Grade Retention at the Transition to Secondary School: Using Propensity Score Matching to Identify Consequences on Psychosocial Adjustment

Cécile Mathys[1], Marie-Hélène Véronneau[2], Aurélie Lecocq[3]

[1]*University of Liège, Belgium*

[2]*Université du Québec à Montréal, Canada*

[3]*University of Ottawa, Ontario, Canada*

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Abstract

This study tested whether grade retention at the transition into secondary school had a significant impact on adolescent psychosocial adjustment. A quasi-experimental design was used in which propensity score matching was implemented. Univariate ANCOVAs were subsequently run on a subsample of 181 students enrolled in 1 typical secondary school in the French-speaking region of Belgium (M = 12.91 years, 55.8% girls). These analyses revealed that retained students experienced decreases in self-esteem, perceived parental support for competence and involvement in the relationships with their parents, and intrinsic and extrinsic motivation variables. Retained students also failed to show the decrease in delinquent and aggressive behaviors and social withdrawal that was observed in matched promoted students. In sum, grade retention appears to be detrimental to early-adolescence psychosocial adjustment. To decrease rates of grade retention among adolescents, change is needed in parents', school staff's, and policymakers' preconceptions that the practice has overall positive outcomes.

Keywords: grade retention, psychosocial adjustment, secondary school, school transition, propensity score matching

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The years individuals spend in secondary school represent a crucial period in human development. The direction they take during this time on the basis of their individual choices or on decisions that influential adults make for them can have a long-lasting impact on their life trajectory during adulthood. In particular, choices that will influence their academic career, such as dropping out of school instead of finishing high school and perhaps going on to college, can determine whether they will live in poverty or have a sustainable job during their adult life, with important consequences for their own well-being and that of their children (Salvatore & Markowitz, 2014).

At the transition to secondary school, students experience a period of change as they need to adjust to new environmental, social, and psychological contexts (Pratt & George, 2005; Zeedyk et al., 2003). Periods of transition may have a significant impact on child development (Eccles & Roeser, 2011; Measor & Fleetham, 2005; Warin & Muldoon, 2008). Although the majority of young people successfully adapt to their new school environment, some students encounter difficulties during this transition that can be a major source of stress. In turn, stressful events may trigger adjustment issues at the transition to secondary school, especially among adolescents who do not benefit from family or individual protective factors (Lipps, 2005; Lord, Eccles, & McCarthy, 1994; Terrisse, Larose, & Lefebvre, 2001). Some school-related turning points, such as being promoted or retained at the end of a school year, may not seem as dramatic as the decision to drop out of school, but they could have more serious consequences than parents and educators may think when they make this decision for the student. Indeed, grade retention has consistently been ranked by early adolescents among the most stressful life events

that could happen to them (Anderson, Jimerson, & Whipple, 2005; Yamamoto & Byrnes, 1987). Reasons evoked by teachers for using grade retention vary widely, and although some of them are merely constrained to apply administrative policies, many believe that retention will help students do better academically (Tomchin & Impara, 1992; Witmer, Hoffman, & Nottis, 2004). We sought to understand its impact on aspects of students' life other than academic achievement by using modern analytic techniques designed to assess intervention effects. The goal of this study was thus to use a quasi-experimental design to test for the effect of grade retention shortly after the transition from elementary to secondary school on students' psychosocial adjustment. Because the French Community in Belgium has a relatively high rate of grade retention, this population was particularly relevant to help us answer our research questions.

Prevalence of Grade Retention in Belgium and in other Countries

Rates of grade retention vary greatly across countries, regions, and even schools, because criteria for holding a student back differ across contexts, as do the individuals involved in the decision (parents, teachers, or principals) and the beliefs about its positive or negative consequences. This variability can be observed among countries that are members of the Organisation for Economic Co-operation and Development (OECD, 2010). Some of these countries use grade retention parsimoniously, with fewer than 5% of students being retained (e.g., Denmark, Czech Republic, Sweden, the United Kingdom). Higher rates of grade retention by the end of secondary school are observed in North America, with 8.4% in Canada and 14.2% in the United States. However, other countries have very high rates of grade retention, at about 35% to 37% (e.g., France, Luxembourg, Portugal, Spain). Belgian students have one of the highest rates of grade retention among OECD countries (34.9%), and this is particularly true for the French Community of Belgium, which has 149% more secondary school students who are

behind in their schooling than does the Flemish Community (Eurydice, 2011). According to Hubin (2012), one French-speaking Belgian student in five has been retained by the end of elementary school, and half of students from this community have repeated at least one grade by the end of secondary school. Because of this situation, the French Community of Belgium has recently been called "the world champion" of grade retention (Baye, Chenu, Crahay, Lafontaine, & Monseur, 2014).

In the French Community of Belgium, retaining a student means that he or she repeats the entire grade, in a new class. This is also how we operationalized the concept of grade retention in this study. Each Belgian school can set its own criteria for deciding which students should repeat a grade. These markers may include students' academic progress throughout the school year, prognosis for future school adjustment, global evaluation by school staff (teachers, principal, and professionals), and absenteeism, but also family situation, behavioral issues, competence, and general developmental levels. The class council, consisting of teachers, the school's admission committee, and the school principal, is responsible for deciding if a student should be promoted or retained. An external advisory council can also help evaluate the student's situation to reach a decision or to settle the case if parents do not agree with the decision made by the school (Eurydice, 2011). The decision to retain a student is thus taken seriously by the school community; however, there is evidence that some students experience detrimental consequences afterward.

Many studies conducted with American students have revealed that grade retention in early adolescence has a negative impact on educational attainment (Allensworth, 2005; Jacob & Lefgren, 2009; Kaufman & Bradby, 1992; Ou & Reynolds, 2010). Most of those studies also revealed that retention had a more detrimental impact when it occurred in early adolescence

rather than earlier in life. Nevertheless, many other important developmental milestones, in addition to academic accomplishment, must be achieved during adolescence, including maintaining positive self-esteem, developing a healthy motivation to learn, managing behavior and emotions that can lead to externalizing and internalizing problems, and achieving positive interpersonal adjustment in one's relationships with peers and parents (Lerner & Steinberg, 2009a, 2009b). Few studies have directly assessed the impact of grade retention on these outcomes, but the studies reviewed in the following sections suggest that psychosocial adjustment is likely to be affected.

Psychosocial Impacts of Grade Retention in Early Adolescence

Most research about early grade retention has documented its impact on students' psychosocial adjustment during the elementary school years. For example, out of the 20 studies on American students published between 1990 and 1999 and retained for Jimerson's (2001) meta-analysis, only four examined grade retention that occurred after Grade 6. We cannot assume that results from studies about the impact of grade retention in childhood will necessarily generalize to adolescent students, especially with regard to the psychosocial consequences of grade retention.

