ethnic and income moderation. Thus, study findings apply to academically at-risk boys and girls and to ethnically and economically diverse children.

Consistent with developmental systems theory, grade retention effects varied across developmental processes and contexts. As reported in previous studies with this same longitudinal sample (Gleason et al., 2007), the short-term effect of repeating first grade is a boost to children's perceived cognitive competence and teacher-rated behavioral engagement and achievement in the classroom, relative to their low achieving but promoted same-age peers, as well as relative to their own performance during their first year of first grade. Offsetting these benefits of retention, however, is a negative short-term effect of retention on children's performance on a standardized measure of reading and math achievement and on their parents' educational expectations for them.

The positive impact of grade retention on teacher-reported engagement and achievement and child- perceived cognitive competence may be due to the change in reference group that repeating a grade entails. That is, both the retained child and his or her teachers rate the child in relation to their younger but same-grade classmates during the repeat year, whereas promoted children are compared to their same-age, same-grade classmates. For example, because children's self-regulatory abilities develop rapidly from age 3 to age 8 (Kochanska, Murray, & Harlan, 2000), it is likely that retained students improve in their self-regulation, relative to their younger, same-grade peers. Because parents of retained students are not in the classroom, they do not have a corresponding change in reference group as they estimate their child's competencies. Instead, parents of retained children are confronted with the objective reality of their child's failure to make the normative progression to the next grade. In response to this reality, parents make downward adjustments in their educational expectations. The negative effect of retention on parent educational expectations at Year 2, in turn, has a negative effect on reading and math achievement as well as on children's perceived cognitive competence. In the case of cognitive competence and behavioral engagement, this decrease in parent expectations reduces the magnitude of the positive direct effect of retention on these outcomes.

The immediate negative effect of retention on parent educational expectations persists over the following year (Year 3). Because parental influences on children are not limited to a given year but persist across years and because parent expectations are strongly stable across years (i.e., for the current sample, the average 1-year stability is .77), the downward adjustment in expectations in response to grade retention may have enduring negative effects on children's perceived cognitive competence, behavioral engagement, and achievement.

The current study tested the indirect effect of grade retention on reading achievement, math achievement, child-perceived cognitive competence, and teacher-rated behavioral engagement in Year 3, via its direct effect on parent expectations. Because the four outcomes were assessed in Year 3 (controlling for Year 1) the design does not shed light on how these outcomes interact over time. Consistent with dynamic models of development, it is likely that achievement, perceived cognitive competence, and engagement form part of a dynamic system of reciprocal causes, all of which are impacted by (and presumably impact) parent expectations. For example, using a large national dataset, Xu, Kushner Benson, Mudrey-Camino, and Steiner (2010) found that children's behavioral engagement in the classroom (persistence, effort, and attention) mediated the effect of parents' educational expectations on reading achievement. Further support for this view comes from research documenting bidirectional effects for engagement and achievement (Hughes et al., 2008),

perceived cognitive competence and achievement (Chen, Hughes, Liew, & Kwok, 2010; Wigfield & Eccles, 2000), and achievement and parent expectations (Englund et al., 2004). Because different sources of influence work synergistically to influence development, a small change in one source (e.g., parent expectations) might cascade into much larger effects (Masten, et al., 2005).

Study limitations and future research directions

Although the study statistically controlled for parents' Year 1 expectations and other relevant covariates, the design cannot account for any unmeasured factors that may affect study outcomes, such as classroom instructional practices or a measure of family socioeconomic status based on both family income and parent educational level. Thus study results should be interpreted cautiously. Also, because the current study did not directly assess parenting practices, it cannot provide information on parenting behaviors that explain the effect of parent expectations on outcomes. Nor is the study able to identify school practices, such as Response to Intervention, that may moderate the effect of retention on student outcomes. Similarly, the percentage of students that are retained in a school may moderate the effect of grade retention. Finally, our measure of economic adversity (i.e., eligibility for free or reduced lunch) may be insensitive to differences in socioeconomic status, which may account for our failure to find a moderating effect of economic adversity on study effects.

Because first grade marks a transition to a more structured learning environment and a focus on graded assignments and performance on state accountability tests, parents likely receive more "objective" information about their children's educational achievement in first grade than they had received previously. It is reasonable to assume that parents' educational expectations may change as a result of this information. Specifically, the knowledge that one's child has failed to meet academic standards for progression to the next grade may have a larger effect on parents' educational expectations at first grade than at later grades, by which time parents have amassed a large corpus of objective information about their child's educational performance. Future research is needed to determine if grade retention has a similar negative impact on parent educational expectations at different points in a child's educational progression. Additionally, future research is necessary to determine the long-term effect of grade retention on parent expectations and the pathways by which changed expectations influence achievement. These questions will be addressed in the on-going longitudinal dataset.

Implications for educational policy and practice

Recognizing that grade retention is likely to remain a common educational intervention, it is important to identify unintended negative consequences of its use that could, perhaps, be averted. Study results suggest that one unintended effect of grade retention is a downward revision in parental educational expectations. Such a negative effect may be particularly harmful in the primary grades when individual differences in learning rates have long-term consequences. Because achievement trajectories become highly stable beyond third grade (Pianta et al., 2008), even small effects on achievement during grades 1–3 have consequences for children's long-term educational attainment. One implication of the study's findings is the importance of implementing policies and practices to reduce the negative effect of grade retention on parents' educational expectations. Educators might emphasize individual differences in children's growth in some of the skills required in the first grade curriculum, such that some children require an extra year to master the curriculum.