Early adolescents' increasingly sophisticated reflection about themselves and others can be very useful in many aspects of their life, but it can backfire and adversely affect their psychological well-being following grade retention, as suggested by various theories. According to the self-determination theory (Deci & Ryan, 2000; 2014), human well-being and healthy motivation (e.g., intrinsic motivation) are nourished by the fulfillment of three fundamental psychological needs: the need for competence, autonomy, and relatedness. Students' feeling of competence can be affected by grade retention because retained students may come to believe

that they are the least academically competent students within their peer group. Moreover, because students usually have little to say about the decision of grade retention, their feelings of control over the situation may be affected, and thus their need for autonomy is not satisfied. In addition, the fact that their parents were unable to provide adequate support for them to master the material and to move forward in their program of study, either directly or by seeking extra help outside of the family, may have shaken their trust in their parents and possibly in teachers and other school professionals, thus affecting their sense of relatedness. Last, being disconnected from one's peer group as classmates are promoted to the next grade can also affect the fulfillment of retained students' need for relatedness in the peer and school settings.

The labeling perspective (Becker, 1963) also accounts for the possible negative impacts of grade retention on psychosocial outcomes in early adolescence. This theory predicts negative attitudes toward those who differ in some way from culturally agreed-upon norms. If grade retention is perceived as a "deviant" situation among the school community or society, students may interpret being retained as being stigmatized and thus may feel rejected by peers and teachers. Although this theory was first introduced many years ago, it has been used to guide recent work on grade retention and to set forward the hypothesis that retained children would develop negative feelings about themselves (Hong and Yu, 2008).

In sum, even though the consequences of grade retention on adolescent psychosocial adjustment are still obscure, there are theoretical grounds for anticipating a negative impact associated with failing a grade. Furthermore, as we illustrate in the following section, studies about more broadly defined experiences of school failure suggest that early adolescents' psychological adjustment, including self-esteem, motivation, externalizing and internalizing problems, perception of parental support, and peer victimization, are likely to suffer from grade

retention.

Self-esteem. Rosenberg (1965) provided one of the most widely used definitions of *self-esteem:* "an individual's sense of his or her value or worth, or the extent to which a person values, approves of, appreciates, prizes, or likes him or herself" (p. 15). In the school context, self-esteem contributes to academic motivation and school adjustment (Lescarret, Léonardis, Oubrayrie, & Safont, 1998). Several studies using American samples have concluded that younger children who experienced grade retention in primary grades (Alexander, Entwisle, & Dauber, 1994; Shepard & Smith, 1990; Thomas et al., 1992) and junior high school (see meta-analysis by Holmes & Matthews, 1984) were more likely to suffer from low self-esteem and to be negatively perceived by parents, teachers, and peers. These consequences are maintained in the long term, with associations between grade retention and self-esteem enduring into adolescence, at least for American and Australian youth (Anderson et al., 2005; Jimerson, 2001; Jimerson, Carlson, Rotert, Egeland, & Sroufe, 1997; Jimerson & Kaufman, 2003; Martin, 2011). Correlations were also found between secondary school students' self-esteem and their mathematics achievement in Guana (Emmanuel, Adom, Josephine, & Solomon, 2014) and in Brunei (Hamid, Shahrill, Matzin, Mahalle, & Mundia, 2013).

School motivation. Studies of student motivation use a variety of definitions and measurements for this concept. Keeping this challenge in mind, we focused our review on studies that used a self-determination framework. This theoretical framework facilitates the connection of empirical results regarding different types of motivation (intrinsic, extrinsic, and amotivation) to students' experiences in the school (Deci & Ryan, 1985; Vallerand et al., 1992). In their study of grade retention among Portuguese students attending middle school (14–16 years old), Rosário, Núñez, Valle, Gonzalez-Pienda, and Lourenço (2013) studied how retention

affected the students' self-efficacy for using self-regulated strategies when learning academic material. They found a small but significant negative relation between grade retention and self-efficacy. Using a sample of Australian high school students ages 12 through 18 years who participated in a cross-sectional study, Martin (2011) found a negative relation between the experience of grade retention at any point in the past and adaptive motivation, a construct that encompasses several indicators of self-determined motivation. However, this association was not maintained after controlling for gender, grade, ethnicity, and student academic ability. In contrast, a robust negative association emerged between grade retention and maladaptive motivation, a construct related to amotivation—that is, the perception that academic activities are completely imposed upon oneself by external forces. This association was maintained even when controlling for the aforementioned individual characteristics by including them as covariates or by creating a subsample of matched participants among the promoted students.

In a study of French students (16 years old), Rouxel and Brunot (2010) found that achievement motivation was lower for students who were going to be retained, even before they were aware of the school decision concerning their retention, thus suggesting that a lack of self-determined motivation may increase risks of retention. This study also showed that upon learning that they were going to repeat their current academic year, students experienced a decline in academic ambition and future orientation, possibly indicating a negative impact of retention on some aspects of students' motivation. Such a decline appears to be temporary because students who were currently repeating their academic year and were about to be promoted experienced an increase in their future orientation. Longitudinal studies that use measures of student self-determined motivation are still lacking, however, and complete assessments are needed of

students' intrinsic motivation, extrinsic motivation, and amotivation both before and after grade retention to identify specifically which aspects can be affected by this event.

Externalizing and internalizing problems. Studies that have examined the effects of grade retention on externalizing and internalizing problems have shown contradictory results. In the field of child psychology, the distinction between externalizing and internalizing disorders is well documented (Achenbach, 1978). *Externalizing behavior problems* refers to children's negative behaviors in their external environment, such as disruptive, hyperactive, and aggressive behaviors. In contrast, children may also develop internalizing problems, such as depression, anxiety, or withdrawal, which affect the child's internal psychological experience. Based on research conducted with American samples, most past studies show no significant effects of grade retention on externalizing problems among students up to age 14 (Alexander, Entwisle, & Dauber, 2003; Jimerson et al., 1997; McCoy & Reynolds, 1999). Along the same lines, long-a term study of American students by Darney, Reinke, Herman, Stormont, and Ialongo (2013) found no relation between academic skills in Grade 1 and problem behavior in Grade 12.

Nevertheless, one study found that among French-Canadian children, grade retention was a stigmatizing situation that could increase aggression and oppositional behavior until age 12 (Pagani, Tremblay, Vitaro, Boulerice, & McDuff, 2001). Similarly, grade retention could increase externalizing behavior problems for American children retained in kindergarten (Pianta, Tietbohl, & Bennett, 1997). A recent study showed that Belgian students retained in secondary schools were more likely to break the rules and show deviant behaviors than their promoted counterparts (Demanet & Van Houtte, 2013). A study by Metsäpelto et al. (2015) also suggests that low academic performance in Grades 1 and 2 can lead to externalizing problems in Grades 3 and 4 among Finnish students. At least one study showed that grade retention is a generally

preferable alternative to suspension and expulsion and that grade retention reduces rebellious behavior in Grades 6 and 7 and increases attachment to school for African American males (Gottfredson, Fink, & Graham, 1994).

A negative effect of grade retention on internalizing symptoms was found in several longitudinal studies. However, it is interesting to note that many studies did not control for the initial level of students' characteristics or school performance. We present here methodologically sound papers that have used appropriate control variables. Jimerson et al. (1997) found poorer emotional adjustment in American sixth graders who had experienced grade retention in early elementary school. Pagani et al. (2001) found similar results in 12-year-old French-Canadian students. Also among French-Canadian students, Quiroga, Janosz, Bisset, and Morin (2013) reported that the number of retained years correlates with seventh grade students' depressive symptomatology, which in turn increases their risk of dropping out of school before the normal age of secondary school graduation. Hong and Yu (2008), who used propensity scores to control for selection bias in their sample of American children, found that grade retention in kindergarten was followed by an improvement with regard to internalizing behavior problems, as self-reported by the pupils two years later. Age differences in participants from these various studies may have contributed to discrepant results.

Students' perception of parental support.

Parents' autonomy-supportive behaviors include acknowledgment of children's perspectives, encouragement of their autonomy and initiations, and provision of meaningful rationales for performing less interesting activities (Ryan & Deci, 2009). Findings from several studies show that perceiving one's parents as supportive of one's autonomy fosters adolescents' school persistence, academic achievement, self-determination, well-being, career decidedness,

and intrinsic motivation to learn and school engagement (Chirkov & Ryan, 2001; Guay & Vallerand, 1997; Grolnick, Friendly, & Bellas, 2009; Guay, Senécal, Gauthier, & Fernet, 2003; Hardre & Reeve, 2003; Soenens & Vansteenkiste, 2005).

These studies clearly show that parental behavior can influence students' academic achievement or adjustment; however, parental involvement was used as a predictor (instead of a consequence) of school difficulties, and these studies do not look specifically at grade retention as an indicator of school problems. The few studies that have focused on the effects of school failure on parental involvement have shown mixed results. For example, Shumow and Miller (2001) found that American parents report having provided more direct assistance for homework to early adolescents who do poorly in school than to those who do well (see also review by Eccles & Harold, 1996). In contrast, Domagala-Zyśk (2006) showed that Polish adolescents who failed in lower secondary school perceived less involvement from their parents (e.g., spent less time on conversations, including school discussions) than did students who succeeded at school. However, it was not clearly specified if adolescents with school failure problems had been retained or not. More recently, Im, Hughes, Kwok, Puckett, and Cerda (2013) used propensity scores to investigate the effects of grade retention in the transition from elementary to middle school on parent educational expectations and found that grade retention in Grade 1 had a long-term negative effect on parent educational expectations. The negative effects on parent educational expectations were maintained for the 2 consecutive years following the grade retention in this American sample.

Peer victimization. Victimization by peers can take various forms (Craig & Harel, 2004). Peer victimization may include physical (e.g., hitting, beating up), verbal (e.g., mocking, harassment, name calling) and relational aggression (e.g., gossip, social exclusion; Cole, Cornell,

& Sheras, 2006; Crick, Casas, & Ku, 1999). Verbal and relational victimization may appear in the school setting and/or through electronic media (Tokunaga, 2010).

Because the vast majority of peer victimization occurs at school (Reijntjes, Kamphuis, Prinzie, & Telch, 2010), the impact of victimization on school adjustment is concerning. However, researchers have conceptualized victimization by peers as both a predictor and an outcome of poor academic adjustment. For example, Hawker and Boulton (2000) conducted a meta-analysis on over twenty studies from nine western countries and found that school adjustment is affected by peer victimization through the associated stress that exerts a negative impact on school performance. In their meta-analysis including thirty-three studies from North America, Asia and Europe, Nakamoto and Schwartz (2010) confirmed this link and showed a small but significant correlation between peer victimization and academic achievement. Moreover, Kowalski and Limber (2013) found than among early and late American adolescents (Grades 6 to 12), the subgroup of youths who were both victims and bullies presented the poorest academic performance. Galand and Hospel (2013) showed that peer victimization was negatively associated with academic self-efficacy (viewed as a proximal predictor of achievement) in a sample of early adolescents in the French region of Belgium (Grades 7 and 8).

Even if some studies have explored the possibility that school difficulties are a possible predictor of peer victimization (Luciano & Savage, 2007; Walker & Nabuzoka, 2007), few studies have specifically examined the link between grade retention and peer victimization. Crothers and colleagues (2010) showed that according to teacher ratings, American students from primary and secondary schools who were older than their grademates either because they had been retained or because of delayed school entry were more likely to be bullies than were their peers who were in an age-appropriate grade in school. Results from another study with

Colombian students in Grades 5 to 9 reported that being an older student in a class was associated with a higher risk of becoming a bully (Chaux & Castellanos, 2015). Despite a few results suggesting that peer victimization may be a consequence of grade retention, failure to use appropriate statistical techniques (e.g., absence of baseline for peer victimization) is an obstacle to identifying significant results in these studies.

Summary. The studies presented thus far describe psychosocial outcomes of adolescent academic issues broadly defined, but they suggest that grade retention after the transition to secondary school can have detrimental consequences on psychosocial outcomes in early adolescence. To confirm whether negative outcomes typically occur following grade retention at this age, several factors must be taken into account, including developmental differences in student populations from various studies (secondary school, primary school, kindergarten), differences in the education systems of the countries where these studies were conducted, and in particular, the quality of controls for third-variable effects. So far, methodological limitations and associated biases have represented sizable obstacles to evaluating the efficacy of grade retention to improve students' achievement and adjustment. In fact, ethical concerns make it impossible to test for causal effects of grade retention in a traditional experimental design: It would be unethical to randomly assign similar students attending the same grade level to either grade retention or promotion. Therefore, in a real-life context, characteristics of retained students are different from those observed in promoted students, which may bias any evaluation of grade retention effects. Nevertheless, an innovative technique has recently been used in a few studies as a way to control for such biases (Goos, Van Damme, Onghena, Petry, & de Bilde, 2013; Hong & Yu, 2008; Im et al., 2013; Wu, West, & Hughes, 2010). These studies were conducted with samples of elementary school students and used propensity score matching (PSM), a quasi-

experimental technique that enables researchers to control for the different characteristics of promoted and retained students when assessing the impact of grade retention. We applied this technique in our study to assess the impact of grade retention on psychosocial outcomes in a sample of early adolescents.

Research Goal and Hypotheses

In our study, we investigated the effects of retention that had occurred in the first two grades of secondary school on adolescents' self-esteem, motivation, behavior problems, relationship with parents, and peer victimization. We matched retained students and promoted students by using propensity score procedures that created comparable nonrandomized groups (Rosenbaum & Rubin, 1983). Because students were assessed again at the beginning of the next school year, we were able to examine the short-term effects of retention. By using these methodological improvements, we sought to address many of the limitations from prior research and to provide a clearer picture of the effects of grade retention at the transition between primary and secondary school.

We tested the hypothesis that students who experienced grade retention shortly after the transition to secondary school would encounter more psychosocial issues than would matched students who were promoted. Specifically, according to the self-determination (Deci & Ryan, 2000) and labeling (Becker, 1963) theories, we predicted that retained students would fail to maintain or fail to improve their psychosocial adjustment in terms of adaptive outcomes (e.g., self-esteem, motivation, interpersonal relationships) or experience an increase in maladjusted behavior (e.g., externalizing or internalizing symptoms, peer victimization).

Method

Participants and Procedure

The sample was drawn from a recent, larger longitudinal investigation of adolescent development that included 458 students from the first and second grades of one typical secondary school in the French-speaking area of Belgium (which correspond to the seventh and eighth years of schooling, excluding kindergarten), ages 11 to 16 years (M = 13.8 years, SD = .89, 54% female). Approximately 70% had been born to Belgian parents and the remainder was of Turkish, Moroccan, Spanish, or Italian descent. We used Wave 1 (spring 2012) and Wave 2 (autumn 2012) data for the main analyses. Among these 458 students and from Wave 1 to Wave 2, 42 students have been identified as repeating a grade.