Parents need help in understanding that individual differences in rate of growth do not foretell children's subsequent rate of learning. Stories of children who have thrived subsequent to repeating a year may be especially helpful in countering the view that repeating a grade is a sign of low academic potential. The provision to parents of progress monitoring data during the repeat year that demonstrates the child's improved performance relative to the prior year may also enhance parents' perceptions of their child as academically capable. Finally, given the persistent lack of evidence that grade retention remediates academic deficiencies, it is important to implement systems of class-wide progress monitoring and early intervention with children whose rate of learning is below classroom expectations, thereby avoiding the need for repeating the grade or advancing to the next grade without the skills necessary for success.

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Figure 1.

Hypothesized mediation model. Number at the end of each variable indicates the year period when the variable was measured. P-Exp (Parent educational expectations); P-Edu (Parent's highest education level); Read (Woodcock-Johnson III reading score); Math (Woodcock-Johnson III math score); T-Eng (Teacher-rated child behavioral engagement); C-Cog (Child's self-perceived cognitive competence).

Table 1

Descriptive statistics and zero-order correlation of analysis variables

Scale	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. RetentI	–													
2. IQ	–.16	–												
3. P-EduI	–.12	.23	–											
4. P-ExpI	–.14	.19	.43	–										
5. P-Exp2	–.20	.19	.42	.77	–									
6. P-Exp3	–.22	.21	.45	.63	.76	–								
7. ReadI	–.32	.24	.13	.10	.17	.26	–							
8. Read3	–.43	.23	.20	.21	.28	.32	.67	–						
9. MathI	–.18	.38	.39	.29	.25	.28	.44	.32	–					
10. Math3	–.45	.30	.39	.32	.29	.33	.40	.53	.66	–				
11. T-EngI	–.19	.23	.10	.14	.21	.21	.36	.36	.20	.27	–			
12. T-Eng3	.01	.19	.15	.14	.16	.16	.18	.22	.23	.23	.50	–		
13. C-CogI	–.01	.04	.01	.03	.06	.07	.19	.12	.03	.05	.21	.12	–	
14. C-Cog3	.13	.01	.10	.15	.12	.11	.10	.12	.06	.10	.16	.20	.23	–
Mean	.22	.94.17	2.88	3.95	3.94	3.94	434.97	478.39	464.18	487.25	3.29	3.4	3.43	2.76
SD	.42	14.52	1.13	.98	.96	.95	26.29	19.51	12.98	11.09	1.04	.78	.54	.68

Note. Variable naming convention: Number at the end of each variable indicates the year period when the variable was measured. P-Edu (Parent's highest education level); P-Exp (Parent educational expectations); Read (Woodcock-Johnson III reading score); Math (Woodcock-Johnson III math score); T-Eng (Teacher-rated child behavioral engagement); C-Cog (Child's self-perceived cognitive competence). Non-italicized correlations are significant at $p < .05$ (two-tailed).

Table 2

Standardized parameter estimates for direct and indirect effect of retention in first grade in the mediational model (N=530)

Outcomes	Read3	Math3	T-Eng3	C-Cog3
	Estimates (SE)	Estimates (SE)	Estimates (SE)	Estimates (SE)
Direct Effect				
τ (Retent1 $\rightarrow$ Outcome)	-.20(.04)**	-.32(.04)**	.13(.06)**	.17(.05)**
α (Retent1 $\rightarrow$ P-Exp2)	-.07 (.03)**	-.07 (.03)**	-.06 (.03)**	-.07 (.03)**
β (P-Exp2 $\rightarrow$ Outcome)	.16 (.04)**	.10 (.03)**	.12 (.04)**	.16 (.05)**
Corresponding Measure 1 st Grade	.58(.04)**	.59(.03)**	.50(.04)**	.23(.04)**
Covariates on P-Exp2				
P-Exp1	.71 (.04)**	.71 (.04)**	.70 (.04)**	.70 (.03)**
P-Edu1	.12 (.03)**	.12 (.03)**	.13 (.04)**	.12 (.03)**
IQ	.02(.03)	.02(.03)	.02(.03)	.02(.03)
Read1	.08(.04)**	.08(.04)**	.08(.04)**	.08(.03)**
Math1	-.06(.04)*	-.06(.04)*	-.07(.04)*	-.06(.04)*
Indirect Effect [†] ($\alpha\beta$)	-.54(.27)**	-.19(.12)*	-.01(.01)	-.02(.01)*
Model fit				
Chi-Square (<i>df</i>)	6.67(4)	20.38(4)	14.70(6)	13.39(6)
CFI	.99	.98	.99	.99
RMSEA	.05	.09	.06	.05
SRMR	.01	.02	.03	.02

Note: All *p* values are 2-tail tests.

**
p < .05,

*
.05 < *p* .10.

[†]Based on the unstandardized coefficients.

Variable naming convention: The "3" at the end of each variable name refers to Year 3. T-Eng (Teacher-rated child behavioral engagement); C-Cog (Child's self-perceived cognitive competence)