Prior to data collection, letters describing the study were sent to the parents of all adolescents. Parents who did not want their child to participate were asked to return a signed form (less than 1% of parents did so). Undergraduate students trained as research assistants briefly described the study to all students in the participating classrooms, obtained written consent, and assured students that their responses were confidential and would not be shared with parents or school officials. One research assistant per class administered surveys collectively, and a member of the school faculty (usually the teacher for that particular class) was present. Because some students were absent on the day of data collection (e.g., because they were sick), research assistants returned to the school at another time to administer the questionnaires to them. Thus, we have an excellent response rate (91% of participation).

Measures

All measures were validated and administered in French. Participants completed these measures at each wave and provided background information about their gender, age, cultural background, and mother's employment. We also obtained grades for the mathematics and French subjects and the number of unjustified school absences (not covered by a medical certificate)

from official school records. Finally, we used several standardized tests and self-report measures (see Table 1 for descriptives). We used most of these measures for our two main analyses (PSM and univariate ANCOVAs); exceptions are specified below.

Self-esteem. Participants completed Rosenberg's Self-Esteem Scale (Vallières & Vallerand, 1990). Among available scales, Rosenberg's is by far the most widely used (Blascovich &Tomaka, 1991; Gray-Little, Williams, & Hancock, 1997). The psychometric properties are reported to be strong (Byrne, 1996; Gray-Little et al., 1997; Robins, Hendin, & Trzesniewski, 2001), and empirical support related to school outcomes has been demonstrated (Legault, Green-Demers, & Pelletier, 2006; Morin, Maïano, Marsh, Nagengast, & Janosz, 2013). This scale includes 10 items (e.g., "On the whole, I am satisfied with myself") rated on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*), $\alpha = .81$.

School motivation. The Academic Motivation Scale (Vallerand, Blais, Brière, & Pelletier, 1989; Vallerand et al., 1992) is a three-dimensional scale. Students were asked, "Why do you attend school?" and a list of 28 possible answers followed, which students were asked to rate on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Numerous studies have supported the factorial, convergent, and divergent validity and the internal consistency of this scale (Vallerand et al., 1989; Vallerand et al., 1992, 1993). The first dimension was used to assess intrinsic motivation and included three scales: Intrinsic Motivation Knowledge (four items, including "Because I experience pleasure and satisfaction while learning new things," $\alpha = .84$), Intrinsic Motivation Accomplishment (four items, including "For the pleasure I experience while surpassing myself in my studies," $\alpha = .79$), and Intrinsic Motivation Stimulation (four items, including "For the high feeling that I experience while reading about various interesting subjects," $\alpha = .80$). The second dimension was used to measure extrinsic

motivation and included three scales: Identified Regulation (four items, including "Because eventually it will allow me to enter the job market in a field I like," α = .76), Introjected Regulation (four items, including "To prove to myself that I can do better than just a high school degree," α = .82), and External Regulation (four items, including "In order to get a more prestigious job later on," α = .75). The final dimension evaluated amotivation (four items, including "Honestly, I don't know; I really feel that I'm wasting my time in school," α = .83).

Internalizing and externalizing problems. We used the Youth Self-Report (Achenbach & Rescorla, 2001) to assess internalizing and externalizing problems on a 3-point Likert scale ranging from 0 (*not true*) to 2 (*very true*). Because of the limited time we had to administer our measures in class, we followed the lead of Sullivan, Jones, and Mathiesen (2010) and chose five out of eight subscales. The subscales we used were the most relevant to our research questions in the context of school: Withdrawal (eight items, including "I am secretive or keep things to myself," α = .64), Anxiety and Depression (13 items, including "I feel too fearful or anxious," α = .77), Attention Problems (nine items, including "I feel confused or in a fog," α = .74), Aggressive Behaviors (17 items, including "I get in many fights," α = .83), and Delinquent Behaviors (15 items, including "I steal from places other than home," α = .82).

Parental support. Students' perceptions of parental support were measured on a 7-point Likert scale ranging from 1 (*never*) to 7 (*always*; Pelletier, 2000). This measure has been shown to display adequate psychometric properties (i.e., factorial structure, construct validity, and reliability; Pelletier & Otis, 2002). The 21 items included three dimensions: support for autonomy (six items, including "My parents give me opportunities to make my own decisions," α = .75), support for competence (10 items, including "The feedback I receive from my parents is constructive in helping me perform better," α = .74), and involvement in the relationship (five

items, including “My parents spend a lot of time and energy to help me in what I do,” α = .79).

Socio-educational environment of the schools. We used the Socio-Educational Environment of Schools Questionnaire (Janosz & Bouthillier, 2007), a measure that includes 166 items and is based on three subscales: School Climate, Educational and Organizational Practices, and Magnitude of Apparent Academic and Social Problems in the School. This measure has been validated with more than 70,000 students from 159 secondary schools in the province of Québec, Canada (Janosz et al., 2007). Contrary to how we used other measures, we did not use all subscales of the school climate questionnaire for the main analyses because we focused on psychosocial adjustment. However, we used several of the subscales from this questionnaire as control variables for the estimation of propensity score. Measures that were used only in the PSM procedure included relational climate (α = .87), security climate (α = .50), belonging climate (α = .89), educational climate (α = .91), behavior management in class (α = .54), time wasted in class (α = .75), establishment of discipline (α = .81), family–school collaboration (α = .70), accessibility to drugs (α = .57), perceived violence of minor severity (α = .65), perceived violence of major severity (α = .70), gang offenders (α = .58), and possession of firearms in school (no α; single item). The victim of violence measure subscale (α = .71) was used for univariate ANCOVAs but not for PSM. The indicators used to assess each of these aspects were measured with close-ended questions with response options that varied according to the nature of the question (e.g., frequency, degree of appreciation).

Analytic Strategy

The goal of this study was to measure the effects of grade retention on a set of adjustment variables. However, it was not possible to directly compare retained and promoted students because the two groups differed on a number of initial characteristics that existed before

experiencing grade retention. To measure the net effects of grade retention, it was necessary to perform a preliminary step, the PSM procedure, which adjusted for selection bias by creating two groups of comparable students on the basis of a set of initial variables (before grade retention). One group included students who ended up repeating the grade they were in at the first time of measurement, and the other group included students who were promoted. The PSM also provided a probability of grade retention for each participant according to a set of initial characteristics, thus ensuring the comparability of retained and promoted students and correcting for their initial differences.

In the second step, the effects of retention on psychosocial adjustment were estimated using univariate ANCOVAs (Rutherford, 2011). The effect of grade retention (predictor variable) was estimated from the magnitude of change in outcome variables from the first assessment (used as a covariate) to the second assessment (dependent variable).

The propensity score is thus estimated from the first data collection (prior to retention), in several steps. The approach is not purely linear, and shuttling between these steps is often necessary. In the first step, we identified factors related to retention. The second stage was devoted to the estimation of propensity scores. In the third step, the quality of estimated propensity scores was assessed. Finally, we determined the area of common support. Only after these steps were conducted could we establish valid propensity scores, which we used to match the students. In the end, propensity scores made it possible to pair up each retained student with five promoted students on the basis of their similarity in propensity score values. Students who could not be matched or those who did not provide valid data on the second assessment were not included in subsequent analyses, such that ANCOVAs were based on a ratio of about four promoted students for each retained student. The matching procedure made it possible to build a

"control group" of promoted students who were comparable to the "treatment group" (i.e., retained students) (Abadie & Imbens, 2005; Caliendo & Kopeinig, 2008; Dehejia, 2005; Dehejia & Wahba, 2002; Imbens, 2004; Smith & Todd, 2001).

Results

Propensity Score Matching

Retained and promoted students differed in their baseline characteristics. Preliminary tests used to compare group means showed that the two groups differed on 19 out of 26 variables tested (see Table 1), thus justifying the use of PSM to reduce biases in estimating the effects of retention.

Propensity scores were estimated using the "pscore" command in Stata (Becker & Ichino, 2002). We introduced into the model the 26 variables described in Table 1. After different specification search, we elected to exclude the prior retention from the propensity score estimation. Conceptually, using the prior retention variable in a model that explains the current retention, along with the other 26 variables, presented a risk of overadjustment. We specified three options: logistic regression to estimate propensity scores, verification of propensity score stratification balance with eight blocks, and limitation of analysis to the common support.

The common support area was extensive, ranging from 0.0035 to 0.9965 with a possible range of 0 to 1, thus indicating good comparability of the two groups. When looking below and above these limits, we found no counterfactual, that is, none of the students with identical propensity scores were in opposite groups. The wide range of the common support area provided sound support for the use of PSM. This procedure was performed using the "psmatch2" command in Stata (Leuven & Sianesi, 2012). The matching method chosen is the "1:*n*" matching, without caliper, based on the common support, where each treated (retained)

participant is matched to *n* different comparison participants. We tried different specification (from 3 to 10 comparison participants for each treated participant) and performed sensitivity analysis to compare the quality of the matching. We retained 1:5 matching, as it was most efficient in reducing initial differences between the two groups.

We then checked that matching reduced the difference between retained and promoted students (see Table 1). We first examined the reduction in bias from the unmatched toward the matched sample for each variable and found a clear bias reduction for all of them. In particular, the bias reduction is higher than 80% for 16 variables out of 26, and higher than 50% for 22 variables. We furthermore examined the statistical significance of the differences in each variable between the two groups of students after the matching. It is worth noting that for all but two variables, the p-values of the mean differences were well above any reasonable rejection rate ($p>0.40$). The cultural origin and the attention problems variable are still statistically non-significantly different across the two students group at $p=0.10$.

Descriptive Statistics of the Matched Sample

After PMS procedure, the final sample consisted of 181 youths who showed comparable baseline characteristics (see Table 2). More precisely, 36 students (from the 42 students who repeated a grade) [1] were matched with 180 promoted students on the basis of their propensity score (from these 180 promoted students, only 145 had sufficient valid data on outcome variables to be retained in the final analyses).

This sample (n=181) comprised 55.8% girls and 44.2% boys, with an average age of 12.91 years at the beginning of the study (*SD* = .84). Prior to their involvement in this study, 28.2% of our sample had repeated one or more grade; however, there was no significant

[1] Only 6 retained students (9.2%) could not be matched because they were outside of the area of common support.

difference between the control and treatment groups on this variable, $\chi^2(3) = 1.94$; $p = .58$: 11 participants from the treatment group and 40 from the control group had experienced grade retention prior to this study.

With regards to socioeconomic status, 44.2% of the 181 students' mothers had middle-status occupations (e.g., office employees, small business owners), 8.3% of mothers had high-status occupations (e.g., executive officers), whereas 22.1% of mothers were retired. Also, 25.4% of mothers were unemployed or homemakers (including 10 students_5.5%_ who didn't know the mothers' professional status). Although 4.4% of students had been born abroad, 14.4 % of participants did not have Belgian nationality and more than one third had at least one parent of foreign origin.

Univariate ANCOVAs

Univariate ANCOVAs were conducted to test whether grade retention predicted a significant change in students' psychosocial and behavioral adjustment between Year 1 (before grade retention) and Year 2 (while the previous school year was being repeated, for those who had been retained). Descriptive analyses on the variables of interest are provided in Table 2. Specifically, each ANCOVA included the main effect of promotion status (coded 0 for promoted students and 1 for retained students) as a predictor and the main effect of the variable of interest in Year 1 as a covariate. The dependent variable was the variable of interest in Year 2. Overall, three patterns were observed (see Table 3). Two of them apply to outcomes that were affected by grade retention and show that retained students do not fare as well as their promoted counterparts. A first set of psychosocial outcomes became poorer at the second assessment for retained students ("deterioration for retained students") and a second set of outcomes improved for promoted students but not for their retained peers ("failure to thrive for retained students").

The third pattern of results applies to variables that did not change significantly from Time 1 to Time 2 in any of the two groups ("variables unaffected by grade retention"). Table 3 presents the main effect of students' promotion status after controlling for the variable of interest measured in Year 1. Significant effects mean that repeating a grade affect the variable of interest (deterioration or failure to thrive). The effect of the variable of interest in Year 1, used as covariate, was significant in all analyses but these results are not presented in Table 3 to enhance its clarity. We estimated effect sizes with partial eta squared. As pointed by Richardson (2011), Cohen's guidelines for interpreting the size of effects using eta squared is .0099 for small, .0588 for medium, and .1379 for large effect sizes. Finally, we addressed the possible increase in the risk of type I error by controlling for the false discovery rate following from repeating the ANCOVA procedure with many different outcomes (Bejamini & Hochberg, 1995). All of the significant results that were obtained were maintained after applying this correction.

Aspects of adjustment negatively affected in retained students. A deterioration in psychosocial adjustment was the most common pattern at play in this study to explain differences between retained and promoted students at Time 2 (see Table 3). In fact, out of the eleven variables that were affected by grade retention, eight presented this pattern: self-esteem, competence support and involvement into relationships with parents, intrinsic motivation for knowledge and stimulation, as well as identified, introjected and external regulation for extrinsic motivation. The failure to thrive pattern was observed for three outcomes: social withdrawal, aggressive behaviors, and delinquent behaviors.

Aspects of adjustment unaffected by grade retention. For some variables, change over time followed similar patterns for promoted and for retained students, thus suggesting that grade retention did not affect those aspects of functioning. This was the case for one aspect of parental

support for autonomy, student intrinsic motivation for accomplishment, amotivation, anxiety and depression symptoms, attention problems, and peer victimization.

Discussion

The goal of this study was to test whether grade retention that occurs shortly after students' transition into secondary school might have a significant impact on their psychosocial adjustment, using a quasi-experimental design in which we implemented propensity scores to identify a group of promoted students who were comparable to a group of retained students with respect to their baseline behavioral, psychological, academic, and familial characteristics.

Univariate ANCOVAs revealed that retained students experienced significant negative impacts on their psychological well-being and social relationships for 11 out of the 17 outcomes of interest. Specifically, we found a deterioration of retained students' self-esteem, and a decrease in their perception of their parents' support for competence and involment in their relationship. Also, we observed that social withdrawal, aggressive behavior and delinquent behavior failed to decrease over time, as they did for promoted youth, with effect sizes ranging from moderate to large. Yet, longer-term studies are necessary to verify whether negative impacts of grade retention are enduring, but also to assess whether aspects of adolescent development that were not affected by grade retention remain unaffected over time. In fact, it is plausible that grade retention have sleeper effects.

The self-determination theory (Deci & Ryan, 2000) can help make sense of our findings. Although past research has not examined the specific impact of grade retention on immediate shifts in self-esteem among adolescents transitioning into secondary school, the results of this study are consistent with findings from previous work that looked at the long-term impacts of grade retention in early grades (e.g., Alexander et al., 1994). It might be that for students of

comparable academic competence, those who get promoted are somehow protected against an implicit feedback of inadequacy coming from trusted adults, such as teachers, school professionals, and parents, thus helping them to maintain their self-esteem. In contrast, the need for feeling competent and supported by one's social surrounding may be affected among retained students, as shown by our finding that retained students perceived their parents to be less supportive of their competence after grade retention occurred and to be less involved in helping them with academic tasks. Among parental support variables, the change in students' perception of their parents' support for autonomy did not differ across retained and promoted students. A plausible explanation is that the development of autonomy during early adolescence is far from circumscribed to the school context, and may in fact be even more relevant to out-of-school settings (e.g., seeking parents' permission to go out with friends outside of adult supervision; deciding of their own leisure activities). Thus, the perception of autonomy support from parents would be less likely to be affected by school-related events like grade retention than the other aspects of the parent–adolescent relationship. In support of this hypothesis, Table 2 shows that both retained and promoted students perceived a decrease in their parents' autonomy support between the two times of measurement, thus suggesting that they all wish for more autonomy than what is granted by their parents in early adolescence. Adolescents' struggle to progressively become less dependent on their parents is in fact well documented (Barber & Olsen, 2004; Fousiani, Van Petegem, Soenens, Vansteenkiste, & Chen, 2013). Therefore, perceptions of support and involvement from school staff may be relevant and should be examined in future studies (see Spilt, Hughes, Wu, & Kwok, 2012). Finally, our results suggest that the experience of grade retention has an impact, at least in the short-term, on students' motivation and self-regulation strategies related to learning, development of knowledge and projections into their

future professional plans. However, in contrast with other aspects of intrinsic motivation, grade retention did not affect the change in students' intrinsic motivation for accomplishment. When looking at the items used to measure this variable, these appear to be more strongly tied to one's fundamental values (e.g., the willingness to transcend one's capabilities), than items from other subscales included in our motivation measure (e.g., the excitement felt when reading on interesting topics). Answers to questions that are heavily dependent on one's values are probably less likely to be affected by life events like grade retention than answers that relate more directly to the feelings experienced when engaging in school activities. This explanation is consistent with the fact that all extrinsic motivation subscales—which are very much tied to immediate rewards (or lack thereof) embedded in the school experience—were all significantly affected by grade retention (see Table 3).

The fact that delinquent and aggressive behaviors did not decrease for students who had to repeat their first or second year of secondary school—whereas it did for matched promoted students—may be explained by the competition for high social status occurring in a newly formed peer group. When arriving at a new school, students need to establish their social status, and various forms of aggression are used to climb the social scale (Shi & Xie, 2012; Xie, Dawes, Wurster, & Shi, 2013). Once the peer group hierarchy is clearly set, aggressive behaviors are less necessary because students are less likely to challenge each other to establish dominance. We could expect the overall peer group hierarchy to be quite stable in the following years of secondary school. However, students who are retained in the first and second years of secondary school would need to go through this process again, and thus they may maintain levels of aggressive behaviors that are higher than those observed among their promoted peers. This effect was probably stronger in our study than in research based in some other countries because in

Belgium, retained students repeat the entire grade rather than repeat only the classes they have failed. Thus, students who repeat a grade may use delinquent and aggression behaviors to promote an "older-student" status and to rehabilitate their self-esteem that has been damaged by grade retention. This suggests that grade retention only has a temporary impact on students' delinquent and aggression levels, but longer-term studies are necessary to verify whether aggressive behavior of retained students declines to normative levels in the following years.

These results are consistent with those reported by Chaux and Castellanos (2015), who showed that for early and middle adolescents from Colombia, being older is a risk factor for being a bully, for being stigmatized, and for being considered as deviant. Moreover, Crothers and colleagues (2010) observed that old-for-grade students reported more bullying behavior than did their age-appropriate grademates. Our results, along with high levels of social withdrawal for our retained students, suggest that such social dynamics may be at play in our sample as well. Even if students from our sample, retained and promoted ones, demonstrated comparable levels of peer victimization six month later, future studies are needed to assess the links between grade retention and bullying, especially the profile of reactive aggressive bullies (Salmivalli, 2002). Future studies could also be useful to test if this result is observed in countries and in schools where retained students are held back only for specific classes, thereby earning course credits rather than repeating an entire grade.

Enduring Prevalence of Grade Retention

Although grade retention should be considered a last-resort strategy to use only in exceptional circumstances (Brophy, 2006), its prevalence is still quite high in many countries, especially when no official guidelines exist to describe it as an exceptional measure. In many OECD countries, more than one third of students have experienced it, including in France,

Luxembourg, Portugal, Spain, and Belgium (OECD, 2010). In our sample of students who had just entered secondary school, more than one quarter of them had already experienced grade retention.

These numbers prompt one to question why grade retention is still commonplace if empirical research has shown that it has negative effects on several academic and psychosocial aspects of students' life. Considering the beliefs of the first actors involved in this decision, that is, parents and teachers, may help answer this question (Rose & Gallup, 1999; Xia & Glennie, 2005). Many teachers consider grade retention to be a new opportunity offered to the student, not a penalty (Cornec, 2006). In this regard, Pouliot and Potvin (2000) provide an overview of French-Canadian teachers' beliefs with regard to grade retention. It is interesting to note that 81.2% of participating teachers surveyed believed that retention helps prevent academic failure in the following grades. In addition, the teachers believed that retention helps immature students catch up with other students, that it does not harm their self-esteem, and that it does not lead to behavior problems. For the same reason, parents do not dispute teachers' suggestion of retaining a student.

In line with the labeling theory and the results from this study, grade retention may be experienced as sensitive for students, as indicated by their clinical drop in self-esteem and their stable levels of social withdrawal, associated with aggressive and delinquent behaviors. This situation may constitute an obstacle to students' feelings of belonging to their class, making it difficult to achieve social integration in school and to maintain a healthy self-image (Crahay, 2007). Thus, as Crothers and colleagues (2010) pointed out, choosing grade retention as an intervention designed to address academic difficulties may inadvertently have iatrogenic effects and interfere with the acquisition of other developmental competencies.

Implications for Practice

Grade retention is frequently seen as a simple solution to students' academic challenges and sometimes the only conceivable option. However, alternative solutions could be implemented early on, in particular, preventive options, such as extra support for students with low school performance, summer school, after-school programs, and strategies to increase parent involvement. A meta-analysis that integrated the results from 93 evaluations of summer school effects showed that programs focusing on remedial or accelerated learning have had a positive impact on participants' knowledge and skills (Cooper, Charlton, Valentine, & Muhlenbruck, 2000), and that parent involvement was related to program effectiveness. A study by Peterson and Hughes (2011) also shed light on schools' typical use of extra support for at-risk students by comparing first-grade students who were retained with low-achieving students who were promoted to second grade, using propensity scores. They found that retained students had received fewer instructional supports during their preretention year and also during the repeated year than did their promoted peers. This finding suggests that retained students may be deprived of important support.

Considering that grade retention is an enduring practice that teachers seem reluctant to abandon, concrete steps can be taken to protect students who repeat a grade. Concurrent to retention, it would be beneficial to provide psychological support for students, especially to avoid a significant drop in self-esteem and to help them develop their social skills. In fact, Reijntjes and colleagues (2013) showed that developing socially competent behaviors (e.g., sharing, cooperation, persuasion) may help students gain or maintain a dominant position in the peer group. This kind of behavior is preferable to aggressive behaviors, which were observed among retained students in this study, and which increase stigmatization in the peer group.

Parents should be especially careful to support early adolescents' skill development and their motivation following grade retention. For examples, retained students could be encouraged to engage in unevaluated and concrete learning activities to help them maintain their intrinsic motivation to acquire knowledge. Along the same lines, providing instructional support to these students could help them develop more efficient working methods, among other benefits.

In addition to providing additional support to students who repeat a grade, it is also important to inform teachers, principals, and parents about the effects of grade retention. Several strategies could be implemented to disseminate scientific results more widely, through the training of future teachers and distributing informational brochures to teachers and parents.

In Belgium, a step has been made in this direction, with a recent approach launched in middle secondary schools called *individual plan of learning* (Ministre de l'Enseignement obligatoire, 2012). Grade retention should no longer be an option for students in the first year of secondary school. All students could be automatically promoted to the second year and could receive individual support if needed. Unfortunately, this proposition is only applicable to the first grade of secondary school; grade retention is still possible for the following grades.

Strengths, Limitations, and Directions for Future Research

Past research that has compared adjustment outcomes of promoted students with those observed in retained students is limited by potential biases resulting from selection effects or limited comparability of the two groups. By using propensity scores to match retained students and promoted students, we were able to control for many important background variables (including earlier experience of grade retention). Although six retained participants could not be matched to any promoted students, they differed from their matched counterparts only in terms of their higher social withdrawal and their lower academic achievement, which suggests that our

results regarding differences between retained and promoted students may be slightly conservative, rather than inflated.

A majority of studies that have focused on grade retention have emphasized its effects on academic or achievement outcomes (Hong & Raudenbush, 2005; Lorence, 2006; Wu, West, & Hughes, 2008a, 2008b). Although academic achievement is relevant to economic and social concerns (Heckman, 2006), the psychosocial well-being of students also deserves attention. One of this study's strengths is its consideration of psychosocial outcomes and the estimation of effect sizes for each outcome. Effect sizes are especially important because they enable us to estimate the extent to which effects are visible. As such, information was gained not only about statistical significance, but also about potential clinical significance (Cohen, 1992), which may help reduce the gap between research and practice. Unfortunately, this gap is prevalent in the grade retention field (Xia & Glennie, 2005). In our study, the most significant pattern for retained students is associated to stable levels of social withdrawal, aggressive and delinquent behaviors. We observed also significant drop in self-esteem as well in perceived parental support for competence and involvement into the relationship (e.g., taking care, helping and spending time with children). These clinical profiles should be screened for and addressed by school psychologists when following students post grade retention.

This study focused on the beginning of adolescence and investigated effects of grade retention during the transition to secondary school. As Wu and colleagues pointed out in their study (2010), many important changes in psychosocial outcomes arise at this point (Pratt & George, 2005; Zeedyk et al., 2003). The inclusion of a wide range of variables is another aspect of our study that can substantially contribute to the understanding of the psychosocial outcomes of grade retention.

Despite this study's contributions, it presents some limitations. First, this study used only two waves of data. Students were assessed during the first semester, only a few months following the experience of grade retention. Therefore, we were able to examine the short-term effects of grade retention, but we do not know if the observed results will be maintained in the long term. Research has shown that when retained students are compared with their same-age peers, who are in the next-higher grade, effects of grade retention that are negative in the short term may become more stable or positive over time (Wu et al., 2008a). In addition, this study design did not allow us to investigate the effects of grade repetition on school dropout, which is hypothesized to be one of its most important consequences (Rumberger, 1995). Future research should investigate the long-term effects of grade retention, especially in the context of transition to secondary school.

A second limitation is the restricted number of retained participants in the final sample did not allow us to take gender into account, so that we could not investigate the consequences of grade retention for boys and for girls separately. In general, boys are more likely to be retained than girls are (Dauber, Alexander, & Entwisle, 1993; Gottfredson et al., 1994), and that disproportion is especially true in the French Community of Belgium (Baye et al., 2014; Hubin, 2012). Finally, because all participants were drawn from a single secondary school, the generalizability of findings is limited. In addition, this caveat makes it impossible to assess the impact of school-level variables on the likelihood or on the impacts of grade retention (e.g., resources for weaker students; student–teacher ratio; hierarchical structure; school size; sociocultural factors, such as language; proportion of minority students in the school; for more details about grade retention and school-level variables, see Demanet & Van Houtte, 2012.) Future studies involving a representative sample of Belgian schools may contribute to

understanding specific impacts of the decision-making process and of social and academic experiences during the repeated year on students' adjustment. Nevertheless, this school was representative of the school system in the French Community of Belgium, with similar rates of grade retention: In our overall sample, 42 out of 458 students (9.2%) had experienced grade retention during their first and second grades in this secondary school, which was the case for 11.7% of first grade students in secondary schools of the French Community of Belgium and 9.8% in the second grade in 2012–2013 (Baye et al., 2014).

Conclusions

Our study provides support for the hypothesis that retaining students who have just transitioned to secondary school leads to deterioration of their psychological well-being and prevents them from improving their behavior. Our matching procedure based on propensity scores makes it unlikely that observed deteriorations resulted from third-variables effects that reflected preexisting vulnerability factors displayed by the retained students. Parents, teachers, school administrators, and also politicians should use empirically based information about the effects of grade retention and thus be open to changing their beliefs and practices related to this issue. They would do well to discuss recent findings about retention with their peers in a way that disputes the enduring and biased preconceptions that grade retention is a positive practice, because more often than not it is a stressful and negative event for most students.

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Table 1. Means Comparison Before and After Propensity Score Matching and Bias Reduction

Variable	Sample	Mean		Bias (%)		*T*-Test	
		Treated	Control	Bias	Reduction	*T*	*P*
Gender	Unmatched	.49	.57	-17.4		-1.04	0.29
	Matched	.47	.47	1.1	93.6	0.05	0.96
Age	Unmatched	13.05	12.94	14.1		0.76	0.45
	Matched	13.03	13.01	2.2	84.5	0.09	0.93
Cultural origin	Unmatched	.54	.72	-38.5		-2.39	0.01
	Matched	.55	.67	-23.2	39.6	-0.94	0.34
Mother employment	Unmatched	6.07	5.33	33.6		2.19	0.03
	Matched	5.91	5.75	15.7	53.4	0.66	0.51
Academic performance	Unmatched	43.85	63.93	-203.6		-10.58	0.00
	Matched	45.19	44.88	3.1	98.5	0.20	0.84
Absenteeism	Unmatched	3.12	0.85	37.3		2.73	0.00
	Matched	2.52	0.30	-8.2	78.0	-0.23	0.81
Self-esteem	Unmatched	29.54	30.57	-19.7		-1.15	0.25
	Matched	29.81	30.62	-15.5	21.3	-0.67	0.51
Amotivation	Unmatched	9.95	7.64	53.8		3.41	0.00
	Matched	9.75	9.98	-5.6	89.6	-0.22	0.82
Anxiety and depression	Unmatched	7.29	6.56	16		0.94	0.35
	Matched	6.97	6.51	10.1	36.8	0.51	0.61
Social withdrawal	Unmatched	5.12	4.28	30.4		1.88	0.06
	Matched	4.81	4.5	11.1	63.6	0.49	0.63
Attention problems	Unmatched	8.85	6.41	66		4.05	0.00
	Matched	8.58	7.35	33.1	49.8	1.44	0.15
Delinquent behaviors	Unmatched	6.82	3.69	72.6		5.13	0.00
	Matched	6.55	5.93	14.4	80.1	0.54	0.59
Aggressive behaviors	Unmatched	12.68	8.95	60.5		4.02	0.00
	Matched	12.44	11.19	20.3	66.7	0.83	0.41
School climate	Unmatched	3.64	4.15	-69.9		-4.45	0.00
	Matched	3.71	3.77	-9.3	86.7	-0.36	0.72
Relational climate	Unmatched	3.57	3.77	-23.8		-1.36	0.17
	Matched	3.58	3.61	-3.2	86.7	-0.14	0.89
Belonging climate	Unmatched	3.94	4.79	-69.6		-4.79	0.00
	Matched	4.07	4.19	-9.9	85.8	-0.39	0.70
Security climate	Unmatched	3.51	3.77	-36.9		-2.37	0.01
	Matched	3.58	3.63	-7.6	79.4	-0.3	0.77
Behavior management in class	Unmatched	3.50	3.87	-64.9		-3.9	0.00
	Matched	3.54	3.55	-1.7	97.4	-0.08	0.94
Establishment of discipline	Unmatched	2.46	2.93	-46.5		-2.8	0.00
	Matched	2.52	2.49	3.9	91.6	0.18	0.85
Family–school collaboration	Unmatched	3.81	4.11	-35.2		-2.13	0.03
	Matched	3.81	3.75	11.0	68.9	0.44	0.67
Accessibility to drugs	Unmatched	0.62	0.32	40.5		2.64	0.00
	Matched	0.59	0.58	1.5	96.2	0.06	0.95
Perceived violence of minor severity	Unmatched	0.76	0.58	24.4		1.48	0.14
	Matched	0.71	0.71	1.2	95.2	0.05	0.96
Perceived violence of major severity	Unmatched	0.36	0.23	27.6		1.94	0.05
	Matched	0.32	0.32	0.8	97.2	0.03	0.97
Gang offenders	Unmatched	1.62	1.47	13		0.76	0.44
	Matched	1.71	1.68	2.4	81.2	0.1	0.92
Educational climate	Unmatched	3.91	4.64	-68.7		-4.4	0.00
	Matched	4.04	4.15	-10.2	85.1	-0.44	0.66
Possession of firearms in school	Unmatched	0.54	0.21	35.4		2.67	0.00

	Matched	0.58	0.45	13.8	61.0	0.49	0.62

Table 2. Descriptive statistics

Variable		Before grade retention (Time 1)		After grade retention (Time 2)	
	Students	Mean	S.-E	Mean	S.-E
Self-esteem	Promoted	29.41	4.83	30.66	5.93
	Retained	29.81	5.01	27.69	6.71
Intrinsic motivation: knowledge	Promoted	13.97	3.5	12.39	4.26
	Retained	12.39	3.70	9.86	4.35
Intrinsic motivation: accomplishment	Promoted	12.00	3.81	11.39	4.40
	Retained	11.67	4.2	10.14	4.71
Intrinsic motivation: stimulation	Promoted	9.70	4.45	9.37	3.43
	Retained	9.5	3.96	7.97	4.21
Extrinsic motivation: identified	Promoted	18.00	2.33	16.26	3.71
	Retained	16.06	3.74	13.03	4.56
Extrinsic motivation: introjected	Promoted	14.41	4.81	13.66	4.94
	Retained	14.22	3.92	11.39	4.85
Extrinsic motivation: external regulation	Promoted	17.84	2.07	17.61	2.83
	Retained	16.78	3.37	15.33	4.77
Amotivation	Promoted	9.99	4.81	8.22	4.04
	Retained	9.75	4.29	9.61	4.51
Social withdrawal	Promoted	4.69	2.42	2.79	2.25
	Retained	4.81	2.83	4.5	3.33
Anxiety and depression	Promoted	6.51	3.71	5.59	3.75
	Retained	6.97	3.91	6.94	4.8
Attention problems	Promoted	7.73	3.06	6.73	3.72
	Retained	8.58	3.92	8	4.43
Aggressive behaviors	Promoted	10.30	5.94	6.94	4.38
	Retained	12.44	6.95	12.38	7.5
Delinquent behaviors	Promoted	5.93	4.67	3.84	3.09
	Retained	6.56	5.09	7.39	4.94
Autonomy support	Promoted	32.32	7.98	28.99	5.86
	Retained	29.31	7.95	25.86	9.67
Competence support	Promoted	52.39	9.49	50.68	10.81
	Retained	48.31	11.43	41.5	11.74
Involvement in the relationship	Promoted	27.01	6.41	26.63	5.9
	Retained	25.14	7.76	22.19	8.73
Victim of violence	Promoted	0.26	0.57	0.31	0.44
	Retained	0.39	0.55	0.24	0.51

Table 3. Effects Showing How Variables Were Affected by Grade Retention Over One Year

	df1, df2,	*F*	*p*	η^2	*B*	*SE*
Variables affected by grade retention						
Pattern 1: Deterioration for retained students						
Self-esteem	1, 178	10.76	.00	.06	3.21	.98
Competence support	1, 178	14.72	.00	.08	6.81	1.77
Involvement in the relationship	1, 178	14.38	.00	.07	3.92	1.04
Intrinsic motivation: knowledge	1, 178	6.75	.01	.04	2.04	.78
Intrinsic motivation: stimulation	1, 178	4.41	.04	.02	1.35	.64
Extrinsic motivation: identified	1, 178	9.05	.00	.05	2.08	.69
Extrinsic motivation: introjected	1, 178	6.54	.01	.03	2.29	.90
Extrinsic motivation: external regulation	1,178	9.90	.02	.05	1.99	.63
Pattern 2: Failure to thrive for retained students						
Social withdrawal	1, 178	13.64	.00	.07	-1.69	.46
Aggressive behaviors	1, 178	28.20	.00	.14	-4.91	.93
Delinquent behaviors	1, 178	20.91	.00	.10	-2.90	.63
Variables unaffected by grade retention						
Autonomy support	1, 178	2.67	.10	.01	1.78	1.09
Intrinsic motivation: accomplishment	1, 178	1.21	.27	.01	.92	.84
Amotivation	1, 178	2.34	.13	.01	-1.06	.07
Anxiety and depression	1, 178	0.94	.33	.00	-.62	.63
Attention problems	1, 178	1.42	.23	.08	-.72	.61
Victim of violence	1, 178	1.31	.25	.01	.09	.08

SE = standard error of B